



## Listing of variables by category

Version (last update)      2012-04-18

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| = New/amended      2012-04-18  
⋮ = New/amended      2011-11-09  
⋮ = New/amended      2011-05-03

### Priorities

1 = Mandatory	3 = May be used
2 = Recommended	4 = Old variable (not for new development)
0 = Normally not within the category	

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description	
1	FILETYPE	1	string	Text	4	Filetype: text string as per application	
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)	
		*	3	string	text	1	Code page character set, ISO-code
			4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
2 *	ID	1	string	Text	1	The identity of the apt-file	
		2	string	text	3	The name of the apt-file	
3 *	MCHNNO	1	string	Text	3	Machine number	
		*	2	String	Text	2	Unique machine identity for each company, for example used when using the harvester to measure for payment.
4	TERMINAL	1	string	Text	3	Identification and/or type of hand-held terminal	
5 *	VARIANT	2	string	text	1	Version/model of administrative program used for creating file. Format to be m v.n, where m is the name of the software and v.n the version number.	
		*	3	string	text	2	Version/model of bucking computer as designated by administrative program when creating apt-file.
		*	5	string	text	3	Name and version of program or software application used for creating apt-file from oai- and ap1-files.
6 *	NATION	1	integer	Code	3	Country code: numerical code as per Swedish Std. SS-ISO 3166	
12	DATESAVED	1	string	yymmdd	4	(see above)	
		2	string	yymmddhhmm	4	Date when file was last saved	
		3	string	yymmddhhmmss	4	Date when file was last saved	
		4	string	yyyymmddhhmmss	1	Date when file was last saved	
13	BUIDATE	1	string	yymmdd	4	Date of current bucking file	
		2	string	yymmddhhmm	4	(see above)	
		3	string	yymmddhhmmss	4	(see above)	
		4	string	yyyymmddhhmmss	1	Time and date when the current bucking file (APT-file) was originally created in a administrative program with the present name.	
21 *	SITENO	1	string	Text	2	Logging unit number (mandatory in prd-, pri-, stm- and ktr-files)	
		*	2	string	text	3	Marking for cutting
		*	3	string	text	3	Compartment number
		*	4	string	text	3	Lot number

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
21 *	SITENO	5	Integer	Code	3	Code to express if the logging site is certified or not: 0 = Not certified 1 = Certified
31 *	ORG	1	string	Text	3	Organization
*		2	string	text	3	Region
*		3	string	text	3	District
*		4	string	text	3	Working team
*		5	string	text	3	Wood pile
32 *	BUYER	1	string	Text	3	Buyer
*		2	string	text	3	Buyer/price matrix/tree species: 1...var116_t1/1...var111_t1
33 *	VENDOR	1	string	Text	3	Vendor
*		2	string	text	3	Vendor, code
*		3	string	text	3	Vendor, name
*		4	string	text	3	Vendor, address
*		5	string	text	3	Vendor, e-mail
*		6	string	text	3	Vendor, phone/fax
34 *	SUBCON	1	string	Text	4	Contractor
*		2	string	text	2	The contractors code
*		3	string	text	2	The name of the contractor
*		4	string	text	2	The address of the contractor
*		5	String	Text	2	The e-mail address of the contractor
*		6	String	Text	2	The telephone and fax numbers of the subcontractor
35 *	CONTRACTNO	1	string	Text	2	Contract number
*		2	String	Text	2	Contract number in the Swedish VIOL-system
50	MODIFIED	1	string	Text	2	Descriptive text specifying whether the file contents have been modified and, if so, why. For example multiple production files have been merged into one.
		2	string	yymmddhhmss	4	Date/Time for modification of the file: 1...var50_t5.
		3	string	text	3	Descriptive text specifying whether the file contents have been modified and, if so, why: 1...var50_t5. When the file is saved with a new name the variable is reset.
		4	string	yyyymmddhhmss	2	Date/time when the content of the file is modified: 1...var50_t5. When the file is saved with a new name the variable is reset.
		5	integer	no	2	The number of times(date/time) the file has been modified. When the file is saved with a new name the variable is reset.

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
51	APTHISTORY	1	integer	no	2	Number of times that changes has been made to the apt-file. Possible to reset in administrative program.
		2	string	yyyymmddhhmmss	2	Date and time for change/modification of apt-file during the harvest of a site: 1...var51_t1 Possible to reset in administrative program.
		3	string	text	2	Text describing variables that have been changed in the apt-file, e.g. "var132_t1, var135_t2": 1...var51_t1 Possible to reset in administrative program.
		4	string	text	2	Identity of machine (var3_t2) in which change in apt-file was done, if change is not done in a machine signature of person responsible: 1...var51_t1 Possible to reset in administrative program.
		5	string	yyyymmddhhmmss	2	Date and time when var51 type 1, 2, 3, and 4 were last reset. This is the same date as when the file was first created if type1, 2, 3 and 4 has not been reset.
		6	string	text	2	Signature of person responsible for resetting var51, type 1, 2, 3 and 4. This is the person that created the file if type1, 2, 3 and 4 has not been reset.
101	LNGTHFORCALC	1	integer	cm	2	Length of stem used in calculation
102	MEASLNGTH	1	integer	cm	2	Length of stem measured before estimation
103	ESTUPLIM	1	integer	mm	2	Upper tolerance limit for deviation in estimated diameter
104	ESTLOWLIM	1	integer	mm	2	Lower tolerance limit for deviation in estimated diameter
105	GRADESYS	1	integer	Code	2	1 = Random grades 2 = Permissible grade/grade combinations Default = 1 if variable missing
111	NUMTREESPC	1	integer	no	1	Number of tree species
112	NUMBARKPAR	1	integer	no	2	Number of bark parameters/tree species: 1...var111_t1. The variable is used together with var113_t1.
		2	integer	no	2	Number of diameter breaks/tree species: 1...var111_t1. The variable is used together with variable 113, type 2 and type 3. (based on German requirements)
113	BARKPAR	1	integer	0.01 mm 0.1%%	2	Bark parameters/tree species (first parameter in 100ths of mm; second in 10ths per mille): 1...var112_t1/1...var111_t1
		2	integer	mm	3	Lower diameter limits/tree species: 2...var112_t2/1...var111_t1 (based on German requirements)
		3	integer	0.01 mm	3	Deduction for double bark thickness/tree species: 1...var112_t2/1...var111_t1 (based on German requirements)

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
113	BARKPAR	4	long integer	0.00001 degrees	1	Latitude used in bark function
	*	7	integer	code	1	Type of bark function per species: 1...var111_t1 1= Function according to var113_t1 2= Function according to var113_t2 & var113_t3 3=Skogforsk 2004, Scots pine 4=Skogforsk 2004, Norway spruce
114	NUMPAR	1	integer	no	4	Number of parameters
		2	integer	no	4	Number of parameters/tree species: 1...var111_t1
115	TAPERCORR	1	integer	mm/m	4	Taper correction/parameter: 1...var114_t2/1...var111_t1
116	NUMASST	1	integer	no	1	Number of price matrices/tree species: 1...var111_t1
117	NUMDIACL	1	integer	no	1	Number of diameter classes/price matrices/tree species: 1...var116_t1/...var111_t1
118	NUMLNTHCL	1	integer	no	1	Number of length classes/price matrix/tree species: 1...var116_t1/1...var111_t1
119	FREEBUCK	1	integer	Code	3	Code stating if bucking is permissible to any length between min and max limits according to var132_t1 except for those lengths stated in var190_t2. 0 = No; 1 = Yes; 2 = Yes, only for top logs: 1.. var116_t1/ 1... var111_t1
120	TREESPEC	1	string	Text	2	Name of tree species: 1...var111_t1
	*	3	string	Code	1	Tree species code(see Swedish appendix) for tree species/tree species: 1...var111_t1
121	ASSTDESCR	1	string	text	2	Description of assortment/price matrix/tree species: 1...var116_t1/1...var111_t1
	*	2	string	Assortment code	1	Code/price matrix/tree species: 1...var116_t1/1...var111_t1
		3	string	text	2	Additional identity description of price matrix/price matrix/ species: 1...var116_t1/1...var111_t1
	*	4	string	yyyymmddhhmmss	3	Time and date when the apt1-file of the assortment was last saved in the software system of the forest company/ price matrix/tree species: 1...var116_t1/1...var111_t1
		5	string	text	3	Additional assortment identification information / price matrix/tree species: 1...var116_t1/1...var111_t1. User-specified codes.

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
121	ASSTDESCR	6	integer	integer	1	Unique identification information set automatically in bucking or forwarder computer / price matrix/tree species (compare with var441_t12): 1...var116_t1/1...var111_t1. Must be a unique identity / key for a price matrix, never repeated in the same harvester or forwarder file (pri/prd/stm/apt/pri). Not to be changed by operator.
122	NUMSTEMTYPE	1	integer	no	3	Number of stem types/tree species:1...var111_t1
123	STEMTYPNUM	1	integer	Code	3	Stem type number/price matrix/tree species: 1...var116_t1/1...111
124	STEMTYPDESCR	1	string	Text	3	Description of stem type/stem type/tree species: 1...var122_t1/1...var111_t1
		2	string	Code	2	Code for stem type/stem type/tree species: 1...var122_t1/1...var111_t1. The stem types are described with Finnish PMP-codes: Pine Timber stem type 11. Pulpwood stem type 12 Spruce Timber stem type 21. Pulp wood stem type 22. Birch Timber stem type 31. Pulp wood stem type 32. Other species Aspen Timber stem type 41. Pulp wood stem type 42. Other species timber stem type 61. Other species pulp wood stem type 62
125	NUMPRODGRP	1	integer	no	2	Number of product groups/tree species: 1...var111_t1
126	PRODGRPNUM	1	integer	no	2	Product group number/price matrix/tree species: 1...var116_t1/1...var111_t1
127	PRODDDESCR	1	string	Text	2	Description of product/product group/tree species: 1...var125/1...var111_t1
128	BARKPOINT	1	integer	dm	3	Distance from root to the center of the zone between rough bark and smooth bark, value/stem. The variable is used for calculation of improved bark measurement.
131	DIAGRDLMT	1	integer	mm	1	Lower diameter limit (last value, var117_t1+1, gives upper diameter limit): 1...var117_t1+1 / 1...var116_t1 / 1...var111_t1
		2	string	text	3	Diameter class name (free descriptive text)/diameter class/price matrix/tree species: 1..var117_t1/1..var116_t1/1..var111_t1 Primarily for use in Germany where the classes have standardized names

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
132	LWRLNGTHLMT	1	integer	cm	1	Lower length limit of length class (last value, var118_t1+1, gives upper length limit): 1...var118_t1+1/1...116/1...var111_t1
133	DIALIMTYPE	1	integer	Integer	4	Type of diameter limit/price matrices/tree species: Variable 133 = 0 if the diameter limits in variable 131 refer to diameter under bark. If not, variable 133 = 1. If variable 133 is missing the type will be determined by variable 161: 1...var116_t1/1...var111_t1
134	OTHERDIA	1	integer	mm	3	Minimum top diameter/price matrix/tree species: 1...var116_t1/1...var111_t1
		2	Integer	mm	3	Maximum diameter in the large end of the log per price matrix per tree species: 1...var116_t1/1...var111_t1
135	OVERSIZE	1	integer	cm	3	Additional length margin, can not be a negative number /length class/price matrix/tree species: 1...var118_t1/1...var116_t1/1...var111_t1. Previously named BUCKMARG
		2	integer	mm	3	Extra diameter margin (in addition to general)/diameter class/price matrix/tree species: 1...var117_t1/1...var116_t1/1...var111_t1. Previously named BUCKMARG
		3	integer	cm	3	Lower length limit for "cutting window"/price matrix/tree species. Lower length class limit (var132) and variable 135, type 1 and 3 together, define the length class of a log if lower limit of the cutting window is below lower length class limit:: 1...var116_t1/1...var111_t1.
		4	integer	cm	3	Upper length limit for "cutting window"/price matrix/tree species. It does not affect length classification of a log. It can not be above lower length class limit (132_t1) nor above lower length limit for the "cutting window" (135_t3), of the next length class: 1...var116_t1/1...var111_t1.
136	BUCKCRIT	1	integer	Code	2	Code for bucking criterion/price matrix/tree species: 1...var116_t1/1...var111_t1 0 = Buck always; 1 = Buck never; 2 = Buck butt-log only; 3 = Do not buck butt log (Not normally used when bucking to value. Price & grade determine where and when the log should be bucked.) 4 = Do not include the matrix in the calculation of value when bucking the stem
		2	Integer	Code	2	Code for apportionment bucking, stating if apportionment bucking is allowed when this matrix has the highest value /price matrix/tree species: 1...var116_t1/1...var111_t1 Codes: 0 = apportionment bucking allowed 1 = apportionment bucking not allowed

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
137	BUCKPRI	1	integer	integer	3	Code of log types/price matrix/tree species: 1...var116_t1/...var111_t1
141	GRADE	1	integer	Integer	2	Grade/price matrix/tree species. 1, 2, 4, 8 etc., where 1 is the highest grade and e.g. 5 indicates grades 1 & 4 apply to the price matrix: 1...var116_t1/1...var111_t1 Always binary number
		2	integer	integer	3	Type of grade which extension is determined by a special function as defined in var147-149 (normally automatic sound knot bucking) / tree species: 1...var111_t1 Numeral system defined in var141_t3.
		3	integer	code	3	Numeral system used in var141_t2: 1...var111_t1 0=decimal (default if variable is missing), 1=binary
142	NUMGRADUSD	1	integer	no	2	Number of grades used/tree species: 1...var111_t1 (If the code for the highest grade used is 8 in var141_t1, variable 142 is set to 4, even if code 1 is not used.)
143 *	GRADDESIG	1	string	Text	2	Grade description/grade/tree species: 1...var142_t1/1...var111_t1
144	INITGRAD	1	integer	Integer	3	Default grade/tree species when starting to operate the stem in the harvester: 1...var111_t1 Numeral system defined in var144_t2..
		2	integer	code	3	Numeral system used in var144_t1: 1...var111_t1 0=decimal (default if variable is missing), 1=binary
145	TOPTOLER	1	integer	cm	2	Tolerance of grade break, top/price matrix/tree species: 1...var116_t1/1...var111_t1
146	BUTTOLER	1	integer	cm	2	Tolerance of grade break, butt/price matrix/tree species: 1...var116_t1/1...var111_t1
147	SOUNDCONST	1	Longinteger	1/1000	3	Constant for determining the limit for sound knots/tree species (abbreviation "a" in var149_t1): 1...var111_t1
148	SOUNDFACT	1	Longinteger	1/100 000 000	3	Factor for determining the limit for sound knots/tree species (abbreviation "b" in var149_t1): 1...var111_t1
		2	Longinteger	1/100 000 000	3	Factor for determining the limit for sound knots/tree species (abbreviation "c" in var149): 1...var111_t1
		3	integer	1/1000	3	Tolerance for dead knots within calculated limit for sound knot diameter / tree species (abbreviation "d" in var149_t1): 1...var111_t1

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
149	FUNCMODE	1	Integer	Code	3	Codes for type of function used when calculating the diameter (ob) of the sound knot limit/cylinder. Observe that all diameters are over bark. 1: $y = (a+bx)*d$ 2: $y = (a + bx +cx2)*d$ Where: y=factor used for calculating diameter (ob) of sound knot limit, x=DBH, a=var147_t1, b=var148_t1, c=var148_t2, d=var148_t3. The default value of d should be 1 (1000 in var148_t3)if var148_t3 is not used. Diameter (ob) of sound knot cylinder = y * DBH (ob)
151	MARKING	1	integer	Integer	2	Marking/price matrices/tree species. 1, 2, 3 ...: 1...var116_t1/1...var111_t1 Always binary number
		2	integer	Integer	3	Marking of logs cut with apportionment bucking pulpwood/price matrix/tree species: 1...var116_t1/1...var111_t1 Always binary number.
152	LOGMARK	1	integer	Integer	2	Log marking/diameter class/length class/price matrices/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Always binary number
155	BASEPRICE	1	integer	currency	3	Basic price/price matrix/tree species: 1...var116_t1/1...var111_t1 Primarily for use in administrative applications. Price per m3 according to var161_t1.
156	CORRTYPE	1	integer	code	4	Type of correction for diametercorrection/price matrix/tree species: 1...var116_t1/1...var111_t1. 0=Absolute, 2=percent, 3=promille Primarily for use in administrative applications.
		2	integer	code	4	Type of correction for lengthrcorrection/price matrix/tree species: 1...var116_t1/1...var111_t1. 0=Absolute, 2=percent, 3=promille Primarily for use in administrative applications.
157	ROWPRICE	1	integer	number	4	price/diameter class/price matrix/tree species: 1...var117_t1/1...var116_t1/1...var111_t1 Primarily for use in administrative applications.
158	NOOFLCORR	1	integer	no	4	Number of length corrections/price matrix/tree species: 1...var116_t1/1...var111_t1 Primarily for use in administrative applications.
159	CORRPOS	1	integer	number	4	The positions of the corrections/number of corrections/price matrix/tree species: 1...var158_t1/1...var116_t1/1...var111_t1. 0 refers to the position before the first diameter class. Primarily for use in administrative applications.

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
160	CORRSERIES	1	integer	number	4	Length corrections/length classes/number of corrections/price matrix/tree species: 1...var118_t1/1...var158/1...var116_t1/1...var111_t1 Primarily for use in administrative applications.
161 *	PRICECAT	1	integer	code	1	Price category/price matrix/tree species where 1 = price/m3 (volume by small-end diameter); 2 = price/m3 (solid); 3 = price/log; 4 = price/m3 (Norwegian price category) 5 = price/m3 (Swedish top and butt end measuring); 6 = price/m3 (solid, measured at midpoint, price due to small-end diameter, HKS diameter, German price category) 7 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, HKS diameter, German price category) 8 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, (Danish price category) 9 = price/board feet (American price category) 10 = price/m3 (solid, diameter measured at midpoint, price due to small-end diameter) diameter in mm 11 = price/log (Norwegian price category) 12 = Price/bundled m3 (bulk volume calculated with default diameter and length of the bundle) 13 = price/m3 (Estonian Nilson's volume unit) If the price applies to volumes including bark, add 128 to the price-category number, e.g. m3 (solid o.b.) = 130: 1...var116_t1/1...var111_t1 14 = Price/m3. (optimization based on m3 solid, reporting in m3top).  All the codes are described in detail in appendix
		2	integer	1/100000000	2	Coefficient a1, used when calculating volume according to code 13 in var161_t1 per species (see var161_t1 in appendix): 1...var111_t1
		3	integer	1/100000000	2	Coefficient a2, used when calculating volume according to code 13 in var161_t1 per species (see var161_t1 in appendix): 1...var111_t1
		4	integer	1/100000000	2	Coefficient a3, used when calculating volume according to code 13 in var161_t1 per species (see var161_t1 in appendix): 1...var111_t1
162	PRICELIST	1	integer	Relative	3	Price/diameter class/length class/price matrices/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Allowed values are from -32767 to +32767
		2	integer	Currency	1	Price/diameter class/length class/price matrices/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Allowed values are from -32767 to +32767

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
163	VOLUMETYPE	1	integer	Code	2	Principle for volume calculation/price matrices/tree species: 1...var116_t1/1...var111_t1 Volume calculation based on: 0 = Bucked length, cm (default in Finland) 1 = Required length as per var132 2 = Bucked random lengths, dm Option 2 is the default if types 2 & 3 are missing or have been assigned a value of zero.
		2	integer	cm	2	Module start for volume-based length/price matrices/tree species: 1...var116_t1/1...var111_t1
		3	integer	cm	2	Module step/price matrices/tree species: 1...var116_t1/1...var111_t1
164	DIAMTYPE	1	integer	Code	2	Principle for registered diameter/price matrices/tree species: 0 = Bucked length, cm (default in Finland) 1 = Required length as per var132 2 = Bucked random lengths, dm 1...var116_t1/1...var111_t1
		2	integer	cm	4	Module-start length for registered (filtered) diameter/price matrix/tree species: 1...var116_t1/1...var111_t1
		3	integer	cm	4	Module step/price matrix/tree species: 1..var116_t1/1..var111_t1
		4	integer	cm	2	Distance from log top/price matrix/tree species: 1...var116_t1/1...var111_t1 Type 4 and distance 10 cm are default values if var164 missing
		5	integer	cm	4	As for type 1 but for unfiltered values
		6	integer	cm	4	As for type 2 but for unfiltered values
		7	integer	cm	4	As for type 3 but for unfiltered values
		8	integer	cm	4	As for type 4 but for unfiltered values
165	POLELOWLIM	1	integer	mm	2	Lower limit for butt diameter/length class/price matrix/tree species: 1...var118_t1/1...var116_t1/1...var111_t1
166	POLEUPPLIM	1	integer	mm	2	Upper limit for butt diameter/length class/price matrix/tree species: 1...var118_t1/1...var116_t1/1...var111_t1 Zero = No diameter requirement
167	POLEMEASPT	1	integer	cm	2	Height above stump of measuring point for butt diameter/price matrix/tree species: 1...var116_t1/1...var111_t1
168	BUTTADD	1	integer	%	4	Addition of unmeasured butt volume/tree species: 1...var111_t1
169	DENSITY	1	Integer	kg/m3 solid u.b.	3	Density in green condition/price matrix/tree species: 1..var116_t1/1..var111_t1
171	MAXPLPLNGTH	1	integer	cm	4	Maximum permissible pulpwood length/tree species: 1...var111_t1

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
172	MINPLPLNGTH	1	integer	cm	4	Minimum permissible pulpwood length/tree species: 1...var111_t1
173	MAXPLPDIA	1	integer	mm (u.b.)	4	Maximum permissible dia., u.b., for pulpwood/tree species: 1...var111_t1
		2	integer	mm (o.b.)	4	Maximum permissible dia., o.b., for pulpwood/tree species: 1...var111_t1
174	MINPLPDIA	1	integer	mm (u.b.)	4	Minimum permissible dia., u.b., for pulpwood/tree species: 1...var111_t1
		2	integer	mm (o.b.)	4	Minimum permissible dia., o.b., for pulpwood/tree species: 1...var111_t1
180	MARKPULP	1	integer	no	4	Marking of pulpwood/tree species: 1...var111_t1
181	PRICECATPLP	1	integer	Code	4	Price category for pulpwood/tree species (see var161_t1 for definition of price category): 1...var111_t1
182	PULPPRICE	1	integer	Relative	4	Pulpwood price/tree species: 1...var111_t1
		2	integer	Currency	4	(see above)
190	MAXLOG	1	Integer	Code	2	Type of limitation per price matrix and tree species: 1...var116_t1/1...var111_t1 0=No limitation Codes for limitation of production 1= Total number, quantity per price matrix 2= Total volume, m3 per price matrix 3= Number per diameter class per price matrix 4= Volume per diameter class per price matrix 5= Number per length class per price matrix 6= Volume per length class per price matrix 7= Number per cell (log size class) per price matrix and tree species 8= Volume per cell (log size class) per price matrix and tree species "Number" in code 1,3,5 and 7 means "total number of logs".
		2	Integer	Limit	2	Limit according to datatype 1, specified for all cells in all price matrixes for all tree species. 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Allowed special values: 0 = No limit -1 = Forbidden to buck the log even manually -2 = The log is excluded from apportionment bucking,only bucking according to value allowed -3 =Only logs bucked manually allowed
191	SPECLIST	1	integer	per mille	2	Relative number of logs/diameter class/length class/price matrix/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Allowed values: Integer larger than or equal to zero. (>=0) Desired distribution based on number of cut logs for the whole matrix. The per mille rate is calculated for each price matrix as the denominator.

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
191	SPECLIST	2	integer	per mille	2	Relative volume of logs/diameter class/length class/price matrix/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Allowed values: Integer larger than or equal to zero. (>=0) Desired distribution based on volume of cut logs for the whole matrix. The per mille rate is calculated for each price matrix as the denominator.
		3	integer	pieces	4	Number (quantity) of logs/diameter class/length class/price matrix/tree species: 1..var117_t1/1..var118_t1/1..var116_t1/1..var111_t1 Allowed values: Integer larger than or equal to zero. (>=0) Desired number of logs, based on number of cut logs for the whole matrix.
		4	integer	%	3	Relative number (percentage) of logs/diameter class/length class/price matrices/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Allowed values: Integer larger than or equal to zero. (>=0) Desired length distribution based on number of cut logs for each diameter class. The percentage rate is calculated for each diameter class as the denominator.
		5	integer	m3	4	Volume/diameter class/length class/price matrix/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Allowed values: Integer larger than or equal to zero. (>=0) Desired volume, based on volume of cut logs for the whole matrix.
		6	integer	%	3	Percentage of volume/diameter class/length class/price matrix/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Allowed values: Integer larger than or equal to zero. (>=0) Desired length distribution based on volume of cut logs for each diameter class. The percentage rate is calculated for each diameter class as the denominator.
		192	MAXDEVIAT	1	integer	Currency
2	integer			%	2	Maximum deviation (percentage) in dimension-apportionment bucking/price matrix/tree species: 1...var116_t1/1...var111_t1
3	integer			Currency	3	Maximum deviation in dimension-apportionment bucking/tree species: 1...var111_t1

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
192	MAXDEVIAT	4	integer	%	3	Maximum deviation (percentage) in dimension-apportionment bucking/tree species: 1...var111_t1
		5	integer	per mille	2	Maximum deviation (per mille) in dimension-apportionment bucking/price matrix/tree species: 1...var116_t1/1...var111_t1
193	DLNOTALLOW	1	integer	no	4	Number of diameter and length combinations not allowed/price matrices/tree species: 1...var116_t1/1...var111_t1
194	DNOTALLOW	1	integer	Integer	4	Diameter class numbers in combinations which are not allowed/price matrices/tree species: 1...var193_t1/1...var116_t1/1...var111_t1
195	LNOTALLOW	1	integer	Integer	4	Length class numbers in combinations which are not allowed/price matrices/tree species: 1...var193_t1/1...var116_t1/1...var111_t1
196	OVERPROD	1	integer	Code	3	Action if production target is fulfilled (overproduction according to var190): 1...var116_t1/1...var111_t1 0 = No action (default) 1 = Production is stopped, forbidden to buck logs, only manually bucked logs allowed 2 = Production is stopped, forbidden to buck logs including manual bucking of logs
197	FROMMATRIX	1	Integer	Code	2	From matrix: Code 0 = No, 1 = Yes Price matrix for optimal alternative/ price matrix for alternative price matrix/species: 1...var116_t1/1...var116_t1/1...var111_t1  From matrix: A matrix which defines which assortments (price matrixes) are allowed as an alternative to the optimal one for the first log in apportionment bucking in order to fulfill the demands in the apportionment table (var 191).
198	APPMETHOD	1	Integer	Code	2	0 = No apportionment 1 = Adaptive method 2 = Near optimal apportionment
200	OPTNLTXT	2	long string	text	3	Optional free text for sending information to the machine. No changes are allowed in the machine. Maximum 300 characters allowed.
500	DBHHT	1	integer	cm	3	Height above stump of DBH, when DBH is a measured value (normally 120 cm above stump in Finland and Sweden, 110cm in Norway), per tree species:1...var111_t1
		2	Integer	cm	3	Height above stump of DBH, when DBH is a calculated value, per tree species:1...var111_t1
501	NUMDBHCL	1	integer	no	3	Number of dbh classes/tree species: 1...var111_t1
502	LOWDBHBRK	1	integer	mm	3	Lower DBH limit on bark/dbh class/tree species: 1...var501_t1/1...var111_t1
530	NMDSEC	1	integer	no	1	Number of diameter sections / tree species: 1...var111_t1

## Bucking variables (apt file)

Var #	Name	Type	Data type	Unit	Pri	Description
531	DSEC	1	string	text	1	Description of diameter section / diameter section / tree species: 1...var530_t1 / 1...var111_t1 Descriptions can be free text and are company specific (not standardized).
		2	string	text	1	Code for diameter section / diameter section / tree species: 1... var530_t1 / 1...var111_t1 Codes are company specific.
		3	integer	mm	1	Minimum diameter o.b. of diameter section / diameter section / tree species: 1... var530_t1/1...var111_t1
		4	integer	cm	1	Minimum length of diameter section / diameter section / tree species: 1... var530_t1/1...var111_t1 Value 0 means that minimum length requirement is not in use. The smallest diameter section of a tree species does not have a minimum length requirement. More detailed descriptions can be found in Diameter Sections documents (only in Finnish).
		5	integer	text	1	User code/diameter section/ tree species: 1... var530_t1/1...var111_t1 Diameter section is used either for commercial volume measurement (code 1) or only for buyer's own needs (code 0)
605 *	APTERI	1	string	text	3	Special variable used by Finnish Apteri-software, described in appendix
		*	2	string	yyyymmddhhmmss	3
660	STANDAGE	1	Integer	Year	3	The mean age of the stand.
		2	Integer	Year	3	Standard deviation for var660_t1.
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

To simplify production reports, it is recommended that all assortments be specified in price matrices. Variables 171-182 should therefore be avoided.

In variable 161, price category 6 applies to a volume based on diameter measured at the log midpoint and pricing based on top diameter. Price category 7 applies to both volume and price based on the diameter measured at the log midpoint.

The term filtered values in variable 164 indicates that the value is the lowest recorded diameter.

## Price-matrix variables (Apm files)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	1	string	Text	4	Filetype: text string as per application
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
2 *	ID	1	string	Text	1	The identity of the apt-file
		2	string	text	3	The name of the apt-file
3 *	MCHNNO	2	String	Text	2	Unique machine identity for each company, for example used when using the harvester to measure for payment.
5 *	VARIANT	1	string	Text	3	Version/model of system control computer (in case of harvester normally identical with bucking computer) used for creating file. Recommended format m v.n, where m is the make and v.n the version number. Observe that up to 80 characters can be used.
13	BUIDATE	1	string	yymmdd	3	Date of current bucking file
110 *	STEMSPEC	1	integer	1,2,3...	3	Stem species
111	NUMTREESPC	1	integer	no	3	Number of tree species
116	NUMASST	1	integer	no	3	Number of price matrices/tree species: 1...var111_t1
117	NUMDIACL	1	integer	no	3	Number of diameter classes/price matrices/tree species: 1...var116_t1/1...var111_t1
118	NUMLNGLHCL	1	integer	no	3	Number of length classes/price matrix/tree species: 1...var116_t1/1...var111_t1
121	ASSTDESCR	1	string	text	3	Description of assortment/price matrix/tree species: 1...var116_t1/1...var111_t1
131	DIAGRDLMT	1	integer	mm	3	Lower diameter limit (last value, var117_t1+1, gives upper diameter limit): 1...var117_t1+1 / 1...var116_t1 / 1...var111_t1
132	LWRLNGLHMT	1	integer	cm	3	Lower length limit of length class (last value, var118_t1+1, gives upper length limit): 1...var118_t1+1/1...116/1...var111_t1
141	GRADE	1	integer	Integer	3	Grade/price matrix/tree species. 1, 2, 4, 8 etc., where 1 is the highest grade and e.g. 5 indicates grades 1 & 4 apply to the price matrix: 1...var116_t1/1...var111_t1 Always binary number

## Price-matrix variables (Apm files)

Var #	Name	Type	Data type	Unit	Pri	Description
142	NUMGRADUSD	1	integer	no	3	Number of grades used/tree species: 1...var111_t1 (If the code for the highest grade used is 8 in var141_t1, variable 142 is set to 4, even if code 1 is not used.)
143 *	GRADDESIG	1	string	Text	3	Grade description/grade/tree species: 1...var142_t1/1...var111_t1
161 *	PRICECAT	1	integer	code	3	Price category/price matrix/tree species where 1 = price/m3 (volume by small-end diameter); 2 = price/m3 (solid); 3 = price/log; 4 = price/m3 (Norwegian price category) 5 = price/m3 (Swedish top and butt end measuring); 6 = price/m3 (solid, measured at midpoint, price due to small-end diameter, HKS diameter, German price category) 7 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, HKS diameter, German price category) 8 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, (Danish price category) 9 = price/board feet (American price category) 10 = price/m3 (solid, diameter measured at midpoint, price due to small-end diameter) diameter in mm 11 = price/log (Norwegian price category) 12 = Price/bundled m3 (bulk volume calculated with default diameter and length of the bundle) 13 = price/m3 (Estonian Nilson's volume unit) If the price applies to volumes including bark, add 128 to the price-category number, e.g. m3 (solid o.b.) = 130: 1...var116_t1/1...var111_t1 14 = Price/m3. (optimization based on m3 solid, reporting in m3top).  All the codes are described in detail in appendix
162	PRICELIST	2	integer	Currency	3	Price/diameter class/length class/price matrices/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Allowed values are from -32767 to +32767
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

## Price matrix variables (Ap1 files)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
5 *	VARIANT	1	string	Text	3	Version/model of system control computer (in case of harvester normally identical with bucking computer) used for creating file. Recommended format m v.n, where m is the make and v.n the version number. Observe that up to 80 characters can be used.
*		2	string	text	3	Version/model of administrative program used for creating file. Format to be m v.n, where m is the name of the software and v.n the version number.
6 *	NATION	1	integer	Code	3	Country code: numerical code as per Swedish Std. SS-ISO 3166
12	DATESAVED	4	string	yyyymmddhhmmss	3	Date when file was last saved
13	BUIDATE	4	string	yyyymmddhhmmss	3	Time and date when the current bucking file (APT-file) was originally created in a administrative program with the present name.
32 *	BUYER	2	string	text	1	Buyer/price matrix/tree species: 1...var116_t1/1...var111_t1
35 *	CONTRACTNO	1	string	Text	1	Contract number
111	NUMTREESPC	1	integer	no	1	Number of tree species
116	NUMASST	1	integer	no	1	Number of price matrices/tree species: 1...var111_t1
117	NUMDIACL	1	integer	no	1	Number of diameter classes/price matrices/tree species: 1...var116_t1/...var111_t1
118	NUMLNTHCL	1	integer	no	1	Number of length classes/price matrix/tree species: 1...var116_t1/1...var111_t1
119	FREEBUCK	1	integer	Code	1	Code stating if bucking is permissible to any length between min and max limits according to var132_t1 except for those lengths stated in var190_t2. 0 = No; 1 = Yes; 2 = Yes, only for top logs: 1.. var116_t1/ 1... var111_t1
121	ASSTDESCR	1	string	text	1	Description of assortment/price matrix/tree species: 1...var116_t1/1...var111_t1
*		2	string	Assortment code	1	Code/price matrix/tree species: 1...var116_t1/1...var111_t1
		3	string	text	3	Additional identity description of price matrix/price matrix/ species: 1...var116_t1/1...var111_t1

## Price matrix variables (Ap1 files)

Var #	Name	Type	Data type	Unit	Pri	Description
121 *	ASSTDESCR	4	string	yyyymmddhhmmss	3	Time and date when the ap1-file of the assortment was last saved in the software system of the forest company/ price matrix/tree species: 1...var116_t1/1...var111_t1
		5	string	text	3	Additional assortment identification information / price matrix/tree species: 1...var116_t1/1...var111_t1. User-specified codes.
123	STEMTYPNUM	1	integer	Code	3	Stem type number/price matrix/tree species: 1...var116_t1/1...111
131	DIAGRDLMT	1	integer	mm	1	Lower diameter limit (last value, var117_t1+1, gives upper diameter limit): 1...var117_t1+1 / 1...var116_t1 / 1...var111_t1
		2	string	text	1	Diameter class name (free descriptive text)/diameter class/price matrix/tree species: 1..var117_t1/1..var116_t1/1..var111_t1 Primarily for use in Germany where the classes have standardized names
132	LWRLNGTHLMT	1	integer	cm	2	Lower length limit of length class (last value, var118_t1+1, gives upper length limit): 1...var118_t1+1/1...116/1...var111_t1
134	OTHERDIA	1	integer	mm	2	Minimum top diameter/price matrix/tree species: 1...var116_t1/1...var111_t1
		2	Integer	mm	1	Maximum diameter in the large end of the log per price matrix per tree species: 1...var116_t1/1...var111_t1
135	OVERSIZE	3	integer	cm	1	Lower length limit for "cutting window"/price matrix/tree species. Lower length class limit (var132) and variable 135, type 1 and 3 together, define the length class of a log if lower limit of the cutting window is below lower length class limit.: 1...var116_t1/1...var111_t1.
		4	integer	cm	1	Upper length limit for "cutting window"/price matrix/tree species. It does not affect length classification of a log. It can not be above lower length class limit (132_t1) nor above lower length limit for the "cutting window" (135_t3), of the next length class: 1...var116_t1/1...var111_t1.
136	BUCKCRIT	1	integer	Code	1	Code for bucking criterion/price matrix/tree species: 1...var116_t1/1...var111_t1 0 = Buck always; 1 = Buck never; 2 = Buck butt-log only; 3 = Do not buck butt log (Not normally used when bucking to value. Price & grade determine where and when the log should be bucked.) 4 = Do not include the matrix in the calculation of value when bucking the stem

## Price matrix variables (Ap1 files)

Var #	Name	Type	Data type	Unit	Pri	Description
155	BASEPRICE	1	integer	currency	1	Basic price/price matrix/tree species: 1...var116_t1/1...var111_t1 Primarily for use in administrative applications. Price per m3 according to var161_t1.
165	POLELOWLIM	1	integer	mm	2	Lower limit for butt diameter/length class/price matrix/tree species: 1...var118_t1/1...var116_t1/1...var111_t1
166	POLEUPPLIM	1	integer	mm	2	Upper limit for butt diameter/length class/price matrix/tree species: 1...var118_t1/1...var116_t1/1...var111_t1 Zero = No diameter requirement
167	POLEMEASPT	1	integer	cm	2	Height above stump of measuring point for butt diameter/price matrix/tree species: 1...var116_t1/1...var111_t1
190	MAXLOG	1	Integer	Code	3	Type of limitation per price matrix and tree species: 1...var116_t1/1...var111_t1 0=No limitation Codes for limitation of production 1= Total number, quantity per price matrix 2= Total volume, m3 per price matrix 3= Number per diameter class per price matrix 4= Volume per diameter class per price matrix 5= Number per length class per price matrix 6= Volume per length class per price matrix 7= Number per cell (log size class) per price matrix and tree species 8= Volume per cell (log size class) per price matrix and tree species "Number" in code 1,3,5 and 7 means "total number of logs".
191	SPECLIST	4	integer	%	1	Relative number (percentage) of logs/diameter class/length class/price matrices/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Allowed values: Integer larger than or equal to zero. (>=0) Desired length distribution based on number of cut logs for each diameter class. The percentage rate is calculated for each diameter class as the denominator.
	*	7	integer	code	2	Codes used in ap1-file for adjusting var162, var191_t4 and var190 when creating apt-file based on BASEPRICE (var155) /diameter class/length class/price matrices/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 Codes described in appendix
192	MAXDEVIAT	2	integer	%	2	Maximum deviation (percentage) in dimension-apportionment bucking/price matrix/tree species: 1...var116_t1/1...var111_t1

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### Price matrix variables (Ap1 files)

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Var #	Name	Type	Data type	Unit	Pri	Description
196	OVERPROD	1	integer	Code	3	Action if production target is fulfilled (overproduction according to var190): 1...var116_t1/1...var111_t1 0 = No action (default) 1 = Production is stopped, forbidden to buck logs, only manually bucked logs allowed 2 = Production is stopped, forbidden to buck logs including manual bucking of logs

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description		
1	FILETYPE	1	string	Text	4	Filetype: text string as per application		
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)		
*		3	string	text	1	Code page character set, ISO-code		
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial		
3 *	MCHNNO	1	string	Text	1	Machine number		
*		2	String	Text	1	Unique machine identity for each company, for example used when using the harvester to measure for payment.		
*		3	integer	code	1	Code describing type of machine: 1=harvester (default if variable is missing) 2=forwarder 3=harwarder, machine which handles both harvesting and forwarding 10 = bundler 20 = scarifier 99=other		
		5	string	text	1	Machine manufacturer. Free text that describes the machine manufacturer.		
		6	string	text	1	Machine model. Free text that describes the model of the machine.		
		7	string	text	2	Harvester head manufacturer. Free text that describes the head manufacturer.		
		8	string	text	2	Harvester head model. Free text that describes the model of the harvester head.		
		5 *	VARIANT	1	string	Text	1	Version/model of system control computer (in case of harvester normally identical with bucking computer) used for creating file. Recommended format m v.n, where m is the make and v.n the version number. Observe that up to 80 characters can be used.
		12	DATESAVED	4	string	yyyymmddhhmmss	1	Date when file was last saved
		21 *	SITENO	1	string	Text	2	Logging unit number (mandatory in prd-, pri-, stm- and ktr-files)
*		2	string	text	3	Marking for cutting		
*		3	string	text	3	Compartment number		
*		4	string	text	3	Lot number		
31 *	ORG	1	string	Text	3	Organization		
*		2	string	text	3	Region		
*		3	string	text	3	District		
*		4	string	text	3	Working team		

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
31 *	ORG	5	string	text	3	Wood pile
34 *	SUBCON	2	string	text	1	The contractors code
*		3	string	text	2	The name of the contractor
*		4	string	text	2	The address of the contractor
*		5	String	Text	2	The e-mail address of the contractor
*		6	String	Text	2	The telephone and fax numbers of the subcontractor
35 *	CONTRACTNO	1	string	Text	3	Contract number
*		2	String	Text	3	Contract number in the Swedish VIOL-system
53	RPRTINTER	1	string	yyyymmddhhmmss	1	Start date for report interval in time oriented file (data in file normally independent of harvesting objects)
		2	string	yyyymmddhhmmss	1	End date for report interval in time oriented file (data in file normally independent of harvesting objects)
111	NUMTREESPC	1	integer	no	3	Number of tree species
116	NUMASST	1	integer	no	3	Number of price matrices/tree species: 1...var111_t1
120	TREESPEC	1	string	Text	3	Name of tree species: 1...var111_t1
*		3	string	Code	3	Tree species code(see Swedish appendix) for tree species/tree species: 1...var111_t1
121	ASSTDESCR	1	string	text	3	Description of assortment/price matrix/tree species: 1...var116_t1/1...var111_t1
*		2	string	Assortment code	3	Code/price matrix/tree species: 1...var116_t1/1...var111_t1

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
161 *	PRICECAT	1	integer	code	3	<p>Price category/price matrix/tree species where</p> <p>1 = price/m3 (volume by small-end diameter);</p> <p>2 = price/m3 (solid);</p> <p>3 = price/log;</p> <p>4 = price/m3 (Norwegian price category)</p> <p>5 = price/m3 (Swedish top and butt end measuring);</p> <p>6 = price/m3 (solid, measured at midpoint, price due to small-end diameter, HKS diameter, German price category)</p> <p>7 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, HKS diameter, German price category)</p> <p>8 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, (Danish price category)</p> <p>9 = price/board feet (American price category)</p> <p>10 = price/m3 (solid, diameter measured at midpoint, price due to small-end diameter) diameter in mm</p> <p>11 = price/log (Norwegian price category)</p> <p>12 = Price/bundled m3 (bulk volume calculated with default diameter and length of the bundle)</p> <p>13 = price/m3 (Estonian Nilson's volume unit)</p> <p>If the price applies to volumes including bark, add 128 to the price-category number, e.g. m3 (solid o.b.) = 130: 1...var116_t1/1...var111_t1</p> <p>14 = Price/m3. (optimization based on m3 solid, reporting in m3top).</p> <p>All the codes are described in detail in appendix</p>
200	OPTNLTXT	2	long string	text	3	Optional free text for sending information to the machine. No changes are allowed in the machine. Maximum 300 characters allowed.
		3	long string	text	3	Optional text for sending information from the machine. Maximum 300 characters allowed.
211	OPERATOR	1	integer	ld no	4	Operator name/id, repeated for each stem in ktr- and stm-files
		2	integer	no	1	Number of operators
212	OPERATOR	1	string	text	2	The name of the operator: 1...var211_t2
221	NUMSTEMS	1	integer	pieces	3	<p>Number of processed (harvested) stems. The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes</p> <p>and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.</p>

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
222	NUMSTEMSPCS	1	integer	pieces	3	Number of processed stems/tree species: 1...var111_t1 The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
223	NUMSTEMOP	1	integer	pieces	2	Number of stems/operator/tree species: 1...var211_t2/1...var111_t1 The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
228	NUMLOAD	1	integer	pieces	3	Number of loads
		2	integer	pieces	2	Number of loads/operator: 1...var211_t2
229	NUMLOADSPCS	1	integer	pieces	3	Number of loads/tree species: 1...var111_t1
		2	integer	pieces	3	Number of loads/operator/tree species: 1...var211_t2/1...var111_t1
230	NUMBNCH	3	integer	pieces	3	Number of occasion that multi tree processing (several stems delimbed and cross cut simultaneously) is carried out at the site per operator: 1...var211_t2
:		6	Integer	pieces	2	Number of stem bunches in multi tree felling (not processed) /operator/tree species:1...var211_t2/1...var111_t1 Some type of feller-buncher system used.
:		8	Integer	pieces	2	Number of multi tree processed stem bunches per operator and tree species: 1...var211_t2/1...var111_t1 Species dependent on first stem in stem bunch
231	STMSINBNCH	3	integer	pieces	2	Number of multi tree processed stems (several stems delimbed and cross cut simultaneously) per operator: 1...var211_t2 All stems must be registered independently of size when carrying out multi tree processing.
:		6	Integer	pieces	2	Number of stems in stem bunches in multi tree felling (not processed) per operator and tree species:1...var211_t2/1...var111_t1 Some type of feller-buncher system used. Species dependent on first stem in stem bunch.
:		8	Integer	pieces	2	Number of multi tree processed stems (several stems delimbed and cross cut simultaneously) per operator and tree species: 1...var211_t2/1...var111_t1 Species dependent on first stem in stem bunch

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description	
241	TOTMERCVOL	1	integer	m3 (solid u.b.)	3	Total merchantable solid volume (excluding price matrixes tagged with var136 code 4, as well as var243 and var244) /operator/tree species: 1...var211_t2/1...var111_t1	
		2	integer	m3 (solid o.b.)	3	(see above)	
		3	integer	m3 (solid u.b.)	3	Total merchantable solid volume (excluding price matrixes tagged with var136 code 4, as well as var243 and var244) /stem type/tree species: 1...var122_t1/1...var111_t1	
		4	integer	m3 (solid o.b.)	3	(see above)	
		5	integer	m3 (solid u.b.)	3	Total merchantable solid volume (excluding price matrixes tagged with var136 code 4, as well as var243 and var244) /tree species: 1...var111_t1	
		6	integer	m3 (solid o.b.)	3	(see above)	
246	BUNCHEDPROD	5	integer	m3(ob)	3	Total volume of multi tree processed stems (several stems delimbed and cross cut simultaneously) per operator: 1...var211_t2 The volume is based on the total diameter (diameter measured as if only one stem is processed)	
		*	6	integer	m3sob	2	Total volume of multi tree processed stems (several stems delimbed and cross cut simultaneously) as calculated in harvester (definition in appendix) per operator: 1...var211_t2 These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.
		*	7	integer	m3sub	2	Total volume of multi tree processed stems (several stems delimbed and cross cut simultaneously) as calculated in harvester (definition in appendix) per operator: 1...var211_t2 These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.
⋮							
		13	Integer	m3sob	2	Total volume over bark (stacked) of bunched wood stems in multi tree felling as calculated by harvester/ operator/tree species: 1...var211_t2/1...var111_t1 Some type of feller-buncher system used. Species is dependant on first stem in stem bunch. This volume is to represent estimated merchantable log volumes based on previously single processed stems. Possible calculation methods described in appendix.	

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
246	BUNCHEDVOL	15	Integer	m3sob	2	Total volume of multi tree processed stems (several stems delimited and cross cut simultaneously) as calculated in harvester (definition in appendix) / operator/tree species: 1...var211_t2/1...var111_t1 These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.
:		16	Integer	m3sub	2	Total volume of multi tree processed stems (several stems delimited and cross cut simultaneously) as calculated in harvester (definition in appendix) / operator/tree species: 1...var211_t2/1...var111_t1 These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.
:		20	Integer	no	2	Number of log bunches (equal to no of cross-cuts excluding felling cut) from multi tree processed stems / operator/tree species: 1...var211_t2/1...var111_t1 Never reset during harvesting at a specific site.
249	TOTALVOL	1	integer	m3 (solid u.b.)	2	Total solid volume (including price matrixes tagged with var136 code 4, as well as var243 and var244) /operator/tree species: 1..var211_t2/1..var111_t1 Only volume from stems included in var221_t1 are registered.
		2	integer	m3 (solid o.b.)	2	(see above)
		3	integer	m3 (solid u.b.)	3	Total solid volume (including price matrixes tagged with var136 code 4, as well as var243 and var244) /stem type/tree species: 1..var122_t1/1..var111_t1 Only volume from stems included in var221_t1 are registered.
		4	integer	m3 (solid o.b.)	3	(see above)
		5	integer	m3 (solid u.b.)	3	Total solid volume (including price matrixes tagged with var136 code 4, as well as var243 and var244) /tree species: 1..var111_t1 Only volume from stems included in var221_t1 are registered.
		6	integer	m3 (solid o.b.)	3	(see above)
258	DISTANCE	1	Integer	km	2	Covered distance
		2	Integer	km	2	Covered distance/operator: 1...var211_t2
301	TOTALTIME	1	integer	0.1 h	4	Total reported time (tenths of an hour)
		2	string	hhmm	4	Total reported time (hours, minutes)
		3	integer	0.1 h	4	Total reported time/operator: 1...var211_t2
		4	string	hhmm	4	(see above)
311 *	EFFECTTIME	1	integer	0.1 h	4	Effective (Go) time

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
311	* EFFECTTIME	2	string	hhmm	4	(see above)
	*	3	integer	0.1 h	4	Effective (Go) time/operator: 1...var211_t2
	*	4	string	hhmm	4	Effective (Go) time/operator: 1...var211_t2
312	* G15-time	1	integer	0.1 h	4	G15-A time (normal machine work)
	*	2	string	hhmm	4	(see above)
	*	3	integer	0.1 h	4	Effective (G15 ) time (normal machine work)/operator: 1...var211_t2
	*	4	string	hhmm	4	(see above)
313	* BYTIME	1	integer	0.1 h	4	G15-B time (Other machine work)
	*	2	string	hhmm	4	(see above)
	*	3	integer	0.1 h	4	G15-B time/operator (Other machine work): 1...var211_t2
	*	4	string	hhmm	4	(see above)
314	MOVETIME	1	integer	0.1 h	4	Moving time
		2	string	hhmm	4	(see above)
		3	integer	0.1 h	4	Moving time/operator; 1...var211_t2
		4	string	hhmm	4	(see above)
315	GTIME	1	long integer	sec	1	Down-filter-time, maximum time allowed for a down time, if down time is longer it will be recorded in var317. Default value is 900 s (15 min). The value rules the data in var316_t3, code 3 .
		2	long integer	sec	1	Run-filter-time, A Main work time (Processing, Terrain travel, Other work or Road travel), var316_t3, code 3, 10-13, must exceed this filter time in order to be registered as a new Main work time.. Default value is 120 s (2 min). This means e.g. that a run time shorter than this will be considered to be of the same type of time as the previously registered time.
		3	long integer	sec	1	Minimum-filter-time: Smallest considered time unit. If any time (run time or down time) is shorter it is considered non-existing. Default value is 15 s. This means for example that a down time shorter than this is included in the E0-time, if longer it will not be included in the E0-time
		4	integer	code	1	Registration of whether drf-file is time or object oriented: 0=time oriented (covers all activities within time interval) 1=object oriented (covers all activities within specific harvesting object)
316	RUNTIME	1	integer	no	3	Number of times
		2	integer	no	1	Number of times per operator 1...var211_t2

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description		
316 *	RUNTIME	3	integer	Code	1	Type of time (codes described in appendix): 1...var316_t2 / 1...var211_t2 1= Utilized time which is the sum of all down times (var317) and all effective times (E(t)) 2= E0 3= E(t) according to var315_t1, also called Effective work time 4= Engine 5= Loader/linkage 6= Harvesting unit 10 = Processing time according to var315_t1 (subset of Et) 11 = Terrain travel according to var315_t1 (subset of Et) 12 = Other work according to var315_t1 (subset of Et) 13 = Road travel time according to var315_t1 (subset of Et) 14 = Loading of trucks according to var315_t1 (subset of Et) 20 = Processing time according to var315_t1 (subset of E0) 21 = Terrain travel according to var315_t1 (subset of E0) 22 = Other work according to var315_t1 (subset of E0) 23 = Road travel time according to var315_t1 (subset of E0) 24 = Loading of trucks according to var315_t1 (subset of E0) It is permitted to register the same type of time for the same operator several times or register one summed time per type and operator.		
		4	string	text	2	Description of times: 1...var316_t2 / 1...var211_t2		
		5	longinteger	sec	1	Run time: 1...var316_t2 / 1...var211_t2		
		6	string	hhhhmmss	3	Run time: 1...var316_t2 / 1...var211_t2		
		7	integer	no	3	Number of occasions when times has been registered in var316_t5: 1...var316_t2 / 1...var211_t2 Primarily of interest when summed times are registered in 316_t5 in order to calculate mean values.		
		8	integer	l	3	Fuel consumption: 1...var316_t2 / 1...var211_t2		
		9	integer	km	3	Covered distance: 1...var316_t2 / 1...var211_t2		
		317	IRTIME	1	integer	no	3	Number of down times
				2	integer	no	1	Number of down times per operator: 1...var211_t2

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description		
317 *	IRTIME	3	integer	code	1	Type of down times (codes described in appendix): 1...var317_t2 / 1...var211_t2 10 = Repair time 11 = Waiting for repair time 12 = Maintenance 13 = Trailer time 14 = Disturbance It is permitted to register the same type of time for the same operator several times or one summed time per type and operator.		
		4	string	text	2	Description of down time: 1...var317_t2 / 1...var211_t2		
		5	longinteger	sec	1	Down time: 1...var317_t2 / 1...var211_t2		
		6	string	Hhhmmss	3	Down time: 1...var317_t2 / 1...var211_t2		
		7	integer	no	3	Number of occasions when down times has been registered in var317_t5: 1...var317_t2 / 1...var211_t2 Primarily of interest when summed times are registered in 317_t5		
		318	WORKTIME	1	integer	no	3	Number of work times (for operating machine)
				2	integer	no	1	Number of work times for operating machine per operator: 1...var211_t2
3	integer			code	1	Type of working times for operating machine, including meal breaks. Overlapping between operators not allowed: 1...var318_t2 / 1...var211_t2 1= Start time 2= End timer Should always be registered in pairs with Start time first.		
4	string			yyyymmddhhmmss	1	Start / end of work time for operating machine per operator: 1...var318_t2 / 1...var211_t2/		
5	integer			no	2	Number of total work times for operating machine per operator (sum of all times registered in var318_t4): 1...var211_t2		
6	long integer			sec	2	Total work time for operating machine, including meal breaks, per operator (sum of all times registered in var318_t4): 1...var318_t5 / 1...var211_t2		
7	string			hhhhmmss	3	Total work time for operating machine, including meal breaks, per operator (sum of all times registered in var318_t4): 1...var318_t5 / 1...var211_t2		
319	EXTRATIME	1	integer	no	3	The number of extra times		
		2	integer	no	1	Number of extra times per operator: 1...var211_t2		
		*	integer	code	1	Type of time (codes described in appendix): 1...var319_t2 / 1...var211_t2 1 = Meal break It is permitted to register the same type of time for the same operator several times or the summed time per type and operator		

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
319	EXTRATIME	4	string	text	2	Description: 1...var319_t2 / 1...var211_t2
		5	longinteger	sec	1	Extra time: 1...var319_t2 / 1...var211_t2
		6	string	hhhhmmss	3	Extra time: 1...var319_t2 / 1...var211_t2
		7	integer	no	3	Number of occasions when times has been registered in var319_t6: 1...var319_t2 / 1...var211_t2 Primarily of interest when summed times are registered in 319_t5
320	SHORTIR	1	integer	no	1	Number of time intervals for registering short down times. Short down times are <var315_t1 and >var315_t3, meaning that they are included in E(t) (var316_3, code 3) but excluded from E0 (var316_3, code 2)
		2	integer	sec	1	Lower time limits for registering short down times per time interval: 1...var320_t1 Time interval normally 60 seconds.
		3	integer	no	1	Number of short down times per time interval: 1...var320_t1
321	DELAYTIME	1	integer	0.1 h	4	Total delay time
		2	string	hhmm	4	(see above)
		3	integer	0.1 h	4	Total delay time/operator: 1...var211_t2
		4	string	hhmm	4	(see above)
322	REPTIME	1	integer	0.1 h	4	Repair time
		2	string	hhmm	4	(see above)
		3	integer	0.1 h	4	Total repair time/operator: 1...var211_t2
		4	string	hhmm	4	(see above)
323	WAITREPTIME	1	integer	0.1 h	4	Time waiting for repairs
		2	string	hhmm	4	(see above)
		3	integer	0.1 h	4	Time waiting for repairs/operator: 1...var211_t2
		4	string	hhmm	4	(see above)
324	MAINTTIME	1	integer	0.1 h	4	Maintenance time
		2	string	hhmm	4	(see above)
		3	integer	0.1 h	4	Maintenance time/operator: 1...var211_t2
		4	string	hhmm	4	(see above)
325	WRKDELAYTIME	1	integer	0.1 h	4	Work delay time
		2	string	hhmm	4	(see above)
		3	integer	0.1 h	4	Work delay time/operator: 1...var211_t2
		4	string	hhmm	4	(see above)
326	NONWORKTIME	1	integer	0.1 h	4	Nonworking time (meal breaks etc.)

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
326	NONWORKTIME	2	string	hhmm	4	(see above)
		3	integer	0.1 h	4	Nonworking time/operator: 1...var211_t2
		4	string	hhmm	4	(see above)
327	LOGINTIME	1	integer	no	1	Number of times for logging in or out
		2	integer	no	1	Number of times for logging in or out per operator: 1...var211_t2
		3	integer	code	1	Type of time 1...var327_t2 / 1...var211_t2 1= Start time when logging into the system 2= End timer when logging out of the system
		4	string	yyyymmddhhmmss	1	Start / end time: 1...var327_t2 / 1...var211_t2
328	TOTWORKTI	1	integer	no	3	Number of start and end points for working time (normally paid time for employee)
		2	integer	no	3	Number of start and end points for working time (normally paid time for employee) per operator: 1...var211_t2
		3	integer	code	3	Type of total working time (normally time paid time for employee), including time away from machine and meal breaks. Overlapping between operators allowed. 1...var328_t2 / 1...var211_t2 1= Start time 2= End timer Should always be registered in pairs with Start time first.
		4	string	yyyymmddhhmmss	3	Start / end time (normally time paid time for employee) per operator: 1...var328_t2 / 1...var211_t2
		5	integer	no	3	Number of work times per operator: 1...var211_t2 The sum of this variable should be equal to the total number of all start times (unique code 1) in var328_t3.
		6	integer	no	3	Number of specified work times per operator: 1...var328_t5/1...var211_t2
		7	integer	code	3	Work type per specified work time: 1...var328_t6 / 1...var328_t5 / 1...var211_t2 31610=Processing, 31611=Terrain travel, 31612 = Other work, 31613=Roadtravel, 31710=Repair, 31711=Wait. repair, 31712=Maintenance, 31713=Trailer transp., 31714=Disturbance, 31901=Meal break, 31603 = Effective work time (E(t)), 31700 = Down time, 31800 = Other (normally paid) work outside machine
		8	long integer	sec	3	Specified work times: 1...var328_t6/1...var328_t5/1...var211_t2
10	integer	m3sob	3	Total harvested volume over bark per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2		

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
328	TOTWORKTI	11	integer	M3sub	3	Total harvested volume under bark per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2
		12	integer	no	3	Total no of harvested stems per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2
		13	integer	M3sob	3	Total forwarded volume over bark per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2 Same volume as reported on load code 401 (var446_t1) in prl-file.
		14	integer	M3sub	3	Total forwarded volume under bark per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2 Same volume as reported on load code 402 (var446_t1) in prl-file
		15	integer	kg	3	Total forwarded mass (green) per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2 Same volume as reported on load code 450 (var446_t1) in prl-file
		16	integer	m3 loose	3	Forwarded volume per specified work time and operator , same volume as reported on load code 410 (var446_t1) in prl-file: 1...var328_t6 / 1...var328_t5 / 1...var211_t2
		20	string	text	3	Object identity (identical with var21_t1 in production file) per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2
		21	string	text	3	Sub-object identity (identical with var21_t2 in production file) per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2
		22	string	text	3	Contract no (identical with var35_t1 in production file) per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2
		23	string	text	3	Contract no (identical with var35_t2 in production file) per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2
		24	string	text	3	Compartment number (identical with var21_t3 in production file) per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2
		27	string	code/text	3	Harvesting method, the code is not standardized (identical with var23_t1 in production file) per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2 The operator normally should not need to input any information related to var23 if this variable is included in apt- or oai-file.

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
328	TOTWORKTI	28	string	text	3	Harvesting method (identical with var23_t2 in production file) per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2
		29	integer	ha	3	Area of the site in hectare (identical with var23_t3 in production file) per specified work time and operator: 1...var328_t6 / 1...var328_t5 / 1...var211_t2
329	SHIFTDATA	1	integer	no	2	Number of shifts per operator:1...var211_t2
		2	string	yyyymmddhhmmss	2	Shift start time per operator: 1...var329_t1 / 1...var211_t2
		3	string	yyyymmddhhmmss	2	Shift end time per operator: 1...var329_t1 / 1...var211_t2
		4	integer	code	2	Shift type: 1...var329_t1 / 1...var211_t2 0=not defined,1=morning, 2=day, 3=evening, 4=night. Selected by operator.
		5	string	free text	2	Shift type description: 1...var329_t1 / 1...var211_t2
		6	integer	no	2	Number of sub-shifts per shift : 1...var329_t1 / 1...var211_t2
		7	string	yyyymmddhhmmss	2	Start time of sub-shift: 1...var329_t6 / 1...var329_t1 / 1...var211_t2
		8	string	yyyymmddhhmmss	2	End time of sub-shift: 1...var329_t6 / 1...var329_t1 / 1...var211_t2
		9	integer	code	2	Work type per sub-shift: 1...var329_t6 / 1...var329_t1 / 1...var211_t2 31610=Processing, 31611=Terrain travel, 31612 = Other work, 31613=Roadtravel, 31710=Repair, 31711=Wait. repair, 31712=Maintenance, 31713=Trailer transp., 31714=Disturbance, 31901=Meal break
		10	string	text	2	Work type description (se var329_t1) : 1...var329_t6 / 1...var329_t1 / 1...var211_t2
		11	integer	Pieces	2	Number of harvested stems per species and sub-shift: 1...var111_t1 / 1...var329_t6 / 1...var329_t1 / 1...var211_t2
		12	integer	m3sob	2	Produced volume on bark per assortment and sub-shift: 1...var116_t1 / 1...var111_t1 / 1...var329_t6 / 1...var329_t1 / 1...var211_t2
		13	integer	m3sub	2	Produced volume under bark per assortment and sub-shift: 1...var116_t1 / 1...var111_t1 / 1...var329_t6 / 1...var329_t1 / 1...var211_t2
		14	integer	m3	2	Produced volume per assortment and sub-shift according to price type (var161_t1): 1...var116_t1 / 1...var111_t1 / 1...var329_t6 / 1...var329_t1 / 1...var211_t2
		15	integer	no	2	Produced number of logs(pcs) per assortment and sub-shift: 1...var116_t1 / 1...var111_t1 / 1...var329_t6 / 1...var329_t1 / 1...var211_t2

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
329	SHIFTDATA	16	integer	dl	2	Fuel consumption per sub-shift: 1...var329_t6 / 1...var329_t1 / 1...var211_t2
		17	integer	m	2	Driven distance per sub-shift: 1...var329_t6 / 1...var329_t1 / 1...var211_t2
330	SPECTIME	1	integer	no	1	Number of specified times per operator: 1...var211_t2
		2	integer	code	1	Type of specified time (10=repair, 12 = Maintenance, 14=disturbance): 1...var330_t1 / 1...var211_t2
		3	integer	code	1	Type of disturbance or unit repaired (codes in appendix): 1...var330_t1 / 1...var211_t2
			long integer	sec	2	Specified time, the sum of this variable is equal to code 10, 12 and 14 in var317: 1...var330_t1 / 1...var211_t2
		5	string	hhhhmmss	2	Specified time, the sum of this variable is equal to code 10, 12 and code 14 in var317: 1...var330_t1 / 1...var211_t2
		6	string	text	1	Description, same text as in appendix (see var330_t3) to be used: 1...var330_t1 / 1...var211_t2
		7	integer	no	1	Number of occasions when times has been registered in var330_t4: 1...var330_t1 / 1...var211_t2 Primarily of interest when summed times are registered in 330_t4
		8	string	text	2	Description (free text): 1...var330_t1 / 1...var211_t2
		9	string	text	2	Identity of spare part used in case of reparation, other identity in case of maintenance or disturbance: 1...var330_t1 / 1...var211_t2
		10	string	yyyymmddhhmmss	2	Time when reparation/maintenance/disturbance first started: 1...var330_t1 / 1...var211_t2
11	integer	hours	2	Total engine time (covering total life time of the engine when the file is generated) when reparation/maintenance/disturbance first started: 1...var330_t1 / 1...var211_t		
331	REPAUX	1	integer	0.1 h	4	Repair time on auxiliary unit
		2	string	hhmm	4	(see above)
		3	integer	0.1 h	4	Repair time on auxiliary unit/operator: 1...var211_t2
		4	string	hhmm	4	(see above)
332	WAITREPAUX	1	integer	0.1 h	4	Time waiting for repair on auxiliary unit
		2	string	hhmm	4	(see above)
		3	integer	0.1 h	4	Waiting repair time on auxiliary unit/operator: 1...var211_t2
		4	string	hhmm	4	(see above)

## Operations follow-up variables (drf file)

Var #	Name	Type	Data type	Unit	Pri	Description
333	AUXMAINT	1	integer	0.1 h	4	Maintenance time on auxiliary unit
		2	string	hhmm	4	(see above)
		3	integer	0.1 h	4	Maintenance time on auxiliary unit/operator: 1...var211_t2
		4	string	hhmm	4	(see above)
430	FUEL	1	integer	0.1 l/h	2	Average fuel consumption for a site per operator, that is the fuel consumption during the time covered by the drf-file: 1...var211_t2 "h" refers to engine running time
		2	integer	0.1 l/h	2	Average fuel consumption for the site, that is the fuel consumption during the time covered by the drf- file. "h" refers to engine running time
		3	integer	0.1 l/h	2	Average fuel consumption (over the lifetime of a machine). "h" refers to engine running time
		4	integer	l	2	Fuel consumption for a site per operator, that is the fuel consumption during the time covered by the drf- file: 1...var211_t2
		5	integer	l	2	Fuel consumption (during the life time of machine)
431	ENGTIME	1	string	hours	2	Total engine time, covering total life time of the engine when the file is generated.
448	FRWPROD	1	integer	m3sub	2	Total forwarded volume solid under bark Same volume as reported on load code 402 (var446_t1) in prl-file
		2	integer	m3sob	2	Total forwarded volume solid on bark Same volume as reported on load code 401 (var446_t1) in prl-file
		3	integer	m3sub	2	Total forwarded volume solid under bark per operator:1...var211_t2 Same volume as reported on load code 402 (var446_t1) in prl-file
		4	integer	m3sob	2	Total forwarded volume solid on bark per operator:1...var211_t2 Same volume as reported on load code 401 (var446_t1) in prl-file
		5	integer	kg	2	Total forwarded green mass Same volume as reported on load code 450 (var446_t1) in prl-file
		6	integer	kg	2	Total forwarded green mass per operator:1...var211_t2 Same volume as reported on load code 450 (var446_t1) in prl-file
		7	integer	m3 loose	2	Forwarded loose volumes, same volume as reported on load code 410 (var446_t1) in prl-file
		8	integer	m3 loose	2	Forwarded loose volumes per operator, same volume as reported on load code 410 (var446_t1) in prl-file: var211_t2

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### Operations follow-up variables (drf file)

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Var #	Name	Type	Data type	Unit	Pri	Description
448	FRWPROD	9	integer	no	2	Total number of forwarded loads (also reported on load code 2, var446_t1) in prl-file
		10	integer	no	2	Total number of forwarded loads per operator (also reported on load code 2, var446_t1) in prl-file):1...var211_t2
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

## Requirement-specification variables (Fpm file)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	1	string	Text	4	Filetype: text string as per application
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
2 *	ID	1	string	Text	1	The identity of the apt-file
		2	string	text	3	The name of the apt-file
5 *	VARIANT	1	string	Text	3	Version/model of system control computer (in case of harvester normally identical with bucking computer) used for creating file. Recommended format m v.n, where m is the make and v.n the version number. Observe that up to 80 characters can be used.
13	BUIDATE	1	string	yymmdd	3	Date of current bucking file
110 *	STEMSPEC	1	integer	1,2,3...	3	Stem species
111	NUMTREESPC	1	integer	no	3	Number of tree species
116	NUMASST	1	integer	no	3	Number of price matrices/tree species: 1...var111_t1
117	NUMDIACL	1	integer	no	3	Number of diameter classes/price matrices/tree species: 1...var116_t1/...var111_t1
118	NUMLNTHCL	1	integer	no	3	Number of length classes/price matrix/tree species: 1...var116_t1/1...var111_t1
121	ASSTDESCR	1	string	text	3	Description of assortment/price matrix/tree species: 1...var116_t1/1...var111_t1
131	DIAGRDLMT	1	integer	mm	3	Lower diameter limit (last value, var117_t1+1, gives upper diameter limit): 1...var117_t1+1 / 1...var116_t1 / 1...var111_t1
132	LWRLNTHLMT	1	integer	cm	3	Lower length limit of length class (last value, var118_t1+1, gives upper length limit): 1...var118_t1+1/1...116/1...var111_t1
141	GRADE	1	integer	Integer	3	Grade/price matrix/tree species. 1, 2, 4, 8 etc., where 1 is the highest grade and e.g. 5 indicates grades 1 & 4 apply to the price matrix: 1...var116_t1/1...var111_t1 Always binary number
142	NUMGRADUSD	1	integer	no	3	Number of grades used/tree species: 1...var111_t1 (If the code for the highest grade used is 8 in var141_t1, variable 142 is set to 4, even if code 1 is not used.)

## Requirement-specification variables (Fpm file)

Var #	Name	Type	Data type	Unit	Pri	Description
143 *	GRADDESIG	1	string	Text	3	Grade desription/grade/tree species: 1...var142_t1/1...var111_t1
191	SPECLIST	1	integer	per mille	3	Relative number of logs/diameter class/length class/price matrix/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111 _t1 Allowed values: Integer larger than or equal to zero. (>=0) Desired distribution based on number of cut logs for the whole matrix. The per mille rate is calculated for each price matrix as the denominator.
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

## Geografic information concerning harvesting object (ghd-file)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
2	ID	3	string	text	2	The name of the oai-file
12	DATESAVED	4	string	yyyymmddhhmmss	1	Date when file was last saved
460	GISFILE	1	integer	no	1	Number of GIS-files with geographical/layer data (e.g. shp, mif, tif, jpg)
		2	string	text	1	Name of GIS-files with geographical/layer data (e.g. shp, mif, tif, jpg): 1...var460_t1
		3	integer	code	2	Layer editable in forest machine: 1...var460_t1 0 = true (default), 1 = false False means "Read-only", the operator is only allowed to change the order of the layer and to switch it off (hide). Operator is, for ex, not allowed to change color or positions.
		4	integer	code	2	Order of layer as presented in GIS application: 1...var460_t1 For example, 1 is the topmost layer
		5	integer	code	2	Layer has been modified in forest machine: 1...var460_t1 0 = not modified, 1 = modified, 2 = new/created Code must be 2 if file was created in forest machine, irrespectively of later modifications.
		6	string	yyyymmddhhmmss	2	Date of last modification or creation in forest machine: 1...var460_t1
		7	integer	code	2	Type of tracking file created in forest machine: 1...var460_t1 0 = points, 1 = lines, 2 = polygons, 3 = not a tracking file (default if variable is missing) Observe that this information is only registered in the machine.
		8	integer	code	2	Code specifying whether the file is sent together with ghd-file or not: 1...var460_t1 0 = true, 1 = false (file expected to exist in receiving computer)
		9	string	text	2	File extension per layer (for example "shp", "mif", "jpg" or "tif") : 1...var460_t1
		10	string	text	2	Unique machine identity for each company used to identify in which machine a certain gis-file was updated/modified per layer: 1...var460_t1 The identity must be identical with var3_t2 in for example prd/prl/pri-files. Gis-files only to be modified in one machine.

## Geografic information concerning harvesting object (ghd-file)

Var #	Name	Type	Data type	Unit	Pri	Description
460	GISFILE	11	integer	code	2	Code describing type of machine to identify in which type of machine a certain gis-file was updated/modified per layer: 1...var460_t1 1=harvester (default if variable is missing) 2=forwarder 3=harwarder, machine which handles both harvesting and forwarding 10 = bundler 20 = scarifier 99=other The code must be identical with var3_t3 in for example prd/prl/pri-files Gis-files only to be modified in one machine.
		12	integer	code	2	Layer supposed to be used for storing tracking data in machine, only valid if var464_t1 has value 0-2: 1...var460_t1 0 = true (only one layer per ghd-file) 1 = false Observe that this is an instruction sent to the machine from the forest compan
		13	string	free text	2	Name of gis-layer to be used in user interface instead of file name in var460_t2 : 1...var460_t1
		14	long integer	scale 1:X	2	Max scale per layer : 1...var460_t1 Example, if value is 10000 then max scale for showing present layer is 1:10 000
		15	long integer	scale 1:X	2	Min scale per layer : 1...var460_t1 Example, if value is 1500 then min scale for showing present layer is 1:1500
461	DBFILE	1	integer	no	1	Number of files connected to GIS-files with complimentary/theme data (e.g. dbf, tab, dat, shx, tfw): 1...var460_t1
		2	string	text	1	Name of files connected to GIS-files with complimentary/theme data (e.g. dbf, tab, dat, shx, tfw): 1...var461_t1/ 1...var460_t1
		3	integer	code	2	File sent together with ghd-file: var461_t1/1...var460_t1 0 = true, 1 = false (file expected to exist in receiving computer)
462	LAYERDSCR	1	string	text	1	Column name for name of feature (free text), in files connected to GIS-files with complimentary/theme data (e.g. dbf, tab, dat, shx, tfw) per layer: 1...var460_t1 All applications must be able to present this information in the GIS user interface.
		2	string	text	2	Column name for unique id (free text) per layer: 1...var460_t1
		3	string	text	2	Column name for description (free text) per layer: 1...var460_t1 All applications ought to be able to present this information in the GIS user interface.

## Geografic information concerning harvesting object (ghd-file)

Var #	Name	Type	Data type	Unit	Pri	Description
462	LAYERDSCR	4	string	text	2	Column name for treatment (free text) per layer: 1...var460_t1
		5	string	text	2	Column name for marked in terrain, eg. painted borders per layer: 1...var460_t1 Codes: 0 = yes, 1 = no (default)
		6	string	text	2	Column name for warning (whether machine activities are permitted or not) per layer: 1...var460_t1 Codes: 0 = no warning (default), 1 = warning.
		7	string	text	2	Column name for warning distance (m) per layer: 1...var460_t1
		8	string	text	2	Column name for format class per layer: 1...var460_t1 Used for controlling the appearance of all features included in a specific layer. Format classes defined in var465.
463	OTHFILE	1	integer	no	2	Number of other files included with oai/ghd-file (all relevant file types allowed)
		2	string	text	2	Name of other files included with oai/ghd-file: 1...var463_t1
		3	integer	code	2	File sent together with oai/ghd-file: 1...var463_t1 0 = true, 1 = false (file expected to exist in receiving computer)
464	TRACKING	1	integer	code	2	Indicates what type of tracking file is to be generated by the forest machine 0=points, 1=lines, 2=polygons, 3=no tracking file needed (default) Observe that this information is set by forest company.
465	VISFORM	1	integer	no	1	Number of format classes per GIS-file: 1...var460_t1
		2	string	text	2	Id/name of format classes: 1...var465_t1/ 1...var460_t1
		3	integer	RGB	2	Color (RGB) per format classes: 1...var465_t1/ 1...var460_t1
		4	integer	code	2	Line style per format class: 1...var465_t1/ 1...var460_t1 0=solid, 1=dash, 2=dot, 3=dash-dot, 4=double solid, 5=hash-line (often railway or power line)
		5	integer	point	2	Line thickness, no of points, (independently of line style): 1...var465_t1/ 1...var460_t1
		6	integer	code	2	Fill style: 1...var465_t1/ 1...var460_t1 0=SolidFill, 1=TransparentFill, 2=HorizontalFill, 3=VerticalFill, 4=UpwardDiagonalFill, 5=DownwardDiagonalFill, 6=CrossFill, 7=DiagonalCrossFill, 8=LightGrayFill, 9=GrayFill, 10=DarkGrayFill, 11=HalfTransparentSolidFill
		7	integer		2	Symbol number (symbols in font file stored in var466): 1...var465_t1/ 1...var460_t1

## Geografic information concerning harvesting object (ghd-file)

Var #	Name	Type	Data type	Unit	Pri	Description
465	VISFORM	8	integer	point	2	Symbol size: 1...var465_t1/ 1...var460_t1
		9	string	free text	2	Descriptive name of format class, free text: 1...var465_t1/1...var460_t1
		20	integer	code	2	Default format class to be used if no match is found for certain objects (line, point or polygon): 1...var465_t1/ 1...var460_t1 0 = true, 1 = false (only one format class per layer expected to have value 0)
		21	string	text	2	Name of font file used for symbols to be presented in GIS application per format class and layer: 1...var465_t1/ 1...var460_t1 Var466_t1 to be used if this variable is missing or empty
		22	integer	code	2	Font file sent together with ghd-file per format class and layer: 1...var465_t1/ 1...var460_t1 0 = true, 1 = false (file expected to exist in receiving computer) Var466_t2 to be used if this variable is missing or empty
466	FONTFILE	23	string	text	2	Font name used for symbols to be presented in GIS application per format class and layer: 1...var465_t1/ 1...var460_t1 Var466_t3 to be used if this variable is missing or empty
		1	string	text	1	Name of font file used for symbols to be presented in GIS application.
		2	integer	code	2	Font file sent together with ghd-file 0 = true, 1 = false (file expected to exist in receiving computer)
467	GHDINFO	3	string	text	2	Font name used for symbols to be presented in GIS application.
		1	integer	code	1	Specification of where ghd-file was last updated. 0 = not saved in forest machine (that is for example an administrative system at the office), 1 = saved in forest machine
:	*	2	string	code	1	Coordinate reference system used for all layers/gis-files, codes according to the EPSG database ( <a href="http://www.epsg.org/">http://www.epsg.org/</a> ), see also appendix.
520	COORDREF	1	integer	code	3	Position of coordinate registration in file: 1= Base machine position 2= Crane tip position when felling the tree (harvester) 3 = Crane tip position when processing the tree (harvester)
:	521	1	integer	code	2	1=coordinates stored as a difference from the starting coordinates (COORDSTART var522) 2=absolute coordinates are stored in the file.
:						

## Geografic information concerning harvesting object (ghd-file)

Var #	Name	Type	Data type	Unit	Pri	Description
522	COORDSTART	1	long integer	0.00001 degrees	2	Latitude, absolute value, primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values. Registered according to var521_t2 and var520_t1.
		2	integer	code	2	1=North, 2=South Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values, registered according to var521_t2 and var520_t1.
		3	long integer	0.00001 degrees	2	Longitude, absolute value, primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values. Registered according to var521_t2 and var520_t1.
		4	integer	code	2	1=East, 2=West Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values, registered according to var521_t2 and var520_t1.
		5	integer	meter	2	Altitude, height above sea level, registered according to var521_t2 and var520_t1. Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values.
		6	string	yyyymmddhhmmss	2	Date and time when recording data in var522.
523	COORD	1	long integer	0.00001 degrees	2	Latitude, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t1) is recorded as the difference from var522_t1. Variable excluded when no signal (invalid) is received from the gps.
		2	integer	code	2	1=North, 2=South The code in var522_t2 is valid for all coordinates if this code is excluded. Variable excluded when no signal (invalid) is received from the gps.
		3	long integer	0.00001 degrees	2	Longitude, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t3) is recorded as the difference from var522_t3. Variable excluded when no signal (invalid) is received from the gps.
		4	integer	code	2	1=East, 2=West The code in var522_t4 is valid for all coordinates if this code is excluded. Variable excluded when no signal (invalid) is received from the gps.
		5	integer	meter	2	Altitude, height above sea level, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t5) is recorded as the difference from var522_t5. Variable excluded when no signal (invalid) is received from the gps.

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### Geografic information concerning harvesting object (ghd-file)

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Var #	Name	Type	Data type	Unit	Pri	Description
: 523	COORD	6	string	yyyymmddhhmmss	2	Date and time when coordinates in var523 were recorded Variable excluded when no signal (invalid) is received from the gps.
:		7	integer	code	2	Code for type of object with position according to coordinates in var523, point of measurement is according to var520_t1: 1 = harvested stem (in stm-file) 2 = alarm coordinates (one per harvesting site) Variable excluded when no signal (invalid) is received from the gps.

Used by GIS application. Normally sent in compressed format together with an unlimited number of gis-files (for example shp, mif, jpg, tif). Includes definitions of how different layers should be presented and handled.  
An oai-file must always be sent together with the ghd-file. The oai-file is always considered to have the highest hierarchical order.

## Production variables for Germany (hks file)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	1	string	Text	4	Filetype: text string as per application
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

## Inventory variables (inv file)

Var #	Name	Type	Data type	Unit	Pri	Description	
1	FILETYPE	1	string	Text	4	Filetype: text string as per application	
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)	
		*	3	string	text	1	Code page character set, ISO-code
			4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
12	DATESAVED	1	string	yymmdd	4	(see above)	
		2	string	yymmddhhmm	4	Date when file was last saved	
		3	string	yymmddhhmmss	4	Date when file was last saved	
		4	string	yyymmddhhmmss	2	Date when file was last saved	
21	* SITENO	1	string	Text	2	Logging unit number (mandatory in prd-, pri-, stm- and ktr-files)	
111	NUMTREESPC	1	integer	no	1	Number of tree species	
120	TREESPEC	1	string	Text	2	Name of tree species: 1...var111_t1	
		2	string	Text	1	Name of tree species	
222	NUMSTEMSPCS	3	integer	pieces	2	Numer of stems/sample plot: 1...var651_t1	
501	NUMDBHCL	1	integer	no	3	Number of dbh classes/tree species: 1...var111_t1	
502	LOWDBHBRK	1	integer	mm	3	Lower DBH limit on bark/dbh class/tree species: 1...var501_t1/1...var111_t1	
503	NUMSTEMDBH	1	integer	pieces	3	Number of stems/DBH class/tree species: 1...var501_t1/1...var111_t1 The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.	
651	NUMSPLOT	1	integer	no	1	Number of sample plots	
652	* TREESPC	1	integer	integer	2	Tree species/number of trees/ sample plot: 1...var222/1...var651_t1	
653	DBH	1	integer	integer	2	Breast height diameter/tree/sample plot: 1...var222/1...var651_t1	
654	NUMHEIGHTS	1	integer	no	2	Number of tree heights, for total tree, to quality breaks, defects etc./tree/sample plot: 1...var222/1...var651_t1 0=sample tree not measured	
655	* HEIGHTCODE	1	integer	integer	2	Codes for measured heights/height/tree/sample plot: 1... var654/1...var222/1...var651_t1	

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### Inventory variables (inv file)

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Var #	Name	Type	Data type	Unit	Pri	Description
656	HEIGHT	1	integer	integer	2	Measured height for total tree, to quality breaks, defects etc./height/tree/ sample plot. 1... var654/1...var222/1...var651_t1
657	HARVTREE	1	integer	code	3	Code/tree/sample plot stating whether tree will be left or cut in subsequent harvest operation: 1...var222/1...var651_t1 0= to be removed/harvested (default), 1=to be left, not harvested, 2= to be removed/ harvested in strip road
660	STANDAGE	1	Integer	Year	3	The mean age of the stand.
		2	Integer	Year	3	Standard deviation for var660_t1.
670	UNITAREA	1	integer	m2	2	Area of logging unit.
671	PLOTAREA	1	integer	m2	2	Area/sample plot:1...var651_t1
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

File type implemented 1997-04-21

## Calibration variables (kal file)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	1	string	Text	4	Filetype: text string as per application
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
		*	3 string	text	1	Code page character set, ISO-code
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
3 *	MCHNNO	1	string	Text	3	Machine number
12	DATESAVED	1	string	yymmdd	4	(see above)
		4	string	yyyymmddhhmmss	3	Date when file was last saved
15	CALIBRSN	2	String	Text	4	Reason for calibration: No correction = 0 Repair of measurment system = 1 Change in weather conditions = 2 Other reasons = 3
40	NMLNGTHCAL	1	integer	no	3	Number of length calibrations (suggestion, at least last three calibrations)
		2	Integer	no	3	Number of length calibrations per tree species (suggestion, at least last three calibrations): 1...var111_t1
41	LGTHCALDAT	3	string	Date	4	Length calibration date: 1...var40_t1
		4	string	yyyymmddhhmmss	3	Length calibration date: 1...var40_t2/1...var111_t1
42	LGTHCALRSN	1	string	Text	3	Length calibration reason: 1...var40_t2/1...var111_t1
43	NUMDIACAL	1	integer	no	3	Number of diameter calibrations (suggestion, at least last three calibrations)
		2	Integer	no	3	Number of diameter calibrations per tree species (suggestion, at least last three calibrations): 1...var111_t1
44	DIACALDAT	3	string	Date	4	Diameter calibration date:1...var43
		4	string	yyyymmddhhmmss	3	Diameter calibration date:1...var43_t2/1...var111_t1
45	DIACALRSN	1	string	Text	3	Diameter calibration reason: 1...var43_t2/1...var111_t1
46	CALLNGTH	1	Integer	cm	3	Length positions (suggested length 500 cm): 1...var40_t3/1...var40_t2/1...var111_t1
47 *	CORRLNGTH	1	Integer	mm	3	Adjustment per length position: 1...var40_t3/1...var40_t2/1...var111_t1
48	CALDIA	1	Integer	mm	3	Diameter position (suggested diameters 50,100,150...700): 1...var43_t3/1...var43_t2/1...var111_t1
49 *	CORRDIA	1	Integer	mm	2	Adjustment per diameter position: 1...var43_t3/1...var43_t2/1...var111_t1

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### Calibration variables (kal file)

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Var #	Name	Type	Data type	Unit	Pri	Description
111	NUMTREESPC	1	integer	no	3	Number of tree species
120	TREESPEC	1	string	Text	3	Name of tree species: 1...var111_t1
375	DIACALPTS	1	integer	no	3	Number of diameter calibration points/tree species: 1...var111_t1
390	BLCALLNGTH	1	integer	mm	3	Baseline value for calibration of length/tree species
		2	integer	mm	3	Ditto for butt log
391	PCALLNGTH	1	integer	mm	3	Previous value for calibration of length/tree species
		2	integer	mm	3	Ditto for butt log
392	CALLNGHT	1	integer	mm	3	Value for calibration of length/tree species
		2	integer	mm	3	Ditto for butt log
393	BLCALDIA	1	integer	mm	3	Baseline value for calibration of diameter/tree species
394	PRECALDIA	1	integer	mm	3	Previous value for calibration of diameter/tree species: 1...var111_t1
395	CALDIA	1	integer	mm	3	Value for calibration of diameter/tree species: 1...var111_t1
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description	
1	FILETYPE	1	string	Text	4	Filetype: text string as per application	
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)	
		*	3	string	text	1	Code page character set, ISO-code
			4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
2	ID	5	string	text	2	The name of the spp-file	
		6	string	text	2	Identity of the spp-file version.	
3 *	MCHNNO	*	1	string	Text	1	Machine number
		*	2	String	Text	1	Unique machine identity for each company, for example used when using the harvester to measure for payment.
			4	string	text	1	Caliper identity
			5	string	text	2	Machine manufacturer. Free text that describes the machine manufacturer.
			6	string	text	2	Machine model. Free text that describes the model of the machine.
			7	string	text	2	Harvester head manufacturer. Free text that describes the head manufacturer.
			8	string	text	2	Harvester head model. Free text that describes the model of the harvester head.
		5 *	VARIANT	1	string	Text	1
		4	string	text	1	Version of caliper software	
12	DATESAVED	4	string	yyyymmddhhmmss	1	Date when file was last saved	
14	CALIBDATE	1	string	yymmdd	4	Calibration date	
		2	string	yymmddhhmm	4	(see above)	
		3	string	yymmddhhmmss	4	(see above)	
		4	string	yyyymmddhhmmss	4	Calibration date	
15	CALIBRSN	1	string	Text	4	Reason for calibration	
		2	String	Text	4	Reason for calibration: No correction = 0 Repair of measurement system = 1 Change in weather conditions = 2 Other reasons = 3	
16	STARTDATE	1	string	yymmdd	4	Start date	

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description	
16	STARTDATE	2	string	yymmddhhmm	4	(see above)	
		3	string	yymmddhhmmss	4	(see above)	
		4	string	yyyymmddhhmmss	3	Time and date for starting production at a site for the first time. Mandatory in prd/pri/prl-file.	
17	ENDDATE	1	string	yymmdd	4	End date	
		4	string	yyyymmddhhmmss	3	Time and date for ending a site. Used only when the when the harvesting machine is not to return to the site. Mandatory in prd-file when site is finished.	
18	CONTRDATE	1	string	yymmdd	4	Control measurement date	
		2	string	yymmddhhmm	4	(see above)	
		3	string	yymmddhhmmss	4	(see above)	
		4	string	yyyymmddhhmmss	1	Measuring date for each stem (date when stem was harvested and measured by harvester, M1-measurement)	
		5	string	yyyymmddhhmmss	1	Control measuring date for operator (M2). Registered for each stem in ktr-file.	
		6	string	yyyymmddhhmmss	1	Control measuring date for 3rd party (M3). Registered for each stem in ktr-file.	
21 *	SITENO	1	string	Text	1	Logging unit number (mandatory in prd-, pri-, stm- and ktr-files)	
		*	2	string	text	1	Marking for cutting
		*	3	string	text	2	Compartment number
		*	4	string	text	2	Lot number
		31 *	ORG	1	string	Text	3
34 *	SUBCON	2	string	text	1	The contractors code	
		*	3	string	text	2	The name of the contractor
		*	4	string	text	2	The address of the contractor
		*	5	String	Text	2	The e-mail address of the contractor
		*	6	String	Text	2	The telephone and fax numbers of the subcontractor
		35 *	CONTRACTNO	1	string	Text	1
*		2	String	Text	1	Contract number in the Swedish VIOL-system	
38	CONTRMEAS	1	string	Text	3	Control measurer	
		2	string	text	2	Identity of auditor	
		3	integer	code	1	Type of log (ktr-file) according to registration in caliper: 1=OK for calibration, 0= Not to be used for calibration (Only registered in caliper): 1...var290_t1	
		4	integer	code	1	Type of stem selection (for control and calibration): 1-Randomized stem, 2-Manually by operator selected stem, 0-Other	

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description		
38	CONTRMEAS	5	integer	code	2	Acceptance/rejection of randomized stem, if code in var38_t4 is 1 (used for randomized stem): 1- Accepted, to be manually measured with caliper, 2- Rejected, not to be manually measured with caliper, 0-Other		
		6	integer	pieces	1	No of harvested stems since last generation of ktr-file. Reset after each generation of a ktr-file, meaning a rejected stem is only logged once in a ktr-file.		
		7	integer	pieces	2	No of rejected randomized control stems since last generation of ktr-file. Reset after each generation of a ktr-file, meaning a rejected stem is only logged once in a ktr-file.		
		8	integer	integer	2	Control stem number for rejected stems, (identical with var270_t3 in stm-file): 1...var38_t7		
		9	string	yyyymmddhhmmss	2	Harvesting time for rejected stems (identical with var18_t4): 1...var38_t7		
		10	integer	code	2	Reason for rejection of randomly selected stems: 0 = Not rejected, 1 = Stem defect, 2 = Out of reach, 3 = Part of stem mixed up with other stems, 4 = Poor weather, 7 = Bucking system error, 8 = Caliper broken, 9 = Other reasons not defined: 1...var38_t7		
		11	integer	code	2	Code for measurement mode per stem in ktr-file. Set in caliper. Codes for caliper measurement modes: 1 = both diameters and lengths registered, 2 = only lengths registered		
		40	NMLNGTHCAL	1	integer	no	2	Number of length calibrations (suggestion, at least last three calibrations)
				2	Integer	no	2	Number of length calibrations per tree species (suggestion, at least last three calibrations): 1...var111_t1
				3	integer	no	2	Number of length positions per calibration and tree species (suggestion, at least one point at 500 cm): 1...var40_t2/1...var111_t1
		41	LGTHCALDAT	3	string	Date	4	Length calibration date: 1...var40_t1
4	string			yyyymmddhhmmss	2	Length calibration date: 1...var40_t2/1...var111_t1		
42	LGTHCALRSN	1	string	Text	2	Length calibration reason: 1...var40_t2/1...var111_t1		
		2	integer	code	2	Code for length calibration reason: 1...var40_t2/1...var111_t1 0 = Repair of measurement system 1 = Change in weather conditions 9 = Other reasons		
43	NUMDIACAL	1	integer	no	2	Number of diameter calibrations (suggestion, at least last three calibrations)		

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description
43	NUMDIACAL	2	Integer	no	2	Number of diameter calibrations per tree species (suggestion, at least last three calibrations): 1...var111_t1
		3	integer	no	2	Number of diameter positions per calibration and tree species (suggestion, 14 points at diameters 50,100,150...700): 1...var43_t2/1...var111_t1
44	DIACALDAT	4	string	yyyymmddhhmmss	2	Diameter calibration date:1...var43_t2/1...var111_t1
45	DIACALRSN	1	string	Text	2	Diameter calibration reason: 1...var43_t2/1...var111_t1
		2	itneger	code	2	Code for diameter calibration reason: 1...var43_t2/1...var111_t1 0 = Repair of measurement system 1 = Change in weather conditions 9 = Other reasons
46	CALLNGTH	1	Integer	cm	2	Length positions (suggested length 500 cm): 1...var40_t3/1...var40_t2/1...var111_t1
47 *	CORRLNGTH	1	Integer	mm	2	Adjustment per length position: 1...var40_t3/1...var40_t2/1...var111_t1
		2	integer	mm	2	Adjustment per length position for butt logs, that is the difference in adjustment comparing to length adjustment of non butt logs. Used if separate butt log calibration exist in harvester: 1...var40_t3/1...var40_t2/1...var111_t1
48	CALDIA	1	Integer	mm	2	Diameter position (suggested diameters 50,100,150...700): 1...var43_t3/1...var43_t2/1...var111_t1
49 *	CORRDIA	1	Integer	mm	2	Adjustment per diameter position: 1...var43_t3/1...var43_t2/1...var111_t1
		2	long integer	1/10000	3	Diameter adjustment, constant "a" in "Diameter adjustment (mm) = a + b*Measured diameter (mm)",if linear regression method is used for diameter calibration: 1...var43_t2/1...var111_t1
		3	long integer	1/10000	3	Diameter adjustment, factor "b" in "Diameter adjustment (mm) = a + b*Measured diameter (mm)",if linear regression method is used for diameter calibration: 1...var43_t2/1...var111_t1
110 *	STEMSPEC	1	integer	1,2,3...	1	Stem species
		2	integer	1,2,3...	1	Type 2 is used from 2nd stem onwards if several stems are saved in the same file. If more than one stem are stored in the same file, the common variables could be stored in the beginning of the file. Unique data for every stem starts with var110.
111	NUMTREESPC	1	integer	no	2	Number of tree species
112	NUMBARKPAR	1	integer	no	2	Number of bark parameters/tree species: 1...var111_t1. The variable is used together with var113_t1.

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description	
112	NUMBARKPAR	2	integer	no	2	Number of diameter breaks/tree species: 1...var111_t1. The variable is used together with variable 113, type 2 and type 3. (based on German requirements)	
113	BARKPAR	1	integer	0.01 mm	0.1%%	2	Bark parameters/tree species (first parameter in 100ths of mm; second in 10ths per mille): 1...var112_t1/1...var111_t1
		2	integer	mm		2	Lower diameter limits/tree species: 2...var112_t2/1...var111_t1 (based on German requirements)
		3	integer	0.01 mm		2	Deduction for double bark thickness/tree species: 1...var112_t2/1...var111_t1 (based on German requirements)
		4	long integer	0.00001 degrees		2	Latitude used in bark function
	*	7	integer	code		2	Type of bark function per species: 1...var111_t1 1= Function according to var113_t1 2= Function according to var113_t2 & var113_t3 3=Skogforsk 2004, Scots pine 4=Skogforsk 2004, Norway spruce
125	NUMPRODGRP	1	integer	no		3	Number of product groups/tree species: 1...var111_t1
126	PRODGRPNUM	1	integer	no		3	Product group number/price matrix/tree species: 1...var116_t1/1...var111_t1
127	PRODESCR	1	string	Text		3	Description of product/product group/tree species: 1...var125/1...var111_t1
164	DIAMTYPE	1	integer	Code		3	Principle for registered diameter/price matrices/tree species: 0 = Bucked length, cm (default in Finland) 1 = Required length as per var132 2 = Bucked random lengths, dm 1...var116_t1/1...var111_t1
		2	integer	cm		4	Module-start length for registered (filtered) diameter/price matrix/tree species: 1...var116_t1/1...var111_t1
		3	integer	cm		4	Module step/price matrix/tree species: 1..var116_t1/1..var111_t1
		4	integer	cm		3	Distance from log top/price matrix/tree species: 1...var116_t1/1...var111_t1 Type 4 and distance 10 cm are default values if var164 missing
		5	integer	cm		3	As for type 1 but for unfiltered values
		6	integer	cm		3	As for type 2 but for unfiltered values
		7	integer	cm		3	As for type 3 but for unfiltered values
		8	integer	cm		3	As for type 4 but for unfiltered values

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description
170	BUTTDIAM	1	integer	code	2	Type of butt end profile extrapolation method. Used for extrapolation of butt end diameter values. Volume calculation of butt end is done according the extrapolated diameters. Method can be chosen separately for each tree species: 1...var111_t1. 0 or no code = machine specific system for extrapolation, 1 = coefficient tables (type 3-7), 2 = function (type 8-12)
200	OPTNLTXT	2	long string	text	3	Optional free text for sending information to the machine. No changes are allowed in the machine. Maximum 300 characters allowed.
		3	long string	text	3	Optional text for sending information from the machine. Maximum 300 characters allowed.
211	OPERATOR	1	integer	ld no	2	Operator name/id, repeated for each stem in ktr- and stm-files
270	STEMNUM	1	integer	1..9999	2	Number of the stem
		2	integer	integer	2	Unique number of randomly sampled stem, used for identifying control stems. Should be 0 (or excluded) if not sampled for control. Possible for operator to reset/set. To be used even if stem is not used for control measuring (rejected according to var38)
		3	integer	integer	1	Unique stem identity to be used for all types of stems (independently of whether it is a randomly selected stem or not) in both ktr- and stm-files. Not to be modified by operator. Incremented with each harvested stem. Reset when starting at harvesting object.
290	NUMLOGS	1	integer	pieces	2	Number of logs (sawlogs and pulpwood). All logs registered in the current file are to be included.
291	TOPDIAOB	3	integer	mm (o.b.)	2	Top diameter of logs on bark (measured manually by operator, M2): 1...var290_t1
		5	integer	mm (o.b.)	2	Top diameter of logs on bark (measured by machine, M1): 1...var290_t1
		6	integer	mm (o.b.)	2	Top diameter of logs on bark (measured by auditor, M3): 1...var290_t1
		7	integer	mm (o.b.)	2	Manually measured top diameters of logs over bark, first unfiltered diameter value from cross measurement (measured manually by operator, M2): 1...var290_t1
		8	integer	mm (o.b.)	2	Manually measured top diameters of logs over bark, second unfiltered diameter value from cross measurement (measured manually by operator, M2): 1...var290_t1
		9	integer	mm (o.b.)	2	Manually measured top diameters of logs over bark, first unfiltered diameter value from cross measurement (measured by auditor, M3): 1...var290_t1

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description
291	TOPDIAOB	10	integer	mm (o.b.)	2	Manually measured top diameters of logs over bark, second unfiltered diameter value from cross measurement (measured by auditor M3): 1...var290_t1
		11	integer	mm (o.b.)	3	Measured top diameters of logs over bark, first unfiltered diameter value from cross measurement with 90 dgrs angle(measured by machine, M1): 1...var290_t1
		12	integer	mm (o.b.)	3	Measured top diameters of logs over bark, second unfiltered diameter value from cross measurement with 90 dgrs angle (measured by machine, M1): 1...var290_t1
292	TOPDIAUB	3	integer	mm (u.b.)	2	Top diameter of logs under bark (manual scaling): 1...var290_t1
		5	integer	mm (u.b.)	2	Top diameter of logs under bark (measured by machine): 1...var290_t1
293	LOGLNGTH	1	integer	cm	3	Log length: 1...var290_t1
		3	integer	cm	2	Length of logs, (manual scaling, M2): 1...var290_t1
		5	integer	cm	2	Length of logs, (measured by machine, M1): 1...var290_t1
		6	integer	cm	2	Length of logs, (measured by auditor, M3): 1...var290_t1 Log length measured by auditor
		7	integer	mm	2	Value of separate length correction of the butt log, in millimeters. Values can be either positive (+) or negative (-). Used for butt end logs only (one value per stem). Only used/registered if separate correction function for butt logs is implemented and used in harvester.
296	PRICEMATR	2	string	text	2	Description of price matrix: 1...var290_t1
		3	string	Assortment code	2	Assortment code (same code as in var121_t2) /log: 1...var290_t1

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description
296 *	PRICEMATR	4	integer	code	2	Type of price category per log (same codes as in var161_t1): 1...var290_t1 1 = price/m3 (volume by small-end diameter); 2 = price/m3 (solid); 3 = price/log; 4 = price/m3 (Norwegian price category) 5 = price/m3 (Swedish top and butt end measuring); 6 = price/m3 (solid, measured at midpoint, price due to small-end diameter, HKS diameter, German price category) 7 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, HKS diameter, German price category) 8 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, (Danish price category) 9 = price/board feet (American price category) 10 = price/m3 (solid, diameter measured at midpoint, price due to small-end diameter) diameter in mm 11 = price/log (Norwegian price category) If the price applies to volumes including bark, add 128 to the price-category number, e.g. m3 (solid o.b.) = 130: 1...var116_t1/1...var111_t1 All the codes are described in detail in appendix (var161).
298	LOGSPCS	1	integer	Integer	3	Registered tree species for logs: 1...var290_t1
299	LOGVOL	1	integer	0.0001 m3	3	Volume of logs as specified by var296_t4: 1...var290_t1
		2	Integer	0.0001 m3sub	2	Solid volume of logs under bark: 1...var290_t1
		3	Integer	0.0001 m3sob	2	Solid volume of logs on bark, measured by harvester: 1...var290_t1
		4	integer	0.0001 m3sob	2	Solid volume of logs on bark based on manual control measurements (M2) with caliper, calculated in caliper or in bucking computer(calculation method specified in var299_t10 and var299_t11): 1...var290_t1 Data used for calculation stored in var291_3, var293_t3, var373_t3, var374_t5 and spp-file (depending on code var299_t11).
*		10	integer	code	3	Type of volume calculation method used for solid volume of logs on bark based on control measurements with caliper (var299_t4) 0 = not defined 1 = cylinder formula, 2 = truncated cone formula, The formulas are described in StanForD Appendix.

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description	
299	LOGVOL	11	integer	code	3	Type of diameters used when calculating butt end (first meter of stem from butt end) solid volume on bark, based on control measurements with caliper (var299_t4) 1 = using spp-diameters 2 = using machine measured butt diameters or extrapolated diameters	
306	LOGID	1	string	Text	3	Log ID. e.g. position in stem, Log No., etc.: 1...var290_t1	
		2	integer	integer	3	Unique log number for randomly sampled stems, used for identifying control logs. Should be 0 (or excluded) if not sampled for control. To be used even if stem is not used for control measuring (rejected according to var38) :1...var290_t1	
361	SAMPLE	1	integer	Integer	2	Sampling principle for stm files:1 = all stems, 2 = random sample	
		3	integer	no	3	Sampling interval, random	
		4	Integer	Code	3	Code stating the type of interval between samples for present species: 1 = Number of stems, (one control stem per frequency according to var361_t3) 2 = Time, (one control stem per machine hour according to var361_t3) 3 = Volume, (one control stem per m3sob according to var361_t3)	
		5	integer	mm (o.b.)	3	Minimum DBH for randomly selected tree	
		6	integer	no	3	Log number when operator is notified that the stem has been randomly selected for control purposes. Is to be done when position for cutting of log has been decided but prior to the actual cutting of the log.	
		7	string	Hhmmss	3	Earliest time when stem is to be randomly selected, used in order to avoid random selection during the dark hours. This variable must be used in ktr-files if a timer exist for turning off random selection.	
		8	string	Hhmmss	3	Latest time when stem is to be randomly selected, used in order to avoid random selection during the dark hours. This variable must be used in ktr-files if a timer exist for turning off random selection.	
		*	9	integer	cm	3	Minimum log length for randomly selected stems. At least one log within a stem must be at least this long if stem is to be selected as a randomly selected control stem.
							Operator is never notified that it is a control stem until this criterion is met. Criterion in var361_t6 also has to be met before operator is notified. This means that the operator may be notified at a log no higher than set in var361_t6 if var361_t9 is larger than 0. Observe the similarities with var361_t5.

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description
361	SAMPLE	20	integer	no	2	Number of random control stem settings per species, recommendation is the last five settings:1..var111_t1 The order shall be latest setting first.
		21	integer	no	2	Sampling interval for randomly selected control stems (for present species): 1..var361_t20/1..var111_t1 Observe that unit depends on code in var321_t22
		22	Integer	Code	2	Code stating the type of interval between samples for present species: 1..var361_t20/1..var111_t1 1 = Number of stems, (one control stem per frequency according to var361_t21) 2 = Time, (one control stem per machine hour according to var361_t21) 3 = Volume, (one control stem per m3sob according to var361_t21)
		23	integer	mm (o.b.)	2	Minimum DBH for randomly selected tree: 1..var361_t20/1..var111_t1
		24	integer	no	2	Log number when operator is notified that the stem has been randomly selected for control purposes. Is to be done when position for cutting of log has been decided but prior to the actual cutting of the log: 1...var361_t20/1..var111_t1
		25	string	Hhmmss	3	Earliest time when stem is to be randomly selected, used in order to avoid random selection during the dark hours: 1...var361_t20/1..var111_t1 This variable must be used in ktr-files if a timer exist for turning off random selection.
		26	string	Hhmmss	3	Latest time when stem is to be randomly selected, used in order to avoid random selection during the dark hours: 1...var361_t20/1..var111_t1 This variable must be used in ktr-files if a timer exist for turning off random selection.
	*	27	integer	cm	3	Minimum log length for randomly selected stems: 1...var361_t20/1..var111_t1 At least one log within a stem must be at least this long if stem is to be selected as a randomly selected control stem.  Operator is never notified that it is a control stem until this criterion is met. Criterion in var361_t6 also has to be met before operator is notified. This means that the operator may be notified at a log no higher than set in var361_t6 if var361_t9 is larger than 0. Observe the similarities with var361_t5.
		28	string	yyyymmddhmmss	2	Date and time when the random control settings were last modified in any way for present species. Making it possible to track changes in the settings of random selection of control stems: 1..var361_t20/1..var111_t1
372	NUMBDIA	1	integer	no	3	Number of control diameters:1...var290_t1

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description
372	NUMBDIA	3	integer	no	3	Number of control diameters for manual measuring (M2) per log: 1...var290_t1
		5	integer	no	2	Number of control diameters for measuring by machine (M1) per log: 1...var290_t1
		7	integer	no	2	Number of control diameters for measuring by auditor (M3) / log: 1...var290_t1 Usually the same value as in var372_t3 and var372_t5.
373	CONTDIA	1	integer	mm	3	Control diameters: 1...var372_t1/1...var290_t1
		2	integer	mm	3	Unfiltered diameters: 1...var372_t1/1...var290_t1
		3	integer	mm (o.b.)	2	Measured control diameters, filtered, measured manually (M2): 1...var372_t3/1...var290_t1
		4	integer	mm (o.b.)	3	Measured control diameters, unfiltered, measured manually (M2): 1...var372_t3/1...var290_t1
		5	integer	mm (o.b.)	2	Measured control diameters, filtered, measured by machine (M1): 1...var372_t5/1...var290_t1
		6	integer	mm (o.b.)	3	Measured control diameters, unfiltered, measured by machine (M1): 1...var372_t5/1...var290_t1
		7	integer	mm (o.b.)	2	Measured control diameters, filtered, measured by auditor (M3): 1...var372_t7/1...var290_t1
		8	integer	mm (o.b.)	2	Manually measured control diameters over bark, first unfiltered diameter value from cross measurement, measured manually by operator (M2): 1...var372_t3/1...var290_t1
		9	integer	mm (o.b.)	2	Manually measured control diameters over bark, second unfiltered diameter value from cross measurement, measured manually by operator (M2): 1...var372_t3/1...var290_t1
		10	integer	mm (o.b.)	2	Manually measured control diameters over bark, first unfiltered diameter value from cross measurement, measured by auditor (M3): 1...var372_t7/1...var290_t1
		11	integer	mm (o.b.)	2	Manually measured control diameters over bark, second unfiltered diameter value from cross measurement, measured by auditor (M3): 1...var372_t7/1...var290_t1
		12	integer	mm (o.b.)	3	Measured control diameters over bark, first unfiltered diameter value from cross measurement with 90 dgrs angle, (measured by machine, M1): 1...var372_t5/1...var290_t1
		13	integer	mm (o.b.)	3	Measured control diameters over bark, second unfiltered diameter value from cross measurement with 90 dgrs angle, (measured by machine, M1): 1...var372_t5/1...var290_t1
374	CONTPOS	1	integer	cm	3	Control position: 1...var372_t1/1...var290_t1
		3	integer	cm	3	Control position for manual measuring (M2): 1...var372_t3/1...var290_t1

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description
374	CONTPOS	5	integer	cm	2	Control position for measuring by machine (M1), used instead of var374_t3 if that variable is missing: 1...var372_t5/1...var290_t1
		7	integer	no	2	Control position for measuring by auditor (M3), used instead of var374_t3 if var374_t7 exists: 1...var372_t7/1...var290_t1 Usually the same value as in var374_t3 and var374_t5.
375	DIACALPTS	1	integer	no	4	Number of diameter calibration points/tree species: 1...var111_t1
376	DIACALPTS	1	integer	mm	4	Actual machine-measured diameters/ calibration point/tree species: 1...var375_t1/1...var111_t1
		2	integer	mm	4	Actual machine-measured diameters/ calibration point: 1...var375_t1
377	DIACALPTS	1	integer	mm	4	Nominal values of measured diameters/calibration point/tree species: 1...var375_t1/1...var111_t1
378	ACTLNGTH	1	integer	cm	4	Actual length/calibration point/tree species: 1...var386_t1/1...var111_t1
		2	integer	cm	4	Actual length of butt-log trimming/calibration point/tree species: 1...var386_t1/1...var111_t1
		3	integer	cm	4	Actual length/calibration point: 1...var386_t1
		4	integer	cm	4	Actual length of butt-log trimming/calibration point: 1...var386_t1
379	NOMLNGTH	1	integer	cm	4	Nominal length/calibration point/tree species: 1...var386/1...var111_t1
		2	integer	cm	4	Nominal length of butt-log trimming/calibration point/tree species: 1...var386/1...var111_t1
		3	integer	cm	4	Nominal length/calibration point: 1...var386
		4	integer	cm	4	Nominal length of butt-log trimming/calibration point: 1...var386
380	AVRGTRIM	1	integer	cm	4	Average butt-log trimming allowance/calibration point: 1...var111_t1
		2	integer	cm	4	Average trimming allowance for other logs/calibration point: 1...var111_t1
381	NUMDIAMEAS	1	integer	no	4	User-definable number of precalibration diameter measurements: Baseline calibration
		2	integer	no	4	User-definable number of precalibration diameter measurements: Breakpoint calibration
382	STDDEV DIA	1	integer	mm	4	User-definable standard deviation in diameter
383	STDDEV LNGTH	1	integer	cm	4	User-definable standard deviation in length
384	DIAERR	1	integer	mm	4	User-definable mean error in diameter
385	LNGTHERR	1	integer	cm	4	User-definable mean error in length

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description		
386	NUMCALLNGTH	1	integer	no	4	Number of calibration points for length/tree species: 1...var111_t1		
		2	integer	no	4	Number of calibration points for length		
387	NUMLNIGHT	1	integer	no	4	User-definable number of precalibration length measurements: unit length calibration		
		2	integer	no	4	User-definable number of precalibration length measurements: multiple-length calibration		
520	COORDREF	1	integer	code	2	Position of coordinate registration in file: 1= Base machine position 2= Crane tip position when felling the tree (harvester) 3 = Crane tip position when processing the tree (harvester)		
⋮	521	COORDTYPE	1	integer	code	2	1=coordinates stored as a difference from the starting coordinates (COORDSTART var522) 2=absolute coordinates are stored in the file.	
⋮				2	integer	code	2	Coordinate system used in file: 1=WGS84 (Default)
⋮	522	COORDSTART	1	long integer	0.00001 degrees	2	Latitude, absolute value, primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values. Registered according to var521_t2 and var520_t1.	
⋮				2	integer	code	2	1=North, 2=South Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values, registered according to var521_t2 and var520_t1.
⋮				3	long integer	0.00001 degrees	2	Longitude, absolute value, primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values. Registered according to var521_t2 and var520_t1.
⋮				4	integer	code	2	1=East, 2=West Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values, registered according to var521_t2 and var520_t1.
⋮	523	COORD	1	integer	meter	2	Altitude, height above sea level, registered according to var521_t2 and var520_t1. Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values.	
⋮				6	string	yyymmddhhmmss	2	Date and time when recording data in var522.
⋮	523	COORD	1	long integer	0.00001 degrees	2	Latitude, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t1) is recorded as the difference from var522_t1. Variable excluded when no signal (invalid) is received from the gps.	

## Control-measurement variables (ktr file)

Var #	Name	Type	Data type	Unit	Pri	Description
523	COORD	2	integer	code	2	1=North, 2=South The code in var522_t2 is valid for all coordinates if this code is excluded. Variable excluded when no signal (invalid) is received from the gps.
		3	long integer	0.00001 degrees	2	Longitude, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t3) is recorded as the difference from var522_t3. Variable excluded when no signal (invalid) is received from the gps.
		4	integer	code	2	1=East, 2=West The code in var522_t4 is valid for all coordinates if this code is excluded. Variable excluded when no signal (invalid) is received from the gps.
		5	integer	meter	2	Altitude, height above sea level, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t5) is recorded as the difference from var522_t5. Variable excluded when no signal (invalid) is received from the gps.
		6	string	yyyymmddhhmmss	2	Date and time when coordinates in var523 were recorded. Variable excluded when no signal (invalid) is received from the gps.
		7	integer	code	2	Code for type of object with position according to coordinates in var523, point of measurement is according to var520_t1: 1 = harvested stem (in stm-file) 2 = alarm coordinates (one per harvesting site) Variable excluded when no signal (invalid) is received from the gps.
		8	string	text	2	Free descriptive text
530	NMDSEC	1	integer	no	2	Number of diameter sections / tree species: 1...var111_t1
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

Only a limited number of variables are used when data are transferred from digital callipers or the like to the on-board computer, e.g. variables 1, 110, 270, 290, 293, 296, 372 and 373.

As from 11 March 1996, the KAU file has been completely superseded by the KTR file. All the variables previously contained in the KAU file will now be found in the KTR file, together with the old KTR variables.

The term filtered values in variable 164 indicates that the value is the lowest recorded diameter.

File type implemented 1993-04-14 /1994-11-14.

## Object identity variables (oai fil)

Var #	Name	Type	Data type	Unit	Pri	Description	
1	FILETYPE	1	string	Text	4	Filetype: text string as per application	
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)	
		*	3	string	text	1	Code page character set, ISO-code
			4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
2	ID	2	string	text	3	The name of the apt-file	
		4	string	text	2	The name of the ghd-file	
3 *	MCHNNO	1	string	Text	3	Machine number	
		*	2	String	Text	2	Unique machine identity for each company, for example used when using the harvester to measure for payment.
5 *	VARIANT	1	string	Text	2	Version/model of system control computer (in case of harvester normally identical with bucking computer) used for creating file. Recommended format m v.n, where m is the make and v.n the version number. Observe that up to 80 characters can be used.	
6 *	NATION	1	integer	Code	3	Country code: numerical code as per Swedish Std. SS-ISO 3166	
12	DATESAVED	4	string	yyyymmddhhmmss	1	Date when file was last saved	
21 *	SITENO	1	string	Text	2	Logging unit number (mandatory in prd-, pri-, stm- and ktr-files)	
		*	2	string	text	2	Marking for cutting
		*	3	string	text	2	Compartment number
		*	4	string	text	2	Lot number
		*	5	Integer	Code	3	Code to express if the logging site is certified or not: 0 = Not certified 1 = Certified
23	SITEINFO	2	string	text	3	Harvesting method (harvesting objekt)	
		3	integer	hectare	3	Area of the site in hectare	
31 *	ORG	1	string	Text	2	Organization	
		*	2	string	text	2	Region
		*	3	string	text	2	District
		*	4	string	text	2	Working team
		*	5	string	text	2	Wood pile
			6	string	text	2	Name of contact person (responsible for harvesting of a specific object) within harvest organization / company / employer

## Object identity variables (oai fil)

Var #	Name	Type	Data type	Unit	Pri	Description
31	ORG	7	string	text	2	Address of contact person (responsible for harvesting of a specific object) within harvest organization / company / employer
		8	string	text	2	E-mail of contact person (responsible for harvesting of a specific object) within harvest organization / company / employer
		9	string	text	2	Phone/fax number of contact person within harvest organization / company / employer
32 *	BUYER	1	string	Text	2	Buyer
		2	string	text	2	Buyer/price matrix/tree species: 1...var116_t1/1...var111_t1
33 *	VENDOR	1	string	Text	3	Vendor
		2	string	text	3	Vendor, code
		3	string	text	3	Vendor, name
		4	string	text	3	Vendor, address
		5	string	text	3	Vendor, e-mail
		6	string	text	3	Vendor, phone/fax
34 *	SUBCON	1	string	Text	2	Contractor
		2	string	text	2	The contractors code
		3	string	text	2	The name of the contractor
		4	string	text	2	The address of the contractor
		5	String	Text	3	The e-mail address of the contractor
		6	String	Text	3	The telephone and fax numbers of the subcontractor
35 *	CONTRACTNO	1	string	Text	2	Contract number
		2	String	Text	2	Contract number in the Swedish VIOL-system
111	NUMTREESPC	1	integer	no	2	Number of tree species
116	NUMASST	1	integer	no	2	Number of price matrices/tree species: 1...var111_t1
120	TREESPEC	1	string	Text	2	Name of tree species: 1...var111_t1
		3	string	Code	2	Tree species code(see Swedish appendix) for tree species/tree species: 1...var111_t1
121	ASSTDESCR	1	string	text	2	Description of assortment/price matrix/tree species: 1...var116_t1/1...var111_t1
		2	string	Assortment code	2	Code/price matrix/tree species: 1...var116_t1/1...var111_t1
		3	string	text	2	Additional identity description of price matrix/price matrix/ species: 1...var116_t1/1...var111_t1

## Object identity variables (oai fil)

Var #	Name	Type	Data type	Unit	Pri	Description
121 *	ASSTDESCR	4	string	yyyymmddhhmmss	3	Time and date when the ap1-file of the assortment was last saved in the software system of the forest company/ price matrix/tree species: 1...var116_t1/1...var111_t1
		5	string	text	3	Additional assortment identification information / price matrix/tree species: 1...var116_t1/1...var111_t1. User-specified codes.
122	NUMSTEMTYPE	1	integer	no	3	Number of stem types/tree species:1...var111_t1
124	STEMTYPDESCR	1	string	Text	3	Description of stem type/stem type/tree species: 1...var122_t1/1...var111_t1
		2	string	Code	3	Code for stem type/stem type/tree species: 1...var122_t1/1...var111_t1. The stem types are described with Finnish PMP-codes: Pine Timber stem type 11. Pulpwood stem type 12 Spruce Timber stem type 21. Pulp wood stem type 22. Birch Timber stem type 31. Pulp wood stem type 32. Other species Aspen Timber stem type 41. Pulp wood stem type 42. Other species timber stem type 61. Other species pulp wood stem type 62
125	NUMPRODGRP	1	integer	no	2	Number of product groups/tree species: 1...var111_t1
126	PRODGRPNUM	1	integer	no	2	Product group number/price matrix/tree species: 1...var116_t1/1...var111_t1
127	PRODDDESCR	1	string	Text	2	Description of product/product group/tree species: 1...var125/1...var111_t1
200	OPTNLTXT	2	long string	text	3	Optional free text for sending information to the machine. No changes are allowed in the machine. Maximum 300 characters allowed.
463	OTHFILE	1	integer	no	2	Number of other files included with oai/ghd-file (all relevant file types allowed)
500	DBHHT	1	integer	cm	3	Height above stump of DBH, when DBH is a measured value (normally 120 cm above stump in Finland and Sweden, 110cm in Norway), per tree species:1...var111_t1
501	NUMDBHCL	1	integer	no	3	Number of dbh classes/tree species: 1...var111_t1
502	LOWDBHBRK	1	integer	mm	3	Lower DBH limit on bark/dbh class/tree species: 1...var501_t1/1...var111_t1

## Object identity variables (oai fil)

Var #	Name	Type	Data type	Unit	Pri	Description	
520	COORDREF	1	integer	code	3	Position of coordinate registration in file: 1= Base machine position 2= Crane tip position when felling the tree (harvester) 3 = Crane tip position when processing the tree (harvester)	
⋮	521	COORDTYPE	1	integer	code	3	1=coordinates stored as a difference from the starting coordinates (COORDSTART var522) 2=absolute coordinates are stored in the file.
⋮			2	integer	code	3	Coordinate system used in file: 1=WGS84 (Default)
⋮	523	COORD	1	long integer	0.00001 degrees	3	Latitude, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t1) is recorded as the difference from var522_t1. Variable excluded when no signal (invalid) is received from the gps.
⋮			2	integer	code	3	1=North, 2=South The code in var522_t2 is valid for all coordinates if this code is excluded. Variable excluded when no signal (invalid) is received from the gps.
⋮			3	long integer	0.00001 degrees	3	Longitude, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t3) is recorded as the difference from var522_t3. Variable excluded when no signal (invalid) is received from the gps.
⋮			4	integer	code	3	1=East, 2=West The code in var522_t4 is valid for all coordinates if this code is excluded. Variable excluded when no signal (invalid) is received from the gps.
⋮			5	integer	meter	3	Altitude, height above sea level, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t5) is recorded as the difference from var522_t5. Variable excluded when no signal (invalid) is received from the gps.
⋮			6	string	yyyymmddhhmmss	3	Date and time when coordinates in var523 were recorded Variable excluded when no signal (invalid) is received from the gps.
⋮			7	integer	code	3	Code for type of object with position according to coordinates in var523, point of measurement is according to var520_t1: 1 = harvested stem (in stm-file) 2 = alarm coordinates (one per harvesting site) Variable excluded when no signal (invalid) is received from the gps.
530	NMDSEC	1	integer	no	3	Number of diameter sections / tree species: 1...var111_t1	

## Object identity variables (oai fil)

Var #	Name	Type	Data type	Unit	Pri	Description
531	DSEC	1	string	text	3	Description of diameter section / diameter section / tree species: 1...var530_t1 / 1...var111_t1 Descriptions can be free text and are company specific (not standardized).
		2	string	text	3	Code for diameter section / diameter section / tree species: 1... var530_t1 / 1...var111_t1 Codes are company specific.
		3	integer	mm	3	Minimum diameter o.b. of diameter section / diameter section / tree species: 1... var530_t1/1...var111_t1
		4	integer	cm	3	Minimum length of diameter section / diameter section / tree species: 1... var530_t1/1...var111_t1 Value 0 means that minimum length requirement is not in use. The smallest diameter section of a tree species does not have a minimum length requirement. More detailed descriptions can be found in Diameter Sections documents (only in Finnish).
		5	integer	text	3	User code/diameter section/ tree species: 1... var530_t1/1...var111_t1 Diameter section is used either for commercial volume measurement (code 1) or only for buyer's own needs (code 0)
605 *	APTERI	1	string	text	3	Special variable used by Finnish Apteri-software, described in appendix
		*	2	string	yyyymmddhhmmss	3
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

This file type is used for sending information concerning which apt file to use for a certain object to a bucking computer that has several apt files available. For example a harvester that is going to cut 10 different stands using the same apt file for 6 of the stands and a different apt file for the remaining 4 stands. It is in this case sufficient to send bucking information which informs the computer about which apt file to use. Variable 2 type 2 is supposed to be used as an identifier of which apt file to use.

The following variables are mandatory in the oai file:

Variable 1 type 2, variable 2 type 2, 5, 6, och 21.

Other variables ( mainly variables 1-35) are permitted to be sent but only variables containing object (stand) information is used in this file type.

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	1	string	Text	4	Filetype: text string as per application
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
2 *	ID	1	string	Text	1	The identity of the apt-file
		2	string	text	3	The name of the apt-file
		5	string	text	2	The name of the spp-file
		6	string	text	2	Identity of the spp-file version.
3 *	MCHNNO	1	string	Text	3	Machine number
		*	String	Text	2	Unique machine identity for each company, for example used when using the harvester to measure for payment.
*		3	integer	code	1	Code describing type of machine: 1=harvester (default if variable is missing) 2=forwarder 3=harwarder, machine which handles both harvesting and forwarding 10 = bundler 20 = scarifier 99=other
		5	string	text	2	Machine manufacturer. Free text that describes the machine manufacturer.
		6	string	text	2	Machine model. Free text that describes the model of the machine.
		7	string	text	2	Harvester head manufacturer. Free text that describes the head manufacturer.
		8	string	text	2	Harvester head model. Free text that describes the model of the harvester head.
		1	string	Text	2	Version/model of system control computer (in case of harvester normally identical with bucking computer) used for creating file. Recommended format m v.n, where m is the make and v.n the version number. Observe that up to 80 characters can be used.
		2	string	text	3	Version/model of administrative program used for creating file. Format to be m v.n, where m is the name of the software and v.n the version number.
*	3	string	text	3	Version/model of bucking computer as designated by administrative program when creating apt-file.	
*	5	string	text	3	Name and version of program or software application used for creating apt-file from oai- and ap1-files.	

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
8	NUMFILES	1	integer	no	3	Number of files in a summed file (psu-file). The datatype of the summed values in the psu-file is changed from integer to longinteger(4-bytes).
11	RESETDATE	1	string	yymmdd	4	Date of last reset
		2	string	yymmddhhmm	4	Date of last reset
		3	string	yymmddhhmmss	4	Date of last reset
		4	string	yyyymmddhhmmss	1	Time and date when the prd/pri/prl-file last was reset. (mandatory), normally at the same time as production is started after reset.
12	DATESAVED	1	string	yymmdd	4	(see above)
		2	string	yymmddhhmm	4	Date when file was last saved
		3	string	yymmddhhmmss	4	Date when file was last saved
		4	string	yyyymmddhhmmss	1	Date when file was last saved
15	CALIBRSN	2	String	Text	4	Reason for calibration: No correction = 0 Repair of measurement system = 1 Change in weather conditions = 2 Other reasons = 3
16	STARTDATE	1	string	yymmdd	4	Start date
		2	string	yymmddhhmm	4	(see above)
		3	string	yymmddhhmmss	4	(see above)
		4	string	yyyymmddhhmmss	1	Time and date for starting production at a site for the first time. Mandatory in prd/pri/prl-file.
17	ENDDATE	1	string	yymmdd	4	End date
		2	string	yymmddhhmm	4	(see above)
		3	string	yymmddhhmmss	4	(see above)
		4	string	yyyymmddhhmmss	1	Time and date for ending a site. Used only when the when the harvesting machine is not to return to the site. Mandatory in prd-file when site is finished.
18	CONTRDATE	1	string	yymmdd	4	Control measurement date
		2	string	yymmddhhmm	4	(see above)
		3	string	yymmddhhmmss	4	(see above)
19	BREAKDATE	2	string	yymmddhhmm	4	Date and time for a break in the harvesting operation. This variable is used only when there is a break and the work will be resumed on the same site. Refers to var21.
		3	string	yymmddhhmmss	3	Date and time for a break in the harvesting operation. This variable is used only when there is a break and the work will be resumed on the same site. Refers to var21.
		4	string	yyyymmddhhmmss	2	Date and time for a temporary break in the harvesting operation at a site (var21), when production is resumed results are stored in the same prd- or pri-file using the same APT-file.

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description	
20	RESTARTDATE	1	String	yymmdd	3	Date and time for restart on a site where the operations have been interrupted. Refers to var21.	
		2	String	yymmddhhmm	3	(see above)	
		3	String	yymmddhhmmss	3	(see above)	
		4	String	yyyymmddhhmmss	2	Date and time for restart on a site (var21) where the operations have been interrupted. Can only exist if variable 19 (BREAKDATE) type 4 exists, must have a date/time later than var19_t4.	
21 *	SITENO	1	string	Text	1	Logging unit number (mandatory in prd-, pri-, stm- and ktr-files)	
		*	2	string	text	3	Marking for cutting
		*	3	string	text	3	Compartment number
		*	4	string	text	3	Lot number
		*	5	Integer	Code	3	Code to express if the logging site is certified or not: 0 = Not certified 1 = Certified
22	FILEORDER	1	integer	integer	3	Order of production files (prd or pri), used when dividing production result from one site into several different files. In the first file FILEORDER = 1. Only the last file has an ENDDATE (var17_t4). When production is resumed and production is stored in a new file, with no old data, FILEORDER must have a value >1 The file is considered to be cumulative if variable is missing. Prd-files are normally cumulative and pri-files are normally non-cumulative. A cumulative file is a file which is not reset between reporting.	
23 *	SITEINFO	1	string	code/text	3	Harvesting method, the code is not standardized. The operator normally should not need to input any information related to var23 if this variable is included in apt- or oai-file.	
		2	string	text	3	Harvesting method (harvesting objekt)	
		3	integer	hectare	3	Area of the site in hectare	
31 *	ORG	1	string	Text	2	Organization	
		*	2	string	text	2	Region
		*	3	string	text	2	District
		*	4	string	text	2	Working team
		*	5	string	text	2	Wood pile
32 *	BUYER	1	string	Text	3	Buyer	
		*	2	string	text	3	Buyer/price matrix/tree species: 1...var116_t1/1...var111_t1
33 *	VENDOR	1	string	Text	3	Vendor	
		*	2	string	text	3	Vendor, code

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
33 *	VENDOR	3	string	text	3	Vendor, name
*		4	string	text	3	Vendor, address
*		5	string	text	3	Vendor, e-mail
*		6	string	text	3	Vendor, phone/fax
34 *	SUBCON	1	string	Text	4	Contractor
*		2	string	text	1	The contractors code
*		3	string	text	2	The name of the contractor
*		4	string	text	2	The address of the contractor
*		5	String	Text	2	The e-mail address of the contractor
*		6	String	Text	2	The telephone and fax numbers of the subcontractor
35 *	CONTRACTNO	1	string	Text	1	Contract number
*		2	String	Text	2	Contract number in the Swedish VIOL-system
36	LOGMEAS	1	string	Text	3	Log mensuration
37	PULPMEAS	1	string	Text	3	Pulpwood mensuration
40	NMLNGTHCAL	1	integer	no	3	Number of length calibrations (suggestion, at least last three calibrations)
		2	Integer	no	3	Number of length calibrations per tree species (suggestion, at least last three calibrations): 1...var111_t1
		3	integer	no	3	Number of length positions per calibration and tree species (suggestion, at least one point at 500 cm): 1...var40_t2/1...var111_t1
41	LGTHCALDAT	3	string	Date	4	Length calibration date: 1...var40_t1
		4	string	yyyymmddhhmmss	3	Length calibration date: 1...var40_t2/1...var111_t1
42	LGTHCALRSN	1	string	Text	3	Length calibration reason: 1...var40_t2/1...var111_t1
		2	integer	code	3	Code for length calibration reason: 1...var40_t2/1...var111_t1 0 = Repair of measurement system 1 = Change in weather conditions 9 = Other reasons
43	NUMDIACAL	1	integer	no	3	Number of diameter calibrations (suggestion, at least last three calibrations)
		2	Integer	no	3	Number of diameter calibrations per tree species (suggestion, at least last three calibrations): 1...var111_t1
		3	integer	no	3	Number of diameter positions per calibration and tree species (suggestion, 14 points at diameters 50,100,150...700): 1...var43_t2/1...var111_t1
44	DIACALDAT	3	string	Date	4	Diameter calibration date:1...var43
		4	string	yyyymmddhhmmss	3	Diameter calibration date:1...var43_t2/1...var111_t1

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
45	DIACALRSN	1	string	Text	3	Diameter calibration reason: 1...var43_t2/1...var111_t1
		2	integer	code	3	Code for diameter calibration reason: 1...var43_t2/1...var111_t1 0 = Repair of measurement system 1 = Change in weather conditions 9 = Other reasons
46	CALLNGTH	1	Integer	cm	3	Length positions (suggested length 500 cm): 1...var40_t3/1...var40_t2/1...var111_t1
47 *	CORRLNGTH	1	Integer	mm	3	Adjustment per length position: 1...var40_t3/1...var40_t2/1...var111_t1
		2	integer	mm	3	Adjustment per length position for butt logs, that is the difference in adjustment comparing to length adjustment of non butt logs. Used if separate butt log calibration exist in harvester: 1...var40_t3/1...var40_t2/1...var111_t1
48	CALDIA	1	Integer	mm	3	Diameter position (suggested diameters 50,100,150...700): 1...var43_t3/1...var43_t2/1...var111_t1
49 *	CORRDIA	1	Integer	mm	3	Adjustment per diameter position: 1...var43_t3/1...var43_t2/1...var111_t1
		2	long integer	1/10000	3	Diameter adjustment, constant "a" in "Diameter adjustment (mm) = a + b*Measured diameter (mm)",if linear regression method is used for diameter calibration: 1...var43_t2/1...var111_t1
		3	long integer	1/10000	3	Diameter adjustment, factor "b" in "Diameter adjustment (mm) = a + b*Measured diameter (mm)",if linear regression method is used for diameter calibration: 1...var43_t2/1...var111_t1
50	MODIFIED	1	string	Text	2	Descriptive text specifying whether the file contents have been modified and, if so, why. For example multiple production files have been merged into one.
		2	string	yymmddhhmmss	4	Date/Time for modification of the file: 1...var50_t5.
		3	string	text	3	Descriptive text specifying whether the file contents have been modified and, if so, why: 1...var50_t5. When the file is saved with a new name the variable is reset.
		4	string	yyyymmddhhmmss	2	Date/time when the content of the file is modified: 1...var50_t5. When the file is saved with a new name the variable is reset.
		5	integer	no	2	The number of times(date/time) the file has been modified. When the file is saved with a new name the variable is reset.
51	APTHISTORY	1	integer	no	2	Number of times that changes has been made to the apt-file. Possible to reset in administrative program.

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
51	APTHISTORY	2	string	yyyymmddhhmmss	2	Date and time for change/modification of apt-file during the harvest of a site: 1...var51_t1 Possible to reset in administrative program.
		3	string	text	2	Text describing variables that have been changed in the apt-file, e.g. "var132_t1, var135_t2": 1...var51_t1 Possible to reset in administrative program.
		4	string	text	2	Identity of machine (var3_t2) in which change in apt-file was done, if change is not done in a machine signature of person responsible: 1...var51_t1 Possible to reset in administrative program.
		5	string	yyyymmddhhmmss	2	Date and time when var51 type 1, 2, 3, and 4 were last reset. This is the same date as when the file was first created if type1, 2, 3 and 4 has not been reset.
		6	string	text	2	Signature of person responsible for resetting var51, type 1, 2, 3 and 4. This is the person that created the file if type1, 2, 3 and 4 has not been reset.
		60	WEIGHTCAL	1	string	no
2	integer			yyyymmddhhmmss	3	Date for calibrating scale: 1...var60_t1
3	integer			kg	3	Reference mass when calibrating scale: 1...var60_t1
4	integer			1%	3	Error of scale when calibrating: 1...var60_t1
5	integer			0.001	3	Factor used when weighing, default value is 1000.
105	GRADESYS	1	integer	Code	3	1 = Random grades 2 = Permissible grade/grade combinations Default = 1 if variable missing
111	NUMTREESPC	1	integer	no	1	Number of tree species
112	NUMBARKPAR	1	integer	no	3	Number of bark parameters/tree species: 1...var111_t1. The variable is used together with var113_t1.
		2	integer	no	3	Number of diameter breaks/tree species: 1...var111_t1. The variable is used together with variable 113, type 2 and type 3. (based on German requirements)
113	BARKPAR	1	integer	0.01 mm 0.1%%	3	Bark parameters/tree species (first parameter in 100ths of mm; second in 10ths per mille): 1...var112_t1/1...var111_t1
		2	integer	mm	3	Lower diameter limits/tree species: 2...var112_t2/1...var111_t1 (based on German requirements)
		3	integer	0.01 mm	3	Deduction for double bark thickness/tree species: 1...var112_t2/1...var111_t1 (based on German requirements)
		4	long integer	0.00001 degrees	1	Latitude used in bark function

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
113 *	BARKPAR	7	integer	code	1	Type of bark function per species: 1...var111_t1 1= Function according to var113_t1 2= Function according to var113_t2 & var113_t3 3=Skogforsk 2004, Scots pine 4=Skogforsk 2004, Norway spruce
116	NUMASST	1	integer	no	1	Number of price matrices/tree species: 1...var111_t1
117	NUMDIACL	1	integer	no	1	Number of diameter classes/price matrices/tree species: 1...var116_t1/...var111_t1
118	NUMLNTHCL	1	integer	no	1	Number of length classes/price matrix/tree species: 1...var116_t1/1...var111_t1
120	TREESPEC	1	string	Text	2	Name of tree species: 1...var111_t1
*		3	string	Code	1	Tree species code(see Swedish appendix) for tree species/tree species: 1...var111_t1
121	ASSTDESCR	1	string	text	2	Description of assortment/price matrix/tree species: 1...var116_t1/1...var111_t1
*		2	string	Assortment code	1	Code/price matrix/tree species: 1...var116_t1/1...var111_t1
		3	string	text	2	Additional identity description of price matrix/price matrix/ species: 1...var116_t1/1...var111_t1
*		4	string	yyyymmddhhmmss	3	Time and date when the ap1-file of the assortment was last saved in the software system of the forest company/ price matrix/tree species: 1...var116_t1/1...var111_t1
		5	string	text	3	Additional assortment identification information / price matrix/tree species: 1...var116_t1/1...var111_t1. User-specified codes.
		6	integer	integer	1	Unique identification information set automatically in bucking or forwarder computer / price matrix/tree species (compare with var441_t12): 1...var116_t1/1...var111_t1. Must be a unique identity / key for a price matrix, never repeated in the same harvester or forwarder file (pri/prd/stm/apt/prl). Not to be changed by operator.
122	NUMSTEMTYPE	1	integer	no	3	Number of stem types/tree species:1...var111_t1
123	STEMTYPNUM	1	integer	Code	3	Stem type number/price matrix/tree species: 1...var116_t1/1...111
124	STEMTYPDESCR	1	string	Text	3	Description of stem type/stem type/tree species: 1...var122_t1/1...var111_t1

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
124	STEMTYPDESCR	2	string	Code	1	Code for stem type/stem type/tree species: 1...var122_t1/1...var111_t1. The stem types are described with Finnish PMP-codes: Pine Timber stem type 11. Pulpwood stem type 12 Spruce Timber stem type 21. Pulp wood stem type 22. Birch Timber stem type 31. Pulp wood stem type 32. Other species Aspen Timber stem type 41. Pulp wood stem type 42. Other species timber stem type 61. Other species pulp wood stem type 62
125	NUMPRODGRP	1	integer	no	2	Number of product groups/tree species: 1...var111_t1
126	PRODGRPNUM	1	integer	no	2	Product group number/price matrix/tree species: 1...var116_t1/1...var111_t1
127	PRODDDESCR	1	string	Text	2	Description of product/product group/tree species: 1...var125/1...var111_t1
131	DIAGRADLMT	1	integer	mm	1	Lower diameter limit (last value, var117_t1+1, gives upper diameter limit): 1...var117_t1+1 / 1...var116_t1 / 1...var111_t1
		2	string	text	3	Diameter class name (free descriptive text)/diameter class/price matrix/tree species: 1..var117_t1/1..var116_t1/1..var111_t1 Primarily for use in Germany where the classes have standardized names
132	LWRLNGTHLMT	1	integer	cm	1	Lower length limit of length class (last value, var118_t1+1, gives upper length limit): 1...var118_t1+1/1...116/1...var111_t1
141	GRADE	1	integer	Integer	2	Grade/price matrix/tree species. 1, 2, 4, 8 etc., where 1 is the highest grade and e.g. 5 indicates grades 1 & 4 apply to the price matrix: 1...var116_t1/1...var111_t1 Always binary number
142	NUMGRADUSD	1	integer	no	2	Number of grades used/tree species: 1...var111_t1 (If the code for the highest grade used is 8 in var141_t1, variable 142 is set to 4, even if code 1 is not used.)
143 *	GRADDESIG	1	string	Text	2	Grade description/grade/tree species: 1...var142_t1/1...var111_t1

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
161 *	PRICECAT	1	integer	code	1	<p>Price category/price matrix/tree species where</p> <p>1 = price/m3 (volume by small-end diameter);</p> <p>2 = price/m3 (solid);</p> <p>3 = price/log;</p> <p>4 = price/m3 (Norwegian price category)</p> <p>5 = price/m3 (Swedish top and butt end measuring);</p> <p>6 = price/m3 (solid, measured at midpoint, price due to small-end diameter, HKS diameter, German price category)</p> <p>7 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, HKS diameter, German price category)</p> <p>8 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, (Danish price category)</p> <p>9 = price/board feet (American price category)</p> <p>10 = price/m3 (solid, diameter measured at midpoint, price due to small-end diameter) diameter in mm</p> <p>11 = price/log (Norwegian price category)</p> <p>12 = Price/bundled m3 (bulk volume calculated with default diameter and length of the bundle)</p> <p>13 = price/m3 (Estonian Nilson's volume unit)</p> <p>If the price applies to volumes including bark, add 128 to the price-category number, e.g. m3 (solid o.b.) = 130:</p> <p>1...var116_t1/1...var111_t1</p> <p>14 = Price/m3. (optimization based on m3 solid, reporting in m3top).</p> <p>All the codes are described in detail in appendix</p>
169	DENSITY	1	Integer	kg/m3 solid u.b.	3	Density in green condition/price matrix/tree species: 1..var116_t1/1..var111_t1
		2	Integer	kg/m3 solid o.b.	3	Density in green condition/price matrix/tree species: 1..var116_t1/1..var111_t1
170	BUTTDIAM	1	integer	code	2	<p>Type of butt end profile extrapolation method. Used for extrapolation of butt end diameter values. Volume calculation of butt end is done according the extrapolated diameters. Method can be chosen separately for each tree species: 1...var111_t1.</p> <p>0 or no code = machine specific system for extrapolation, 1 = coefficient tables (type 3-7), 2 = function (type 8-12)</p>
181	PRICECATPLP	1	integer	Code	4	<p>Price category for pulpwood/tree species (see var161_t1 for definition of price category):</p> <p>1...var111_t1</p>
200	OPTNLTXT	2	long string	text	3	Optional free text for sending information to the machine. No changes are allowed in the machine. Maximum 300 characters allowed.
		3	long string	text	3	Optional text for sending information from the machine. Maximum 300 characters allowed.
201	LOGTALLY	1	integer	pieces	1	<p>Number of logs/diameter class/length class/price matrix/tree species:</p> <p>1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1</p>

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
202	LOGTALVOL	1	integer	m3	2	Total volume/diameter class/length class/price matrix/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1 (Price-based volume from var161_t1)
		2	integer	m3sub	3	Total solid volume under bark/diameter class/length class/price matrix/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1
		3	integer	m3sob	3	Total solid volume over bark/diameter class/length class/price matrix/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111_t1
203	LOGTALLNGTH	1	integer	pieces	4	Number of logs/length class/price matrix/tree species: 1...var118_t1/1...var116_t1/1...var111_t1
204	LOGTALDIA	1	integer	pieces	4	Number of logs/diameter class/price matrix/tree species: 1...var117_t1/1...var116_t1/1...var111_t1
211	OPERATOR	1	integer	ld no	4	Operator name/id, repeated for each stem in ktr- and stm-files
		2	integer	no	2	Number of operators
212	OPERATOR	1	string	text	2	The name of the operator: 1...var211_t2
221	NUMSTEMS	1	integer	pieces	3	Number of processed (harvested) stems. The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
222	NUMSTEMSPCS	1	integer	pieces	3	Number of processed stems/tree species: 1...var111_t1 The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
		2	integer	pieces	3	Ditto/stem type/tree species: 1...var122_t1/1...var111_t1 The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
223	NUMSTEMOP	1	integer	pieces	2	Number of stems/operator/tree species: 1...var211_t2/1...var111_t1 The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
223	NUMSTEMOP	2	integer	pieces	3	Number of stems/operator/stem type/tree species: 1...var211_t2/1...var122_t1/1...var111_t1 The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
224	NUMPLSTMOP	1	integer	pieces	4	Number of pulpwood stems/operator/tree species (trees comprised entirely of pulpwood): 1...var211_t2/1...var111_t1 The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
		5	integer	pieces	4	Number of pulpwood stems/tree species: 1...var111_t1 The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
225	NUMSAWLGS	1	integer	pieces	4	Number of sawlogs/operator/tree species: 1...var211_t2/1...var111_t1
		5	integer	pieces	4	Number of sawlogs/tree species: 1...var111_t1
226	NUMPLPLGS	1	integer	pieces	4	Number of pulpwood logs/operator/tree species: 1...var211_t2/1...var111_t1
		5	integer	pieces	4	Number of pulpwood logs/tree species: 1...var111_t1
227	NUMOUTSPEC	1	integer	pieces	3	Number of logs/meter class/tree species not registered in var201, var242 or var243: 0...25m/1...var111_t1
		5	integer	pieces	3	Number of pieces/tree species: 1...var111_t1
228	NUMLOAD	1	integer	pieces	3	Number of loads
		2	integer	pieces	3	Number of loads/operator: 1...var211_t2
229	NUMLOADSPCS	1	integer	pieces	3	Number of loads/tree species: 1...var111_t1
		2	integer	pieces	3	Number of loads/operator/tree species: 1...var211_t2/1...var111_t1
230	NUMBNCH	1	integer	pieces	3	Number of stem bunches in multi tree felling/tree species: 1...var111_t1 Some type of feller-buncher system used. Species is dependant on first stem in stem bunch.
		2	integer	pieces	2	Number of occasion that multi tree processing (several stems delimbed and cross cut simultaneously, logs are length measured) is carried out at the site.

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
230	NUMBNCH	3	integer	pieces	2	Number of occasion that multi tree processing (several stems delimbed and cross cut simultaneously) is carried out at the site per operator: 1...var211_t2
:		6	Integer	pieces	3	Number of stem bunches in multi tree felling (not processed) /operator/tree species:1...var211_t2/1...var111_t1 Some type of feller-buncher system used.
:		7	Integer	pieces	3	Number of multi tree processed stem bunches per tree species: 1...var111_t1 Species dependent on first stem in stem bunch.
:		8	Integer	pieces	3	Number of multi tree processed stem bunches per operator and tree species: 1...var211_t2/1...var111_t1 Species dependent on first stem in stem bunch
231	STMSINBNCH	1	integer	pieces	3	Number of stems in stem bunches in multi tree felling /tree species: 1...var111_t1 Some type of feller-buncher system used. Species is dependant on first stem in stem bunch. All stems must be registered independently of size when carrying out multi tree felling.
		2	integer	pieces	2	Number of multi tree processed stems (several stems delimbed and cross cut simultaneously). All stems must be registered independently of size when carrying out multi tree processing.
		3	integer	pieces	2	Number of multi tree processed stems (several stems delimbed and cross cut simultaneously) per operator: 1...var211_t2 All stems must be registered independently of size when carrying out multi tree processing.
:		6	Integer	pieces	3	Number of stems in stem bunches in multi tree felling (not processed) per operator and tree species:1...var211_t2/1...var111_t1 Some type of feller-buncher system used. Species dependent on first stem in stem bunch.
:		7	Integer	pieces	3	Number of multi tree processed stems (several stems delimbed and cross cut simultaneously) per tree species: 1...var111_t1 Species dependent on first stem in stem bunch.
:		8	Integer	pieces	3	Number of multi tree processed stems (several stems delimbed and cross cut simultaneously) per operator and tree species: 1...var211_t2/1...var111_t1 Species dependent on first stem in stem bunch
232	NUMLGS	1	integer	pieces	3	Number of logs/price matrix/tree species: 1...var116_t1/1...var111_t1
		2	integer	pieces	3	Ditto/price matrix/stem type/tree species: 1...var116_t1/1...var122_t1/1...var111_t1
		3	integer	pieces	3	Ditto(measurement)/price matrix/tree species: 1...var116_t1/1...var111_t1

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
232	NUMLGS	4	integer	pieces	3	Ditto(control)/price matrix/tree species: 1...var116_t1/1...var111_t1
		6	longinteger	pieces	3	Number of logs/operator/price matrix/tree species: 1...var211_t1/1...var116_t1/1...var111_t1
		9	integer	pieces	3	Number of logs/operator/price matrix/stem type/tree species: 1...var211_t2/1...var116_t1/1...var122_t1/1...var111_t1
233	BOLTPRODGRP	1	integer	pieces	3	No. Of logs/product group/tree species: 1...var125_t1/1...var111_t1
234	METRERUN	1	longinteger	m	3	Metre run/price matrix/tree species: 1...var116_t1/1...var111_t1 (Requires 4 bytes)
		2	integer	m	3	Metre run/price matrix/stem type/tree species: 1...var116_t1/1...var122_t1/1...var111_t1
		3	integer	dm	3	Ditto(measurement)/price matrix/tree species: 1...var116_t1/1...var111_t1
		4	integer	dm	3	Ditto(control)/price matrix/tree species: 1...var116_t1/1...var111_t1
		5	Long integer	cm	3	Total processed length of the felled trees (from root cut up to the last cut, including unclassified logs)/tree species: 1...var111_t1
		9	integer	m	3	Metre run/operator/price matrix/stem type/tree species: 1...var211_t2/1...var116_t1/1...var122_t1/1...var111_t1
235	VOLPRODGRP	3	integer	m3 (solid u.b.)	3	Volume/product group/tree species: 1...var125_t1/1...var111_t1
		4	integer	m3 (solid o.b.)	3	(see above)
236	VOLUME	1	integer	m3	2	Yield volume/price matrix/tree species: 1...var116_t1/1...var111_t1 (volume according to var161_t1)
		2	integer	m3	2	Yield volume/price matrix/stem type/tree species: 1...var116_t1/1...var122_t1/1...111 (volume according to var161_t1)
		3	integer	dm3	3	Ditto(measurement)/price matrix/tree species: 1...var116_t1/1...var111_t1 (volume according to var161_t1)
		4	integer	m3	3	Ditto(control)/price matrix/tree species: 1...var116_t1/1...var111_t1 (volume according to var161_t1)
		5	integer	m3 (solid u.b.)	3	Yield volume (m3 solid)/price matrix/stem type/tree species: 1...var116_t1/1...var122_t1/1...var111_t1
		6	integer	m3 (solid o.b.)	2	Yield volume (m3 solid)/price matrix/stem type/tree species: 1...var116_t1/1...var122_t1/1...var111_t1

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description	
236	VOLUME	7	integer	m3 (solid u.b.)	3	Yield volume (m3 solid)/operator/price matrix/stem type/tree species: 1...var211_t2/1...var116_t1/1...var122_t1/1...var111_t1	
		8	integer	m3 (solid o.b.)	3	Yield volume (m3 solid)/operator/price matrix/stem type/tree species: 1...var211_t2/1...var116_t1/1...var122_t1/1...var111_t1	
		9	integer	m3		3	Yield volume/operator/price matrix/stem type/tree species: 1...var211_t2/1...var116_t1/1...var122_t1/1...var111_t1 (volume according to var161_t1)
		10	longinteger	m3 (solid u.b.)		3	Yield volume(m3 solid u.b.)/operator/price matrix/tree species: 1...var211_t2/1...var116_t1/1...var111_t1
		11	longinteger	m3 (solid o.b.)		3	Yield volume(m3 solid o.b.)/operator/price matrix/tree species: 1...var211_t2/1...var116_t1/1...var111_t1
237	MASS	1	long integer	kg	3	Total mass/weight of loads per species: /1...var111_t1	
		2	long integer	kg	3	Total mass/weight of loads per operator/assortment/species: 1...var211_t2/1...var116_t1/1...var111_t1	
		3	long integer	kg	3	Total mass/weight of loads per assortment/species: 1...var116_t1/1...var111_t1	
		4	long integer	kg	3	Total mass/weight of loads per product group/species: 1...var125_t1/1...var111_t1	
238	VALUE	1	integer	Relative	3	Output value/price matrix/tree species: 1...var1...116/1...var111_t1	
		2	integer	Currency	3	Output value/price matrix/tree species: 1...var1...116/1...var111_t1	
		3	integer	Relative	3	Output value/operator/price matrix/stem type/tree species: 1...var211_t2/1...var116_t1/1...var122_t1/1...var111_t1	
		4	integer	Currency	3	(see above)	
239	APPCOST	1	integer	Relative	3	Cost of dimension-apportionment bucking/price matrix/tree species: 1...var116_t1/1...var111_t1	
		2	integer	Currency	3	Cost of dimension-apportionment bucking/price matrix/tree species: 1...var116_t1/1...var111_t1	
		3	integer	Relative	3	Cost of dimension-apportionment bucking/operator/price matrix/stem type/tree species: 1...var116_t1/1...var111_t1	
		4	integer	Currency	3	(see above)	
		5	integer	Per mill	3	Difference in value in dimension-apportionment bucking/tree species: 1...var111_t1	

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
239	APPCOST	6	integer	Currency	3	Difference in value in dimension-apportionment bucking/tree species: 1...var111_t1
241	TOTMERCVOL	1	integer	m3 (solid u.b.)	3	Total merchantable solid volume (excluding price matrixes tagged with var136 code 4, as well as var243 and var244) /operator/tree species: 1...var211_t2/1...var111_t1
		2	integer	m3 (solid o.b.)	2	(see above)
		3	integer	m3 (solid u.b.)	2	Total merchantable solid volume (excluding price matrixes tagged with var136 code 4, as well as var243 and var244) /stem type/tree species: 1...var122_t1/1...var111_t1
		4	integer	m3 (solid o.b.)	3	(see above)
		5	integer	m3 (solid u.b.)	3	Total merchantable solid volume (excluding price matrixes tagged with var136 code 4, as well as var243 and var244) /tree species: 1...var111_t1
		6	integer	m3 (solid o.b.)	3	(see above)
242	PLPVOLUME	1	integer	m3	4	Pulpwood volume (from var. 181)/operator/tree species: 1...var211_t2/1...var111_t1
		3	integer	m3 (solid u.b.)	4	Pulpwood volume/operator/tree species: 1...var211_t2/1..var111_t1
		4	integer	m3 (solid o.b.)	4	(see above)
		5	integer	m3 (solid u.b.)	4	Pulpwood volume/tree species: 1..var111_t1
		6	integer	m3 (solid o.b.)	4	(see above)
		243	BUTTVOL	1	integer	m3 (solid u.b.)
		2	integer	m3 (solid o.b.)	4	(see above)
		5	integer	m3 (solid u.b.)	4	Volume of butt-offs/operator/tree species: 1...var211_t2/1...var111_t1
		6	integer	m3 (solid o.b.)	4	(see above)
244	OUTSPECVOL	1	integer	m3 (solid u.b.)	3	Volume of out-of-spec. assortment (excluding butt-offs)/tree species: 1...var111_t1 Only volume from stems included in var221_t1 are registered.
		2	integer	m3 (solid o.b.)	3	(see above)
		3	integer	m3 (solid u.b.)	3	Volume of logs/metre class/tree species not recorded in var201, var242 or var243: 0...25m/1...var111_t1 Only volume from stems included in var221_t1 are registered.
		4	integer	m3 (solid o.b.)	3	Volume of logs/metre class/tree species not recorded in var201, var242 or var243: 0...25m/1...var111_t1 Only volume from stems included in var221_t1 are registered.

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
244	OUTSPECVOL	5	integer	code	1	Diameter class type in "Unclassified matrix": 1...var111_t1 Codes: 0=Diameter classes are under bark, 1=Diameter classes are on bark
		6	long integer	pieces	1	Number of "unclassified logs" per fixed diameter and length classes, as well as species: 1...13/ 1...12/ 1...var111_t1 Diameter classes interpreted according to var244_t5 (under bark or on bark) Fixed diameter classes:0, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600+ Fixed length classes:0, 10, 50, 100, 200, 300, 400, 500, 600, 700, 800, 900+ Only volume from stems included in var221_t1 are registered.
		7	long integer	m3sub	1	Volume of "unclassified logs" solid under bark per fixed diameter and length classes, as well as species: 1...13/ 1...12/ 1...var111_t1 Diameter classes interpreted according to var244_t5 (under bark or on bark) Fixed diameter classes:0, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600+ Fixed length classes:0, 10, 50, 100, 200, 300, 400, 500, 600, 700, 800, 900+ Only volume from stems included in var221_t1 are registered.
		8	long integer	m3sob	1	Volume of "unclassified logs" solid on bark per fixed diameter and length classes, as well as species: 1...13/ 1...12/ 1...var111_t1 Diameter classes interpreted according to var244_t5 (under bark or on bark) Fixed diameter classes:0, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600+ Fixed length classes:0, 10, 50, 100, 200, 300, 400, 500, 600, 700, 800, 900+ Only volume from stems included in var221_t1 are registered.
245	PLPVOL2	1	integer	m3	4	Volume of grade 2 pulpwood (same details as var242)
		3	integer	m3 (solid u.b.)	4	Pulpwood volume/operator/tree species: 1...var211_t2/1...var111_t1
		4	integer	m3 (solid o.b.)	4	(see above)
		5	integer	m3 (solid u.b.)	4	Pulpwood volume/tree species: 1...var111_t1
		6	integer	m3 (solid o.b.)	4	(see above)

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
246 *	BUNCHEDPROD	1	integer	m3sob	3	Total volume over bark of bunched stems in multi tree felling as calculated by harvester/tree species: 1...var111_t1 Some type of feller-buncher system used. Species is dependant on first stem in stem bunch. This volume is to represent estimated merchantable log volumes based on previously single processed stems. Possible calculation methods described in appendix.
		2	integer	m3 (ob)	2	Total volume of multi tree processed stems (several stems delimitbed and cross cut simultaneously). The volume is based on the total diameter (diameter measured as if only one stem is processed).
*		3	integer	m3sob	2	Total volume of multi tree processed stems (several stems delimitbed and cross cut simultaneously) as calculated in harvester (definition in appendix). These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.
*		4	integer	m3sub	2	Total volume of multi tree processed stems (several stems delimitbed and cross cut simultaneously) as calculated in harvester (definition in appendix). These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.
		5	integer	m3(ob)	2	Total volume of multi tree processed stems (several stems delimitbed and cross cut simultaneously) per operator: 1...var211_t2 The volume is based on the total diameter (diameter measured as if only one stem is processed)
*		6	integer	m3sob	2	Total volume of multi tree processed stems (several stems delimitbed and cross cut simultaneously) as calculated in harvester (definition in appendix) per operator: 1...var211_t2 These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
246 *	BUNCHEDPROD	7	integer	m3sub	2	Total volume of multi tree processed stems (several stems delimited and cross cut simultaneously) as calculated in harvester (definition in appendix) per operator: 1...var211_t2 These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.
		8	integer	pieces	2	Estimated number of logs from multi tree processed stems (number of logs = no of stems * no of cut log bunches, it is assumed that the same number of logs are cut from all stems processed together)
		9	integer	pieces	2	Total number of log bunches (equal to no of cross-cuts excluding felling cut) from multi tree processed stems on a site after the start date (STARTDATE, var16_t4). Never reset during harvesting at a specific site.
		11	Integer	mm	3	Estimated average DBH of first felled stem in a bunch in case of Multi tree felling/tree species: 1...var111_t1 Species is also based on first stem.
		12	Integer	mm	3	Estimated average DBH of first felled stem in a bunch in case of Multi tree processing/tree species: 1...var111_t1 Species is also based on first stem.
:		13	Integer	m3sob	2	Total volume over bark (stacked) of bunched wood stems in multi tree felling as calculated by harvester/ operator/tree species: 1...var211_t2/1...var111_t1 Some type of feller-buncher system used. Species is dependant on first stem in stem bunch. This volume is to represent estimated merchantable log volumes based on previously single processed stems. Possible calculation methods described in appendix.
:		14	Integer	m3(ob)	2	Total volume of multi tree processed stems (several stems delimited and cross cut simultaneously) / operator/tree species: 1...var211_t2/1...var111_t1 The volume is based on the total diameter (diameter measured as if only one stem is processed)
:		15	Integer	m3sob	2	Total volume of multi tree processed stems (several stems delimited and cross cut simultaneously) as calculated in harvester (definition in appendix) / operator/tree species: 1...var211_t2/1...var111_t1 These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description	
:	246	BUNCHEDVOL	16	Integer	m3sub	2	Total volume of multi tree processed stems (several stems delimiting and cross cut simultaneously) as calculated in harvester (definition in appendix) / operator/tree species: 1...var211_t2/1...var111_t1 These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.
			17	Integer	m3(ob)	2	Total volume of multi tree processed stems (several stems delimiting and cross cut simultaneously) /tree species: 1...var111_t1 The volume is based on the total diameter (diameter measured as if only one stem is processed)
			18	Integer	m3sob	2	Total volume of multi tree processed stems (several stems delimiting and cross cut simultaneously) as calculated in harvester (definition in appendix) / tree species: 1...var111_t1 These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.
			19	Integer	m3sub	2	Total volume of multi tree processed stems (several stems delimiting and cross cut simultaneously) as calculated in harvester (definition in appendix) /tree species: 1...var111_t1 These volumes are to represent estimated merchantable log volumes based on previously single processed stems. Several different methods allowed as described in appendix.
			20	Integer	no	2	Number of log bunches (equal to no of cross-cuts excluding felling cut) from multi tree processed stems / operator/tree species: 1...var211_t2/1...var111_t1 Never reset during harvesting at a specific site.
:	247	NUMBTOFF	21	Integer	no	2	Number of log bunches (equal to no of cross-cuts excluding felling cut) from multi tree processed stems /tree species: 1...var111_t1 Never reset during harvesting at a specific site.
			1	integer	no	4	Number of butt-offs/tree species: 1...var111_t1
:	248	BTOFFLNGTH	2	integer	no	4	Number of butt-offs/operator/tree species: 1...var211_t2/1...var111_t1
			1	integer	m	4	Butt-off length/tree species: 1...var111_t1
:	249	TOTALVOL	2	integer	m	4	Butt-off length/operator/tree species: 1...var211_t2/1...var111_t1
			1	integer	m3 (solid u.b.)	3	Total solid volume (including price matrixes tagged with var136 code 4, as well as var243 and var244) /operator/tree species: 1..var211_t2/1..var111_t1 Only volume from stems included in var221_t1 are registered.
			2	integer	m3 (solid o.b.)	3	(see above)

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
249	TOTALVOL	3	integer	m3 (solid u.b.)	3	Total solid volume (including price matrixes tagged with var136 code 4, as well as var243 and var244) /stem type/tree species: 1..var122_t1/1..var111_t1 Only volume from stems included in var221_t1 are registered.
		4	integer	m3 (solid o.b.)	3	(see above)
		5	integer	m3 (solid u.b.)	3	Total solid volume (including price matrixes tagged with var136 code 4, as well as var243 and var244) /tree species: 1..var111_t1 Only volume from stems included in var221_t1 are registered.
250	SAWLGVOL	6	integer	m3 (solid o.b.)	3	(see above)
		1	integer	m3 (solid u.b.)	4	Sawlog volume/tree species: 1...var111_t1
		2	integer	m3 (solid o.b.)	3	(see above)
251	TOTVOLLNGTH	1	integer	0.1 m3	4	Total log volume/length class/sawlog assortment/tree species (volume specified as in var161_t1): 1...var118_t1/1...var116_t1/1...var111_t1
		2	integer	m3	3	(see above)
252	TOTVOLDIACL	1	integer	0.1 m3	4	Total log volume/diameter class/sawlog assortment/tree species (volume specified as in var. 161): 1...var117_t1/1...var116_t1/1...var111_t1
		2	integer	m3	3	(see above)
255	NUMLOGCODES	1	longinteger	pieces	3	Number of log codes in var256_t1
		2	Longinteger	pieces	4	Number of codes for downgrading causes according to var256_t1 (log code 702)
256 *	LOGCODE	1	integer	Code	3	Code set for measurement data (var257_t1), all the logs follows the definition in var256_t1: 1...var255_t1 See Appendix
		2	integer	code	4	Description of downgrading causes according to var256_t1 (log code 702): 1...var255_t2
257	LOGDATA	1	longinteger	no	3	Measurement data in the pri-file for the log: 1...var255_t1/1...var290_t1. Variable 257 should be read until the sign "end of variable". After that, one can use var290_t1 x var255(number of log data) as a control of the correct reading of this variable.
258	DISTANCE	1	Integer	km	3	Covered distance
		2	Integer	km	3	Covered distance/operator: 1...var211_t2
		3	Integer	km	3	Covered distance/operator/number of loads: 1...var211_t2/1...var228_t1
259	MEANDIST	1	integer	m	3	Mean forest haulage distance for all price matrixes as estimated by operator.

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
259	MEANDIST	2	integer	m	3	Mean forest haulage distance for all assortments as estimated by operator / operator: 1...var211_t2.
261	MISCPROD1	1	integer	no	4	Miscellaneous production
		2	integer	m3	4	(see above)
262	MISCPROD2	1	integer	no	4	Miscellaneous production 2
		2	integer	m3	4	(see above)
264	MISCPROD4	1	integer	no	4	Miscellaneous production 4
		2	integer	m3	4	(see above)
280	LOGREG	1	Integer	Code	3	1 = Manual registered logs 2 = Automatically registered logs
288	BUCKCODE	1	integer	Code	3	Code for bucking. 1=Bucking to value 2=Apportionment bucking If the bucking has been done by simulation software add 50 to the code. If the variable 288 is missing, the file will be treated as an old file.
500	DBHHT	1	integer	cm	3	Height above stump of DBH, when DBH is a measured value (normally 120 cm above stump in Finland and Sweden, 110cm in Norway), per tree species:1...var111_t1
501	NUMDBHCL	1	integer	no	3	Number of dbh classes/tree species: 1...var111_t1
502	LOWDBHBRK	1	integer	mm	3	Lower DBH limit on bark/dbh class/tree species: 1...var501_t1/1...var111_t1
503	NUMSTEMDBH	1	integer	pieces	3	Number of stems/DBH class/tree species: 1...var501_t1/1...var111_t1 The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
		2	integer	pieces	3	The number of stems that contained one (or more) logs of an assortment /DBH class/price matrix/tree species: 1...var501_t1/1...var116_t1/1...var111_t1 As one stem can contain logs of many assortments, the total number of stems in var503_t2 can not be compared with the total number of stems registered in i.e. var503_t1 or var222_t1. The sum of var503_t2 will in most cases be larger than the sum of var503_t1. The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
		3	integer	pieces	3	Number of logs, including unclassified logs/DBH-class/tree species: 1...var501_t1/1...var111_t1

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
503	NUMSTEMDB	4	integer	pieces	3	Number of logs/DBH class/price matrix/tree species: 1...var501_t1/1...var116_t1/1...var111_t1
504	VOLDBHCL	1	integer	m3 (solid u.b.)	3	Total volume including unclassified assortments, sum of var504 should be equal to sum of var249, /DBH class/tree species: 1...var501_t1/1...var111_t1
		2	integer	m3 (solid u.b.)	3	Volume/DBH class/price matrix/tree species: 1...var501_t1/1...var116_t1/1...var111_t1
		3	integer	m3 (solid o.b.)	3	Total volume including unclassified assortments, sum of var504 should be equal to sum of var249, /DBH class/tree species: 1...var501_t1/1...var111_t1
		4	integer	m3 (solid o.b.)	3	Volume/ DBH class/price matrix/tree species: 1...var501_t1/1...var116_t1/1...var111_t1
		5	integer	m3	3	Volume, unit according to price matrix/DBH-class /price matrix/tree species: 1...var501_t1/1...var116_t1/1...var111_t1
505	SLDED	1	integer	m3	4	Sum of length deductions
506	SDDDED	1	integer	m3	4	Sum of diameter deductions
507	AVRGDBH	1	integer	mm	3	Arithmetic mean breast height diameter o.b. of the felled trees/tree species: 1..var111_t1
508	LENLOGDB	1	long integer	cm	3	Processed length up to last cut (meter run) including unclassified logs/DBH-class/tree species: 1..var501_t1/1..var111_t1
		2	integer	cm	3	Processed length up to last cut (meter run)/DBH-class/ price matrix /tree species: 1..var501_t1/1...var116_t1/1..var111_t1
510	DBHDERDIST	1	integer	cm	3	Distance from but end to position where diameter is measured for derivation of DBH in variable 500, type 2/tree species:1..var111_t1
515 *	BNDLNO	1	Integer	pieces	3	Total number of bundles per harvesting object
*		2	Integer	pieces	3	Number of bundles/price matrix/tree species: 1..var116_t1/1...var111_t1
*		3	Integer	pieces	3	Number of bundles/operator/price matrix/tree species: 1...var211_t1/1...var116_t1/1...var111_t1
516 *	BNDLDIM	1	Integer	mm	3	Default diameter of the bundle. All price matrix have the same diameter.
*		2	Integer	cm	3	Default length of the bundle. All price matrix have the same length.
*		3	Integer	m3	3	Bundle bulk volume/price matrix/tree species, this is calculated with default diameter (var515_t1) and length (var515_t2): 1...var116_t1/1...var111_t1
530	NMDSEC	1	integer	no	1	Number of diameter sections / tree species: 1...var111_t1

## Production variables (prd file)

Var #	Name	Type	Data type	Unit	Pri	Description
531	DSEC	1	string	text	1	Description of diameter section / diameter section / tree species: 1...var530_t1 / 1...var111_t1 Descriptions can be free text and are company specific (not standardized).
		2	string	text	1	Code for diameter section / diameter section / tree species: 1... var530_t1 / 1...var111_t1 Codes are company specific.
		3	integer	mm	1	Minimum diameter o.b. of diameter section / diameter section / tree species: 1... var530_t1/1...var111_t1
		4	integer	cm	1	Minimum length of diameter section / diameter section / tree species: 1... var530_t1/1...var111_t1 Value 0 means that minimum length requirement is not in use. The smallest diameter section of a tree species does not have a minimum length requirement. More detailed descriptions can be found in Diameter Sections documents (only in Finnish).
		5	integer	text	1	User code/diameter section/ tree species: 1... var530_t1/1...var111_t1 Diameter section is used either for commercial volume measurement (code 1) or only for buyer's own needs (code 0)
532	DSECVOL	1	integer	m3sob	1	Yield volume (m3 solid o.b., excluding unclassified logs) / diameter section / tree species:1... var530_t1/1...var111_t1. Only volumes according to diameter sections with use code (var531_t5)=1
		2	integer	m3sob	1	Yield volume (m3 solid o.b., excluding unclassified logs) /diameter section /price matrix / tree species:1... var530_t1/1...var116_t1/1...var111_t1 Only volumes according to diameter sections with use code (var531_t5)=1
		3	integer	m3sob	1	Yield volume (m3 solid o.b., excluding unclassified logs) / diameter section / tree species: 1... var530_t1/1...var111_t1 Volumes according to all diameter sections (use code (var531_t5)=0 or 1)
		4	integer	m3sob	1	Yield volume (m3 solid o.b., excluding unclassified logs) /diameter section /price matrix / tree species: 1... var530_t1/1...var116_t1/1...var111_t1. Volumes according to all diameter sections (use code (var531_t5)=0 or 1)
605 *	APTERI	1	string	text	3	Special variable used by Finnish Apteri-software, described in appendix
		*	2	string	yyyymmddhhmmss	3
660	STANDAGE	1	Integer	Year	3	The mean age of the stand.
		2	Integer	Year	3	Standard deviation for var660_t1.

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**Production variables (prd file)**

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Var #	Name	Type	Data type	Unit	Pri	Description
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

If values with decimal places are required for metre run or volume, these must be expressed in thousandths of a metre or thousandths of a cubic metre in the corresponding variable in the 1000 range.

In variable 161, price category 6 applies to a volume based on diameter measured at the log midpoint and pricing based on top diameter. Price category 7 applies to both volume and price based on the diameter measured at the log midpoint.

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**Production-individual (pri file)**


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Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
2 *	ID	1	string	Text	1	The identity of the apt-file
		2	string	text	3	The name of the apt-file
		5	string	text	2	The name of the spp-file
		6	string	text	2	Identity of the spp-file version.
3 *	MCHNNO	2	String	Text	2	Unique machine identity for each company, for example used when using the harvester to measure for payment.
*		3	integer	code	1	Code describing type of machine: 1=harvester (default if variable is missing) 2=forwarder 3=harwarder, machine which handles both harvesting and forwarding 10 = bundler 20 = scarifier 99=other
		5	string	text	2	Machine manufacturer. Free text that describes the machine manufacturer.
		6	string	text	2	Machine model. Free text that describes the model of the machine.
		7	string	text	2	Harvester head manufacturer. Free text that describes the head manufacturer.
		8	string	text	2	Harvester head model. Free text that describes the model of the harvester head.
5 *	VARIANT	1	string	Text	2	Version/model of system control computer (in case of harvester normally identical with bucking computer) used for creating file. Recommended format m v.n, where m is the make and v.n the version number. Observe that up to 80 characters can be used.
*		2	string	text	3	Version/model of administrative program used for creating file. Format to be m v.n, where m is the name of the software and v.n the version number.
*		3	string	text	3	Version/model of bucking computer as designated by administrative program when creating apt-file.
*		5	string	text	3	Name and version of program or software application used for creating apt-file from oai- and ap1-files.
11	RESETDATE	4	string	yyyymmddhhmmss	1	Time and date when the prd/pri/prl-file last was reset. (mandatory), normally at the same time as production is started after reset.
12	DATESAVED	4	string	yyyymmddhhmmss	1	Date when file was last saved

## Production-individual (pri file)

Var #	Name	Type	Data type	Unit	Pri	Description
13	BUIDATE	4	string	yyyymmddhhmmss	2	Time and date when the current bucking file (APT-file) was originally created in a administrative program with the present name.
16	STARTDATE	4	string	yyyymmddhhmmss	1	Time and date for starting production at a site for the first time. Mandatory in prd/pri/prl-file.
17	ENDDATE	4	string	yyyymmddhhmmss	1	Time and date for ending a site. Used only when the when the harvesting machine is not to return to the site. Mandatory in prd-file when site is finished.
19	BREAKDATE	4	string	yyyymmddhhmmss	2	Date and time for a temporary break in the harvesting operation at a site (var21), when production is resumed redults are stored in the same prd- or pri-file using the same APT-file.
20	RESTARTDATE	4	String	yyyymmddhhmmss	2	Date and time for restart on a site (var21) where the operations have been interrupted. Can only exist if variable 19 (BREAKDATE) type 4 exists, must have a date/time later than var19_t4.
21 *	SITENO	1	string	Text	1	Logging unit number (mandatory in prd-, pri-, stm- and ktr-files)
*		2	string	text	2	Marking for cutting
*		3	string	text	2	Compartment number
*		4	string	text	2	Lot number
*		5	Integer	Code	2	Code to express if the logging site is certified or not: 0 = Not certified 1 = Certified
22	FILEORDER	1	integer	integer	1	Order of production files (prd or pri), used when dividing production result from one site into several different files. In the first file FILEORDER = 1. Only the last file has an ENDDATE (var17_t4). When production is resumed and production is stored in a new file, with no old data, FILEORDER must have a value >1 The file is considered to be cumulative if variable is missing. Prd-files are normally cumulative and pri-files are normally non-cumulative. A cumulative file is a file which is not reset between reporting.
23 *	SITEINFO	1	string	code/text	3	Harvesting method, the code is not standardized. The operator normally should not need to input any information related to var23 if this variable is included in apt- or oai-file.
		2	string	text	3	Harvesting method (harvesting objekt)
		3	integer	hectare	3	Area of the site in hectare
31 *	ORG	1	string	Text	2	Organization
*		2	string	text	2	Region
*		3	string	text	2	District
*		4	string	text	2	Working team
*		5	string	text	2	Wood pile

## Production-individual (pri file)

Var #	Name	Type	Data type	Unit	Pri	Description
32 *	BUYER	1	string	Text	3	Buyer
*		2	string	text	2	Buyer/price matrix/tree species: 1...var116_t1/1...var111_t1
33 *	VENDOR	1	string	Text	3	Vendor
*		2	string	text	3	Vendor, code
*		3	string	text	3	Vendor, name
*		4	string	text	3	Vendor, address
*		5	string	text	3	Vendor, e-mail
*		6	string	text	3	Vendor, phone/fax
34 *	SUBCON	2	string	text	1	The contractors code
*		3	string	text	2	The name of the contractor
*		4	string	text	2	The address of the contractor
*		5	String	Text	2	The e-mail address of the contractor
*		6	String	Text	2	The telephone and fax numbers of the subcontractor
35 *	CONTRACTNO	1	string	Text	1	Contract number
*		2	String	Text	2	Contract number in the Swedish VIOL-system
40	NMLNGTHCAL	1	integer	no	3	Number of length calibrations (suggestion, at least last three calibrations)
		2	Integer	no	3	Number of length calibrations per tree species (suggestion, at least last three calibrations): 1...var111_t1
		3	integer	no	3	Number of length positions per calibration and tree species (suggestion, at least one point at 500 cm): 1...var40_t2/1...var111_t1
41	LGTHCALDAT	4	string	yyyymmddhhmmss	3	Length calibration date: 1...var40_t2/1...var111_t1
42	LGTHCALRSN	1	string	Text	3	Length calibration reason: 1...var40_t2/1...var111_t1
		2	integer	code	3	Code for length calibration reason: 1...var40_t2/1...var111_t1 0 = Repair of measurement system 1 = Change in weather conditions 9 = Other reasons
43	NUMDIACAL	1	integer	no	3	Number of diameter calibrations (suggestion, at least last three calibrations)
		2	Integer	no	3	Number of diameter calibrations per tree species (suggestion, at least last three calibrations): 1...var111_t1
		3	integer	no	3	Number of diameter positions per calibration and tree species (suggestion, 14 points at diameters 50,100,150...700): 1...var43_t2/1...var111_t1
44	DIACALDAT	4	string	yyyymmddhhmmss	3	Diameter calibration date:1...var43_t2/1...var111_t1

## Production-individual (pri file)

Var #	Name	Type	Data type	Unit	Pri	Description
45	DIACALRSN	1	string	Text	3	Diameter calibration reason: 1...var43_t2/1...var111_t1
		2	integer	code	3	Code for diameter calibration reason: 1...var43_t2/1...var111_t1 0 = Repair of measurement system 1 = Change in weather conditions 9 = Other reasons
46	CALLNGTH	1	Integer	cm	3	Length positions (suggested length 500 cm): 1...var40_t3/1...var40_t2/1...var111_t1
47 *	CORRLNGTH	1	Integer	mm	3	Adjustment per length position: 1...var40_t3/1...var40_t2/1...var111_t1
		2	integer	mm	3	Adjustment per length position for butt logs, that is the difference in adjustment comparing to length adjustment of non butt logs. Used if separate butt log calibration exist in harvester: 1...var40_t3/1...var40_t2/1...var111_t1
48	CALDIA	1	Integer	mm	3	Diameter position (suggested diameters 50,100,150...700): 1...var43_t3/1...var43_t2/1...var111_t1
49 *	CORRDIA	1	Integer	mm	3	Adjustment per diameter position: 1...var43_t3/1...var43_t2/1...var111_t1
		2	long integer	1/10000	3	Diameter adjustment, constant "a" in "Diameter adjustment (mm) = a + b*Measured diameter (mm)",if linear regression method is used for diameter calibration: 1...var43_t2/1...var111_t1
		3	long integer	1/10000	3	Diameter adjustment, factor "b" in "Diameter adjustment (mm) = a + b*Measured diameter (mm)",if linear regression method is used for diameter calibration: 1...var43_t2/1...var111_t1
51	APTHISTORY	1	integer	no	2	Number of times that changes has been made to the apt-file. Possible to reset in administrative program.
		2	string	yyyymmddhhmmss	2	Date and time for change/modification of apt-file during the harvest of a site: 1...var51_t1 Possible to reset in administrative program.
		3	string	text	2	Text describing variables that have been changed in the apt-file, e.g. "var132_t1, var135_t2": 1...var51_t1 Possible to reset in administrative program.
		4	string	text	2	Identity of machine (var3_t2) in which change in apt-file was done, if change is not done in a machine signature of person responsible: 1...var51_t1 Possible to reset in administrative program.
		5	string	yyyymmddhhmmss	2	Date and time when var51 type 1, 2, 3, and 4 were last reset. This is the same date as when the file was first created if type1, 2, 3 and 4 has not been reset.

## Production-individual (pri file)

Var #	Name	Type	Data type	Unit	Pri	Description	
51	APTHISTORY	6	string	text	2	Signature of person responsible for resetting var51, type 1, 2, 3 and 4. This is the person that created the file if type1, 2, 3 and 4 has not been reset.	
111	NUMTREESPC	1	integer	no	1	Number of tree species	
112	NUMBARKPAR	1	integer	no	2	Number of bark parameters/tree species: 1...var111_t1. The variable is used together with var113_t1.	
		2	integer	no	2	Number of diameter breaks/tree species: 1...var111_t1. The variable is used together with variable 113, type 2 and type 3. (based on German requirements)	
113	BARKPAR	1	integer	0.01 mm	0.1%%	2	Bark parameters/tree species (first parameter in 100ths of mm; second in 10ths per mille): 1...var112_t1/1...var111_t1
		2	integer	mm		2	Lower diameter limits/tree species: 2...var112_t2/1...var111_t1 (based on German requirements)
		3	integer	0.01 mm		2	Deduction for double bark thickness/tree species: 1...var112_t2/1...var111_t1 (based on German requirements)
		4	long integer	0.00001 degrees		1	Latitude used in bark function
*		7	integer	code		1	Type of bark function per species: 1...var111_t1 1= Function according to var113_t1 2= Function according to var113_t2 & var113_t3 3=Skogforsk 2004, Scots pine 4=Skogforsk 2004, Norway spruce
116	NUMASST	1	integer	no		1	Number of price matrices/tree species: 1...var111_t1
117	NUMDIACL	1	integer	no		3	Number of diameter classes/price matrices/tree species: 1...var116_t1/...var111_t1
118	NUMLNTHCL	1	integer	no		3	Number of length classes/price matrix/tree species: 1...var116_t1/1...var111_t1
120	TREESPEC	1	string	Text		1	Name of tree species: 1...var111_t1
*		3	string	Code		1	Tree species code(see Swedish appendix) for tree species/tree species: 1...var111_t1
121	ASSTDESCR	1	string	text		1	Description of assortment/price matrix/tree species: 1...var116_t1/1...var111_t1
*		2	string	Assortment code		1	Code/price matrix/tree species: 1...var116_t1/1...var111_t1
		3	string	text		2	Additional identity description of price matrix/price matrix/ species: 1...var116_t1/1...var111_t1
*		4	string	yyyymmddhhmmss		3	Time and date when the ap1-file of the assortment was last saved in the software system of the forest company/ price matrix/tree species: 1...var116_t1/1...var111_t1

## Production-individual (pri file)

Var #	Name	Type	Data type	Unit	Pri	Description
121	ASSTDESCR	5	string	text	3	Additional assortment identification information / price matrix/tree species: 1...var116_t1/1...var111_t1. User-specified codes.
		6	integer	integer	1	Unique identification information set automatically in bucking or forwarder computer / price matrix/tree species (compare with var441_t12): 1...var116_t1/1...var111_t1. Must be a unique identity / key for a price matrix, never repeated in the same harvester or forwarder file (pri/prd/stm/apt/pri). Not to be changed by operator.
122	NUMSTEMTYPE	1	integer	no	2	Number of stem types/tree species:1...var111_t1
124	STEMTYPDESCR	1	string	Text	2	Description of stem type/stem type/tree species: 1...var122_t1/1...var111_t1
		2	string	Code	2	Code for stem type/stem type/tree species: 1...var122_t1/1...var111_t1. The stem types are described with Finnish PMP-codes: Pine Timber stem type 11. Pulpwood stem type 12 Spruce Timber stem type 21. Pulp wood stem type 22. Birch Timber stem type 31. Pulp wood stem type 32. Other species Aspen Timber stem type 41. Pulp wood stem type 42. Other species timber stem type 61. Other species pulp wood stem type 62
125	NUMPRODGRP	1	integer	no	2	Number of product groups/tree species: 1...var111_t1
126	PRODGRPNUM	1	integer	no	2	Product group number/price matrix/tree species: 1...var116_t1/1...var111_t1
127	PRODDDESCR	1	string	Text	2	Description of product/product group/tree species: 1...var125/1...var111_t1
131	DIAGRDLMT	1	integer	mm	3	Lower diameter limit (last value, var117_t1+1, gives upper diameter limit): 1...var117_t1+1 / 1...var116_t1 / 1...var111_t1
		2	string	text	3	Diameter class name (free descriptive text)/diameter class/price matrix/tree species: 1..var117_t1/1..var116_t1/1..var111_t1 Primarily for use in Germany where the classes have standardized names

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**Production-individual (pri file)**


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Var #	Name	Type	Data type	Unit	Pri	Description
132	LWRLNGTHLMT	1	integer	cm	3	Lower length limit of length class (last value, var118_t1+1, gives upper length limit): 1...var118_t1+1/1...116/1...var111_t1
141	GRADE	1	integer	Integer	3	Grade/price matrix/tree species. 1, 2, 4, 8 etc., where 1 is the highest grade and e.g. 5 indicates grades 1 & 4 apply to the price matrix: 1...var116_t1/1...var111_t1 Always binary number
142	NUMGRADUSD	1	integer	no	3	Number of grades used/tree species: 1...var111_t1 (If the code for the highest grade used is 8 in var141_t1, variable 142 is set to 4, even if code 1 is not used.)
143 *	GRADDESIG	1	string	Text	3	Grade description/grade/tree species: 1...var142_t1/1...var111_t1
⋮						
161 *	PRICECAT	1	integer	code	1	Price category/price matrix/tree species where 1 = price/m3 (volume by small-end diameter); 2 = price/m3 (solid); 3 = price/log; 4 = price/m3 (Norwegian price category) 5 = price/m3 (Swedish top and butt end measuring); 6 = price/m3 (solid, measured at midpoint, price due to small-end diameter, HKS diameter, German price category) 7 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, HKS diameter, German price category) 8 = price/m3 (solid, measured at midpoint, price due to midpoint diameter, (Danish price category) 9 = price/board feet (American price category) 10 = price/m3 (solid, diameter measured at midpoint, price due to small-end diameter) diameter in mm 11 = price/log (Norwegian price category) 12 = Price/bundled m3 (bulk volume calculated with default diameter and length of the bundle) 13 = price/m3 (Estonian Nilson's volume unit) If the price applies to volumes including bark, add 128 to the price-category number, e.g. m3 (solid o.b.) = 130: 1...var116_t1/1...var111_t1 14 = Price/m3. (optimization based on m3 solid, reporting in m3top).  All the codes are described in detail in appendix
169	DENSITY	1	Integer	kg/m3 solid u.b.	3	Density in green condition/price matrix/tree species: 1..var116_t1/1..var111_t1
		2	Integer	kg/m3 solid o.b.	3	Density in green condition/price matrix/tree species: 1..var116_t1/1..var111_t1

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**Production-individual (pri file)**


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Var #	Name	Type	Data type	Unit	Pri	Description
170	BUTTDIAM	1	integer	code	2	Type of butt end profile extrapolation method. Used for extrapolation of butt end diameter values. Volume calculation of butt end is done according the extrapolated diameters. Method can be chosen separately for each tree species: 1...var111_t1. 0 or no code = machine specific system for extrapolation, 1 = coefficient tables (type 3-7), 2 = function (type 8-12)
200	OPTNLTXT	2	long string	text	3	Optional free text for sending information to the machine. No changes are allowed in the machine. Maximum 300 characters allowed.
		3	long string	text	3	Optional text for sending information from the machine. Maximum 300 characters allowed.
211	NUMOP	2	integer	no	2	Number of operators
212	OPERATOR	1	string	text	2	The name of the operator: 1...var211_t2
221	NUMSTEMS	3	integer	pieces	3	Number of processed (harvested) stems. The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
		2	integer	pieces	1	Total number of processed (harvested) stems on a site after the start date (STARTDATE, var16_t4). Never reset during harvesting at a specific site. Used for checking that all files have been included when calculating the total production of a site. The sum of the length of all logs from one stem must be larger than the minimum length of all available price matrixes and the diameter at minimum length, from butt end, must be larger than the minimum diameter in all price matrixes, in order to be registered as a stem.
230	NUMBNCH	2	integer	pieces	2	Number of occasion that multi tree processing (several stems delimbed and cross cut simultaneously, logs are length measured) is carried out at the site.
		3	integer	pieces	2	Number of occasion that multi tree processing (several stems delimbed and cross cut simultaneously) is carried out at the site per operator: 1...var211_t2
		4	integer	no	2	Number of occasion that multi tree processing (several stems delimbed and cross cut simultaneously, logs are length measured) is carried out. Could also be described as tree bunches. All occasions registered in the current file are to be included.
		5	integer	pieces	2	Number of stem bunches in multi tree felling. Some type of feller-buncher system used. All occasions registered in the current file are to be included.

## Production-individual (pri file)

Var #	Name	Type	Data type	Unit	Pri	Description
231	STMSINBNCH	2	integer	pieces	2	Number of multi tree processed stems (several stems delimbed and cross cut simultaneously). All stems must be registered independently of size when carrying out multi tree processing.
		3	integer	pieces	2	Number of multi tree processed stems (several stems delimbed and cross cut simultaneously) per operator: 1...var211_t2 All stems must be registered independently of size when carrying out multi tree processing.
241	TOTMERCVOL	5	integer	m3 (solid u.b.)	2	Total merchantable solid volume (excluding price matrixes tagged with var136 code 4, as well as var243 and var244) /tree species: 1...var111_t1
246	BUNCHEDPROD	8	integer	pieces	2	Estimated number of logs from multi tree processed stems (number of logs = no of stems * no of cut log bunches, it is assumed that the same number of logs are cut from all stems processed together)
		9	integer	pieces	2	Total number of log bunches (equal to no of cross-cuts excluding felling cut) from multi tree processed stems on a site after the start date (STARTDATE, var16_t4). Never reset during harvesting at a specific site.
		10	integer	pieces	2	Number of log bunches (equal to no of cross-cuts excluding felling cut) from multi tree processed stems All log bunches registered in the current file are to be included.
255	NUMLOGCODES	1	longinteger	pieces	1	Number of log codes in var256_t1
		2	Longinteger	pieces	4	Number of codes for downgrading causes according to var256_t1 (log code 702)
		3	integer	pieces	2	Number of log/bunch codes for multi-tree-processing in var256_t3
256 *	LOGCODE	1	integer	Code	1	Code set for measurement data (var257_t1), all the logs follows the definition in var256_t1: 1...var255_t1 See Appendix
		2	integer	code	4	Description of downgrading causes according to var256_t1 (log code 702): 1...var255_t2
		*	integer	code	2	Code set for measurement data (var257_t2). All the multi tree processed logs/bunches follows the definition in var256_t3: 1...var255_t3 See appendix
257	LOGDATA	1	longinteger	no	1	Measurement data in the pri-file for the log: 1...var255_t1/1...var290_t1. Variable 257 should be read until the sign "end of variable". After that, one can use var290_t1 x var255(number of log data) as a control of the correct reading of this variable.

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**Production-individual (pri file)**


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Var #	Name	Type	Data type	Unit	Pri	Description
257	LOGDATA	2	long integer	no	2	Measurement data in the pri-file for multi-tree-processed logs /1...var255_t3/1...var246_t10. Variable 257 should be read until the sign "end of variable". After that one can use var246_t10xvar255_t3 (number of log data) as a control of the correct reading of this variable.
258	DISTANCE	1	Integer	km	3	Covered distance
		2	Integer	km	3	Covered distance/operator: 1...var211_t2
265	NUMTRECOD	1	long integer	no	1	Number of tree codes in var266_t1
		2	integer	no	2	Number of tree (tree bunch) codes for multi-tree-processing in var266_t2
		3	integer	no	2	Number of tree (tree bunch) codes for multi-tree-felling in var266_t3. No log bunch data for these stems since no logs are cut.
266 *	TREECODE	1	integer	code	1	Codes set for registered data in var267_t1, all trees follows the definition in this variable:1..var265_t1 See appendix.
*		2	integer	code	2	Code set for measurement data in var267_t2, all multi tree processed trees follows the definition in this variable:1..var265_t2. See appendix.
*		3	integer	code	2	Codes set for measurement data in var267_t3, all multi tree felled trees follows the definition in this variable:1..var265_t3. See appendix. No log bunch data for these stems since no logs are cut.
267	TREEDATA	1	long integer	no	1	Measurement data in the pri-file for each tree: 1...var265_t1 /1...var221_t1.
		2	integer	no	2	Measurement data in the pri-file for multi-tree-processed trees (tree bunches) /1...var265_t2/1...var230_t4.
		3	integer	no	2	Measurement data in the pri-file for multi-tree-felled trees (tree bunches) /1...var265_t3/1...var230_t5. No log bunch data for these stems since no logs are cut.
290	NUMLOGS	1	integer	pieces	2	Number of logs (sawlogs and pulpwood). All logs registered in the current file are to be included.
		2	integer	pieces	1	Total number of logs harvested on a site after the start date (STARTDATE, var16_t4). Never reset during harvesting at a specific site. Used for checking that all files have been included when calculating the total production of a site. All logs from the site that are registered in any file are to be included.
500	DBHHT	1	integer	cm	1	Height above stump of DBH, when DBH is a measured value (normally 120 cm above stump in Finland and Sweden, 110cm in Norway), per tree species:1...var111_t1

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**Production-individual (pri file)**


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Var #	Name	Type	Data type	Unit	Pri	Description	
510	DBHDERDIST	1	integer	cm	3	Distance from but end to position where diameter is measured for derivation of DBH in variable 500, type 2/tree species:1..var111_t1	
520	COORDREF	1	integer	code	3	Position of coordinate registration in file: 1= Base machine position 2= Crane tip position when felling the tree (harvester) 3 = Crane tip position when processing the tree (harvester)	
⋮	521	COORDTYPE	1	integer	code	3	1=coordinates stored as a difference from the starting coordinates (COORDSTART var522) 2=absolute coordinates are stored in the file.
⋮			2	integer	code	3	Coordinate system used in file: 1=WGS84 (Default)
⋮	522	COORDSTART	1	long integer	0.00001 degrees	3	Latitude, absolute value, primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values. Registered according to var521_t2 and var520_t1.
⋮			2	integer	code	3	1=North, 2=South Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values, registered according to var521_t2 and var520_t1.
⋮			3	long integer	0.00001 degrees	3	Longitude, absolute value, primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values. Registered according to var521_t2 and var520_t1.
⋮			4	integer	code	3	1=East, 2=West Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values, registered according to var521_t2 and var520_t1.
⋮			5	integer	meter	3	Altitude, height above sea level, registered according to var521_t2 and var520_t1. Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values.
⋮			6	string	yyyymmddhhmmss	3	Date and time when recording data in var522.
	605 *	APTERI	1	string	text	3	Special variable used by Finnish Apteri-software, described in appendix
	*		2	string	yyyymmddhhmmss	3	Special variable used by Finnish Apteri-software, described in appendix
	660	STANDAGE	1	Integer	Year	3	The mean age of the stand.
			2	Integer	Year	3	Standard deviation for var660_t1.
	991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
	992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit

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**Production-individual (pri file)**

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Var #	Name	Type	Data type	Unit	Pri	Description
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

## Production variables for forwarder (prl-file)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
3 *	MCHNNO	1	string	Text	2	Machine number
*		2	String	Text	1	Unique machine identity for each company, for example used when using the harvester to measure for payment.
*		3	integer	code	1	Code describing type of machine: 1=harvester (default if variable is missing) 2=forwarder 3=harwarder, machine which handles both harvesting and forwarding 10 = bundler 20 = scarifier 99=other
5 *	VARIANT	1	string	Text	2	Version/model of system control computer (in case of harvester normally identical with bucking computer) used for creating file. Recommended format m v.n, where m is the make and v.n the version number. Observe that up to 80 characters can be used.
11	RESETDATE	4	string	yyyymmddhhmmss	1	Time and date when the prd/pri/prl-file last was reset. (mandatory), normally at the same time as production is started after reset.
12	DATESAVED	4	string	yyyymmddhhmmss	1	Date when file was last saved
16	STARTDATE	4	string	yyyymmddhhmmss	1	Time and date for starting production at a site for the first time. Mandatory in prd/pri-prl-file.
17	ENDDATE	4	string	yyyymmddhhmmss	1	Time and date for ending a site. Used only when the when the harvesting machine is not to return to the site. Mandatory in prd-file when site is finished.
19	BREAKDATE	4	string	yyyymmddhhmmss	2	Date and time for a temporary break in the harvesting operation at a site (var21), when production is resumed results are stored in the same prd- or pri-file using the same APT-file.
20	RESTARTDATE	4	String	yyyymmddhhmmss	2	Date and time for restart on a site (var21) where the operations have been interrupted. Can only exist if variable 19 (BREAKDATE) type 4 exists, must have a date/time later than var19_t4.
⋮						
⋮	21 *	1	string	Text	1	Logging unit number (mandatory in prd-, pri-, stm- and ktr-files)
	*	2	string	text	2	Marking for cutting
	*	3	string	text	2	Compartment number
	*	4	string	text	2	Lot number

## Production variables for forwarder (prl-file)

Var #	Name	Type	Data type	Unit	Pri	Description
21 *	SITENO	5	Integer	Code	2	Code to express if the logging site is certified or not: 0 = Not certified 1 = Certified
22	FILEORDER	1	integer	integer	1	Order of production files (prd or pri), used when dividing production result from one site into several different files. In the first file FILEORDER = 1. Only the last file has an ENDDATE (var17_t4). When production is resumed and production is stored in a new file, with no old data, FILEORDER must have a value >1 The file is considered to be cumulative if variable is missing. Prd-files are normally cumulative and pri-files are normally non-cumulative. A cumulative file is a file which is not reset between reporting.
31 *	ORG	1	string	Text	2	Organization
*		2	string	text	2	Region
*		3	string	text	2	District
*		4	string	text	2	Working team
*		5	string	text	2	Wood pile
32 *	BUYER	1	string	Text	3	Buyer
33 *	VENDOR	1	string	Text	3	Vendor
*		2	string	text	3	Vendor, code
*		3	string	text	3	Vendor, name
*		4	string	text	3	Vendor, address
*		5	string	text	3	Vendor, e-mail
*		6	string	text	3	Vendor, phone/fax
34 *	SUBCON	2	string	text	1	The contractors code
*		3	string	text	2	The name of the contractor
*		4	string	text	2	The address of the contractor
*		5	String	Text	2	The e-mail address of the contractor
*		6	String	Text	2	The telephone and fax numbers of the subcontractor
35 *	CONTRACTNO	1	string	Text	1	Contract number
*		2	String	Text	2	Contract number in the Swedish VIOL-system
60	WEIGHTCAL	1	string	no	3	Number of scale calibrations
		2	integer	yyyymmddhhmmss	3	Date for calibrating scale: 1...var60_t1
		3	integer	kg	3	Reference mass when calibrating scale: 1...var60_t1
		4	integer	1%	3	Error of scale when calibrating: 1...var60_t1
		5	integer	0.001	3	Factor used when weighing, default value is 1000.
61	WEIGHTCONTRL	1	integer	no	3	Number of occurrences of weight scale controls.

## Production variables for forwarder (prl-file)

Var #	Name	Type	Data type	Unit	Pri	Description
61	WEIGHTCONTRL	2	string	yyyymmddhhmmss	3	Time of weight scale control measurement: 1...var61_t1
		3	integer	kg	3	Reference weight, weight of the control object (e.g. test object or weight bridge): 1...var61_t1.
		4	integer	no	3	Number of control weight scalings: 1...var61_t1.
		5	integer	kg	3	Registered mass of control scaling in forwarder per scaling occasion: 1...var61_t4/ 1...var61_t1. Weight values of the forwarder's scale.
		6	integer	code	3	Calibration of the weight scale has been done (or not) based on the weight control results and suggestions of the scale manufacturer: 1...var61_t1. Codes: 0 = no, 1 = yes
		7	string	free text	3	Optional free text about control measurements, calibration reasons, weight scale faults and repairs etc: 1...var61_t1.
		8	string	free text	3	Name and identity of certificate of type examination for scale
		9	string	free text	3	Scale model and manufacturer
		10	integer	code	3	Scale type (grapple vs bunks) Codes: 0=grapple scale, 1= bunk (load bearers) scale
		11	integer	code	3	Forwarder's working type when weighting with weight scale is done: 1...var61_t1. Codes: 1 = loading, 2 = unloading. Variable only used for weight scale control measurements. See var446_t1 for production reporting
		62	RNDMWEIGHTC	1	Integer	No
2	Integer			Code	3	Position of random weight scaling per random scaling/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			yyyymmddhhmmss	3	Date and time of random weight scaling per random scaling/assortment/species/operator. 1...var62_t1/1...var116_t1/1...var111_t1/1...var211_t2
4	Integer			Kg	3	Weight at static lifts per random scaling / assortment /species/operator. 1...var62_t1/1...var116_t1/1...var111_t1/1...var211_t2 Observe that normal logs are used in this scale control.

## Production variables for forwarder (prl-file)

Var #	Name	Type	Data type	Unit	Pri	Description
62	RNDMWEIGHTC	5	Integer	Kg	3	Weight at dynamic lift per random scaling / assortment /species/operator. 1...var62_t1/1...var116_t1/1...var111_t1/1...var211_t2 Observe that normal logs are used in this scale control.
111	NUMTREESPC	1	integer	no	2	Number of tree species
116	NUMASST	1	integer	no	2	Number of price matrices/tree species: 1...var111_t1
120	TREESPEC	1	string	Text	2	Name of tree species: 1...var111_t1
121	ASSTDESCR	1	string	text	2	Description of assortment/price matrix/tree species: 1...var116_t1/1...var111_t1
	*	2	string	Assortment code	2	Code/price matrix/tree species: 1...var116_t1/1...var111_t1
		3	string	text	2	Additional identity description of price matrix/price matrix/ species: 1...var116_t1/1...var111_t1
		6	integer	integer	1	Unique identification information set automatically in bucking or forwarder computer / price matrix/tree species (compare with var441_t12): 1...var116_t1/1...var111_t1. Must be a unique identity / key for a price matrix, never repeated in the same harvester or forwarder file (pri/prd/stm/apt/pri). Not to be changed by operator.
200	OPTNLTXT	2	long string	text	3	Optional free text for sending information to the machine. No changes are allowed in the machine. Maximum 300 characters allowed.
		3	long string	text	3	Optional text for sending information from the machine. Maximum 300 characters allowed.
211	NUMOP	2	integer	no	2	Number of operators
212	OPERATOR	1	string	text	2	The name of the operator: 1...var211_t2
228	NUMLOAD	1	integer	pieces	2	Number of loads
		2	integer	pieces	2	Number of loads/operator: 1...var211_t2
258	DISTANCE	1	Integer	km	2	Covered distance
		2	Integer	km	2	Covered distance/operator: 1...var211_t2
259	MEANDIST	1	integer	m	2	Mean forest haulage distance for all price matrixes as estimated by operator.
		2	integer	m	2	Mean forest haulage distance for all assortments as estimated by operator / operator: 1...var211_t2.
440	NUMTRNS	1	integer	no	1	Number of transport objects in prl-file
441	TRNSDESC	1	string	text	1	Transport object name (free descriptive text): 1...var440_t1
	*	2	string	text	1	Transport object code: 1...var440_t1

## Production variables for forwarder (pri-file)

Var #	Name	Type	Data type	Unit	Pri	Description
441	TRNSDESC	3	integer	dgrs	1	Latitude, integer as 0.00001 degrees, stored according to var521_t1, var521_t2 and var520_t1: 1...var440_t1
		4	integer	dgrs	1	Longitude, integer as 0.00001 degrees, stored according to var521_t1, var521_t2 and var520_t1: 1...var440_t1
		5	integer	masl	1	Altitude, meters above sea level, stored according to var521_t1, var521_t2 and var520_t1: 1...var440_t1
		6	string	yyyymmddhhmmss	1	Start date (when transport object is defined): 1...var440_t1
		7	string	yyyymmddhhmmss	1	Date when transport object is completed, no additional unloading at this transport object is done after this date: 1...var440_t1
		8	string	yyyymmddhhmmss	1	Date when harvesting was carried out, applies to logs unloaded at specific transport object: 1...var440_t1
		9	string	text	2	Free descriptive text for a transport object: 1...var440_t1
		10	Integer	code	1	Code describing the unit wich was estimated by operator or measured by forwarder (not calculated by machine) per transport object: 1...var440_t1 Codes: 1 =volume, m3sob (load code 401) 2 =volume, m3sub (load code 402) 3 =green mass, kg (load code 450) 4 =no of logs (load code 460) 5 =no of loads (all production data in var447_t1 is calculated) 6 = loose volume, m3 7 = solid volume including bark, branches and needles, m3 8 = solid volume of bundles (length*cross sectional area), m3 9 = number of bundles
		11	Integer	Code	1	Code describing how forwarder production data (in var447) was generated per transport object: 1...var440_t1 Codes: 0 = Other/unknown 1 = manual estimation by operator 2 = scale 3 = estimation through pri-file (harvester data)
		12	integer	integer	1	Unique identification information set automatically in forwarder computer / transport object (compare with var121_t6): 1...440_t1 Must be a unique identity / key for a transport object, never repeated in the same forwarder file (pri). Not to be changed by operator.
		13	string	text	2	Non standardized codes (free text) for describing forest road condition for each transport object: 1...var440_t1

## Production variables for forwarder (prl-file)

Var #	Name	Type	Data type	Unit	Pri	Description	
442	TRNSSORT	1	integer	no	1	No of price matrixes per transport object: 1...var440_t1	
		2	string	text	4	Name of tree species per price matrix and transport object (compare with var120): 1...442_t1 / 1...440_t1	
		*	3	string	text	4	Tree species code(see Swedish appendix) per assortment and transport object (compare with var120): 1...var442_t1 / 1...var440_t1
		4	string	text	4	Description per price matrix and transport object (compare with var121_t1): 1...var442_t1 / 1...var440_t1	
		5	string	text	4	Price matrix codes per price matrix and transport object (compare with var121_t2): 1...var442_t1 / 1...var440_t1	
		6	string	text	4	Additional identity description of price matrix perprice matrix and transport object (compare with var121_t3): 1...var442_t1 / 1...var440_t1	
		7	string	text	4	Buyer per assortment (compare with var32_t2) : 1...var442_t1 / 1...var440_t1	
		8	integer	integer	1	Price matrix number (refers to var121_t6): 1...var442_t1/1...var441_t1/1...var440_t1 To be used instead of var442_t2-7.	
443	NUMLDATA	1	Integer	no	1	Number of unloading data stored in var447_t1	
		2	Integer	no	1	Total number of unloading data registered on a site after the start date (STARTDATE, var16_t4). Never reset during forwarding at a specific site. Used for checking that all files have been included when calculating the total production of a site.	
445	NUMLOADCOD	1	Integer	no	1	Number of load codes in var446_t1	
446 *	LOADCODE	1	Integer	code	1	Codes set for registered data in var447, all loads follow the definition in this variable:1..var445_t1 See appendix.	
447	LOADDATA	1	Integer	no	1	Measurement data for each unloading: 1...var445_t1/1...var443_t1. Observe that -1 is to be used in var447 if a unit in var446 (load codes 401 – 461) is not relevant. -1 indicates that a certain unit is not used within a certain transport object (nil). Do not mix -1 and values>=0 for a certain volume unit within a certain transport objec	
520	COORDREF	1	integer	code	2	Position of coordinate registration in file: 1= Base machine position 2= Crane tip position when felling the tree (harvester) 3 = Crane tip position when processing the tree (harvester)	
521	COORDTYPE	1	integer	code	2	1=coordinates stored as a difference from the starting coordinates (COORDSTART var522) 2=absolute coordinates are stored in the file.	

## Production variables for forwarder (prl-file)

Var #	Name	Type	Data type	Unit	Pri	Description
521	COORDTYPE	2	integer	code	2	Coordinate system used in file: 1=WGS84 (Default)
522	COORDSTART	1	long integer	0.00001 degrees	2	Latitude, absolute value, primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values. Registered according to var521_t2 and var520_t1.
		2	integer	code	2	1=North, 2=South Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values, registered according to var521_t2 and var520_t1.
		3	long integer	0.00001 degrees	2	Longitude, absolute value, primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values. Registered according to var521_t2 and var520_t1.
		4	integer	code	2	1=East, 2=West Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values, registered according to var521_t2 and var520_t1.
		5	integer	meter	2	Altitude, height above sea level, registered according to var521_t2 and var520_t1. Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values.
		6	string	yyyymmddhhmmss	2	Date and time when recording data in var522.
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

## Log-tally variables (Prm file)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	1	string	Text	4	Filetype: text string as per application
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
2 *	ID	1	string	Text	1	The identity of the apt-file
		2	string	text	3	The name of the apt-file
5 *	VARIANT	1	string	Text	3	Version/model of system control computer (in case of harvester normally identical with bucking computer) used for creating file. Recommended format m v.n, where m is the make and v.n the version number. Observe that up to 80 characters can be used.
13	BUIDATE	1	string	yymmdd	3	Date of current bucking file
110 *	STEMSPEC	1	integer	1,2,3...	3	Stem species
111	NUMTREESPC	1	integer	no	3	Number of tree species
116	NUMASST	1	integer	no	3	Number of price matrices/tree species: 1...var111_t1
117	NUMDIACL	1	integer	no	3	Number of diameter classes/price matrices/tree species: 1...var116_t1/...var111_t1
118	NUMLNTHCL	1	integer	no	3	Number of length classes/price matrix/tree species: 1...var116_t1/1...var111_t1
121	ASSTDESCR	1	string	text	3	Description of assortment/price matrix/tree species: 1...var116_t1/1...var111_t1
131	DIAGRDLMT	1	integer	mm	3	Lower diameter limit (last value, var117_t1+1, gives upper diameter limit): 1...var117_t1+1 / 1...var116_t1 / 1...var111_t1
132	LWRLNTHLMT	1	integer	cm	3	Lower length limit of length class (last value, var118_t1+1, gives upper length limit): 1...var118_t1+1/1...116/1...var111_t1
141	GRADE	1	integer	Integer	3	Grade/price matrix/tree species. 1, 2, 4, 8 etc., where 1 is the highest grade and e.g. 5 indicates grades 1 & 4 apply to the price matrix: 1...var116_t1/1...var111_t1 Always binary number
142	NUMGRADUSD	1	integer	no	3	Number of grades used/tree species: 1...var111_t1 (If the code for the highest grade used is 8 in var141_t1, variable 142 is set to 4, even if code 1 is not used.)

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### Log-tally variables (Prm file)

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Var #	Name	Type	Data type	Unit	Pri	Description
143 *	GRADDESIG	1	string	Text	3	Grade desription/grade/tree species: 1...var142_t1/1...var111_t1
201	LOGTALLY	1	integer	pieces	3	Number of logs/diameter class/length class/price matrix/tree species: 1...var117_t1/1...var118_t1/1...var116_t1/1...var111 _t1
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

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### Summed production file (psu file)

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Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	1	string	Text	4	Filetype: text string as per application
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

The variables in a psu file is the same variables used in the prd file. The data type integer for summed variables in the psu file is changed to long integer

## Repair follow-up variables (rep file)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	1	string	Text	4	Filetype: text string as per application
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
	*	3	string	text	1	Code page character set, ISO-code
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
21 *	SITENO	5	Integer	Code	3	Code to express if the logging site is certified or not: 0 = Not certified 1 = Certified
315	GTIME	1	long integer	sec	2	Down-filter-time, maximum time allowed for a down time, if down time is longer it will be recorded in var317. Default value is 900 s (15 min). The value rules the data in var316_t3, code 3 .
316	RUNTIME	1	integer	no	3	Number of times
		2	integer	no	3	Number of times per operator 1...var211_t2
	*	3	integer	Code	3	Type of time (codes described in appendix): 1...var316_t2 / 1...var211_t2 1= Utilized time which is the sum of all down times (var317) and all effective times (E(t)) 2= E0 3= E(t) according to var315_t1, also called Effective work time 4= Engine 5= Loader/linkage 6= Harvesting unit 10 = Processing time according to var315_t1 (subset of Et) 11 = Terrain travel according to var315_t1 (subset of Et) 12 = Other work according to var315_t1 (subset of Et) 13 = Road travel time according to var315_t1 (subset of Et) 14 = Loading of trucks according to var315_t1 (subset of Et) 20 = Processing time according to var315_t1 (subset of E0) 21 = Terrain travel according to var315_t1 (subset of E0) 22 = Other work according to var315_t1 (subset of E0) 23 = Road travel time according to var315_t1 (subset of E0) 24 = Loading of trucks according to var315_t1 (subset of E0) It is permitted to register the same type of time for the same operator several times or register one summed time per type and operator.
		4	string	text	3	Description of times:1...var316_t2 / 1...var211_t2

## Repair follow-up variables (rep file)

Var #	Name	Type	Data type	Unit	Pri	Description
316	RUNTIME	5	longinteger	sec	3	Run time: 1...var316_t2 / 1...var211_t2
317	IRTIME	1	integer	no	3	Number of down times
		2	integer	no	3	Number of down times per operator: 1...var211_t2
	*	3	integer	code	3	Type of down times (codes described in appendix): 1...var317_t2 / 1...var211_t2 10 = Repair time 11 = Waiting for repair time 12 = Maintenance 13 = Trailer time 14 = Disturbance It is permitted to register the same type of time for the same operator several times or one summed time per type and operator.
		4	string	text	3	Description of down time: 1...var317_t2 / 1...var211_t2
		5	longinteger	sec	3	Down time: 1...var317_t2 / 1...var211_t2
318	WORKTIME	1	integer	no	3	Number of work times (for operating machine)
		2	integer	no	3	Number of work times for operating machine per operator: 1...var211_t2
		3	integer	code	3	Type of working times for operating machine, including meal breaks. Overlapping between operators not allowed: 1...var318_t2 / 1...var211_t2 1= Start time 2= End timer Should always be registered in pairs with Start time first.
		4	string	yyyymmddhhmmss	3	Start / end of work time for operating machine per operator: 1...var318_t2 / 1...var211_t2/
		5	integer	no	3	Number of total work times for operating machine per operator (sum of all times registered in var318_t4): 1...var211_t2
		6	long integer	sec	3	Total work time for operating machine, including meal breaks, per operator (sum of all times registered in var318_t4): 1...var318_t5 / 1...var211_t2
319	EXTRATIME	1	integer	no	3	The number of extra times
		2	integer	no	3	Number of extra times per operator: 1...var211_t2
	*	3	integer	code	3	Type of time (codes described in appendix): 1...var319_t2 / 1...var211_t2 1 = Meal break It is permitted to register the same type of time for the same operator several times or the summed time per type and operator
		4	string	text	3	Description: 1...var319_t2 / 1...var211_t2
		5	longinteger	sec	3	Extra time: 1...var319_t2 / 1...var211_t2
321	DELAYTIME	1	integer	0.1 h	3	Total delay time
		2	string	hhmm	3	(see above)

## Repair follow-up variables (rep file)

Var #	Name	Type	Data type	Unit	Pri	Description
321	DELAYTIME	3	integer	0.1 h	3	Total delay time/operator: 1...var211_t2
		4	string	hhmm	3	(see above)
322	REPTIME	1	integer	0.1 h	3	Repair time
		2	string	hhmm	3	(see above)
		3	integer	0.1 h	3	Total repair time/operator: 1...var211_t2
		4	string	hhmm	3	(see above)
323	WAITREPTIME	1	integer	0.1 h	3	Time waiting for repairs
		2	string	hhmm	3	(see above)
		3	integer	0.1 h	3	Time waiting for repairs/operator: 1...var211_t2
		4	string	hhmm	3	(see above)
324	MAINTTIME	1	integer	0.1 h	3	Maintenance time
		2	string	hhmm	3	(see above)
		3	integer	0.1 h	3	Maintenance time/operator: 1...var211_t2
		4	string	hhmm	3	(see above)
325	WRKDELAYTIME	1	integer	0.1 h	3	Work delay time
		2	string	hhmm	3	(see above)
		3	integer	0.1 h	3	Work delay time/operator: 1...var211_t2
		4	string	hhmm	3	(see above)
326	NONWORKTIME	1	integer	0.1 h	3	Nonworking time (meal breaks etc.)
		2	string	hhmm	3	(see above)
		3	integer	0.1 h	3	Nonworking time/operator: 1...var211_t2
		4	string	hhmm	3	(see above)
331	REPAUX	1	integer	0.1 h	3	Repair time on auxiliary unit
		2	string	hhmm	3	(see above)
		3	integer	0.1 h	3	Repair time on auxiliary unit/operator: 1...var211_t2
		4	string	hhmm	3	(see above)
332	WAITREPAUX	1	integer	0.1 h	3	Time waiting for repair on auxiliary unit
		2	string	hhmm	3	(see above)
		3	integer	0.1 h	3	Waiting repair time on auxiliary unit/operator: 1...var211_t2
		4	string	hhmm	3	(see above)
333	AUXMAINT	1	integer	0.1 h	3	Maintenance time on auxiliary unit
		2	string	hhmm	3	(see above)
		3	integer	0.1 h	3	Maintenance time on auxiliary unit/operator: 1...var211_t2
		4	string	hhmm	3	(see above)

## Repair follow-up variables (rep file)

Var #	Name	Type	Data type	Unit	Pri	Description
340	STARTTIM	1	string	hhmmss	3	Start time for processing of a stem
341	ENDTIM	1	string	hhmmss	3	End time for processing of a stem
		2	String	ttmmss	3	End time for processing of a log: 1...var290_t1
342	MOVETIM	1	integer	seconds	3	Moving time
		2	integer	seconds	3	Moving time during processing
343	STARTDEL	1	string	hhmmss	3	Delay start time
344	ENDDDEL	1	string	hhmmss	3	Delay end time
345	DELCOD	1	integer	-	3	Delay code (one character)
346	BOOMPRO	1	integer	seconds	3	Boom time during processing
347	BOOMNOPRO	1	integer	seconds	3	Boom time not during processing
348	MOVENOPRO	1	integer	seconds	3	Moving time not during processing
349	BOMMOVEPRO	1	integer	seconds	3	Boom and moving time during processing
350	BOOMMOVENO	1	integer	seconds	3	Boom and moving time not during processing
360	DIA3M	1	integer	mm	3	Diameter at height of 3 m (30 dm)
401	NUMREPUNITS	1	integer	no	3	Number of repair units (e.g. base machine, cab)
402	NUMFLTTYP	1	integer	no	3	Number of fault types/repair unit (e.g. hydraulics, electrics): 1...var401_t1
403	NUMFLTTYP	1	integer	no	3	Number of fault locations/fault type/repair unit (e.g. engine, brakes): 1..var402_t1/1...var401_t1
411	REPUNITTXT	1	string	Text	3	Text strings describing repair unit/repair unit: 1...var401_t1
412	FLTTYPTXT	1	string	text	3	Text string describing fault type/fault type/repair unit: 1...var402_t1/1...var401_t1
413	FLTLOCTXT	1	string	Text	3	Text string describing fault location/fault location/fault type/repair unit: 1...var403_t1/1...var402_t1/var...401_t1
418	PART	1	string	Text	3	Spare part. Four text strings: Action, Name of part, Part number, Remarks.
421	REPTIMUNIT	1	integer	0.1 h	3	Total repair time/repair unit: 1...var401_t1
		2	string	hhmm	3	(see above)
422	REPFLTTYP	1	integer	0.1 h	3	Total repair time/fault type/repair unit: 1...var402_t1/1...var401_t1
		2	string	hhmm	3	(see above)
423	REPFLTLOC	1	integer	0.1 h	3	Total repair time/fault location/fault type/repair unit: 1...var403_t1/1...var402_t1/1...var401_t1
		2	string	ttmm	3	(see above)
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.

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**Repair follow-up variables (rep file)**

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Var #	Name	Type	Data type	Unit	Pri	Description
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

## Stem prediction parameters (spp-file)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
*		3	string	text	1	Code page character set, ISO-code
2	ID	5	string	text	2	The name of the spp-file
		6	string	text	1	Identity of the spp-file version.
5 *	VARIANT	2	string	text	2	Version/model of administrative program used for creating file. Format to be m.v.n, where m is the name of the software and v.n the version number.
12	DATESAVED	4	string	yyyymmddhhmmss	1	Date when file was last saved
111	NUMTREESPC	1	integer	no	1	Number of tree species
170	BUTTDIAM	1	integer	code	3	Type of butt end profile extrapolation method. Used for extrapolation of butt end diameter values. Volume calculation of butt end is done according the extrapolated diameters. Method can be chosen separately for each tree species: 1...var111_t1. 0 or no code = machine specific system for extrapolation, 1 = coefficient tables (type 3-7), 2 = function (type 8-12)
		2	integer	cm	2	Reference height / tree species: 1...var111_t1. Diameter measurement height from the felling cut point. Normally breast height (130 cm in Finland, 120 cm in Sweden) is used for extrapolation of butt end diameter values.
		3	integer	no	2	Number of diameter classes / tree species in extrapolation coefficient table: 1...var111_t1. Measured and classified (rounded to the nearest cm) diameter of the tree at reference height.
		4	integer	no	2	Number of distance classes / tree species in extrapolation coefficient table: 1...var111_t1. Distance is the classified distance of the diameter to be extrapolated from the felling cut point
		5	integer	cm	2	Diameter class values for the reference height in extrapolation coefficient table / tree species. 1 ... var170_t3 / 1...var111_t1. Values can be e.g. 8 – 50 cm in 1 cm intervals: If the measured diameter at reference height is greater than the greatest diameter class, the greatest class is used
		6	integer	cm	2	Distance class values (distance from the felling cut) in extrapolation coefficient table / tree species: 1 ... var170_t4 / 1...var111_t1. First value is 0 cm and last is the value of the actual reference height in var170_t1 (e.g. 130 cm). Intervals normally 10 cm

## Stem prediction parameters (spp-file)

Var #	Name	Type	Data type	Unit	Pri	Description
170	BUTTDIAM	7	integer	per mille	2	Extrapolation coefficient tables: coefficient values (multiplying values) per mille / distance class / diameter class / tree species: 1...var170_t4 / 1 ... var170_t3 / 1...var111_t1. Example: Measured diameter at reference height (normally dbh) of stem = 23,3 cm. Distance to extrapolation point = 90 cm. Coefficient value in table at (23, 90) = 1042. Estimated diameter value at 90 cm = 23,3 cm * 1,042 = 24,3 cm (243 mm).
	*	8	integer	code	3	Code for type of diameter extrapolation function / tree species (used only if var170_t1 = 2) : 1...var111_t1. 1 = function as described in appendix
		9	integer	no	3	Number of parameters of the diameter extrapolation function / tree species: 1...var111_t1. Order according to var170_t8 (appendix)
		10	string	text	3	Names of the parameters of the diameter extrapolation function (e.g. a00, a01 ...): 1...var170_t9 / 1...var111_t1. Order according to var170_t8 (appendix)
		11	integer	integer	3	Integer part of the parameter value, negative values are possible: 1... var170_t9 / 1...var111_t1. Order according to var170_t8 (appendix)
		12	long integer	1/ 1000000000	3	Decimal part of the parameter value in 1/1000000000ths (maximum 9 decimals): 1...var170_t9 / 1...var111_t1. Order according to var170_t8 (appendix)
200	OPTNLTXT	2	long string	text	3	Optional free text for sending information to the machine. No changes are allowed in the machine. Maximum 300 characters allowed.

## Stem identity variables (sti file)

Var #	Name	Type	Data type	Unit	Pri	Description
1	FILETYPE	1	string	Text	4	Filetype: text string as per application
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)
		*	3 string	text	1	Code page character set, ISO-code
		4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
3 *	MCHNNO	1	string	Text	3	Machine number
7	DATAREQUES	1	integer	Code	3	Used to show contents of the returned ktr file 1 Raw data 2 Processed data 3 Both raw and processed data
12	DATESAVED	1	string	yymmdd	4	(see above)
		4	string	yyyymmddhhmmss	3	Date when file was last saved
21 *	SITENO	1	string	Text	3	Logging unit number (mandatory in prd-, pri-, stm- and ktr-files)
110 *	STEMSPEC	1	integer	1,2,3...	3	Stem species
120	TREESPEC	2	string	Text	3	Name of tree species
164	DIAMTYPE	1	integer	Code	3	Principle for registered diameter/price matrices/tree species: 0 = Bucked length, cm (default in Finland) 1 = Required length as per var132 2 = Bucked random lengths, dm 1...var116_t1/1...var111_t1
		2	integer	cm	4	Module-start length for registered (filtered) diameter/price matrix/tree species: 1...var116_t1/1...var111_t1
		3	integer	cm	4	Module step/price matrix/tree species: 1..var116_t1/1..var111_t1
		4	integer	cm	3	Distance from log top/price matrix/tree species: 1...var116_t1/1...var111_t1 Type 4 and distance 10 cm are default values if var164 missing
		5	integer	cm	3	As for type 1 but for unfiltered values
		6	integer	cm	3	As for type 2 but for unfiltered values
		7	integer	cm	3	As for type 3 but for unfiltered values
		8	integer	cm	3	As for type 4 but for unfiltered values

## Stem identity variables (sti file)

Var #	Name	Type	Data type	Unit	Pri	Description	
170	BUTTDIAM	1	integer	code	2	Type of butt end profile extrapolation method. Used for extrapolation of butt end diameter values. Volume calculation of butt end is done according the extrapolated diameters. Method can be chosen separately for each tree species: 1...var111_t1. 0 or no code = machine specific system for extrapolation, 1 = coefficient tables (type 3-7), 2 = function (type 8-12)	
269	STEPLNGTH	1	integer	dm	3	Length of steps between diameter values in the stm-file. Default = 1 dm	
		2	integer	cm	3	Length of steps between diameter values in the stm-file.	
270	STEMNUM	1	integer	1..9999	3	Number of the stem	
271	STARTHGHT	1	integer	dm	3	Height of first registered diameter value	
		2	integer	cm	3	Height of first registered diameter value	
272	ENDHGHT	1	integer	dm	3	Height of last registered diameter value	
		2	integer	cm	3	Height of last diameter value	
273 *	STEMDIA	1	integer	mm (ob)	3	Diameter at heights defined by variables 269_t2, 271_t2 and 272_t2. Refers to filtered values over bark (representing the actual point of measuring). Extrapolated diameters at butt end are to be registered. Height of first measured diameter must be registered using var271_t3	
		*	2	integer	mm (ob)	3	Diameter at heights defined by variables 269_t2, 271_t2 and 272_t2. Refers to unfiltered values over bark (see above). Extrapolated diameters at butt end are to be registered. Height of first measured diameter must be registered using var271_t3.
		*	3	integer	mm (ob)	3	Starting diameter and differences, filtered values over bark (see above). Extrapolated diameters at butt end are to be registered. Height of first measured diameter must be registered using var271_t3
*		4	integer	mm (ob)	3	Starting diameter and differences, unfiltered values over bark (see above). Extrapolated diameters at butt end are to be registered. Height of first measured diameter must be registered using var271_t3	
290	NUMLOGS	1	integer	pieces	3	Number of logs (sawlogs and pulpwood). All logs registered in the current file are to be included.	
291	TOPDIAOB	1	integer	mm (o.b.)	3	Top diameter of logs on bark: 1...var290_t1	
		5	integer	mm (o.b.)	3	Top diameter of logs on bark (measured by machine, M1): 1...var290_t1	
292	TOPDIAUB	1	integer	mm (u.b.)	3	Top diameter of logs under bark: 1...var290_t1	

## Stem identity variables (sti file)

Var #	Name	Type	Data type	Unit	Pri	Description
292	TOPDIAUB	3	integer	mm (u.b.)	3	Top diameter of logs under bark (manual scaling): 1...var290_t1
		5	integer	mm (u.b.)	3	Top diameter of logs under bark (measured by machine): 1...var290_t1
293	LOGLNGTH	1	integer	cm	3	Log length: 1...var290_t1
		3	integer	cm	3	Length of logs, (manual scaling, M2): 1...var290_t1
		5	integer	cm	3	Length of logs, (measured by machine, M1): 1...var290_t1
		7	integer	mm	2	Value of separate length correction of the butt log, in millimeters. Values can be either positive (+) or negative (-). Used for butt end logs only (one value per stem). Only used/registered if separate correction function for butt logs is implemented and used in harvester.
295	LOGLNGTHCL	2	integer	cm	3	Lower limit of length class: 1...var290_t1
296	PRICEMATR	2	string	text	3	Description of price matrix: 1...var290_t1
298	LOGSPCS	1	integer	Integer	3	Registered tree species for logs: 1...var290_t1
372	NUMBDIA	1	integer	no	3	Number of control diameters: 1...var290_t1
		3	integer	no	3	Number of control diameters for manual measuring (M2) per log: 1...var290_t1
		5	integer	no	3	Number of control diameters for measuring by machine (M1) per log: 1...var290_t1
373	CONTDIA	1	integer	mm	3	Control diameters: 1...var372_t1/1...var290_t1
		2	integer	mm	3	Unfiltered diameters: 1...var372_t1/1...var290_t1
		5	integer	mm (o.b.)	3	Measured control diameters, filtered, measured by machine (M1): 1...var372_t5/1...var290_t1
		6	integer	mm (o.b.)	3	Measured control diameters, unfiltered, measured by machine (M1): 1...var372_t5/1...var290_t1
374	CONTPOS	1	integer	cm	3	Control position: 1...var372_t1/1...var290_t1
		3	integer	cm	3	Control position for manual measuring (M2): 1...var372_t3/1...var290_t1
		5	integer	cm	3	Control position for measuring by machine (M1), used instead of var374_t3 if that variable is missing: 1...var372_t5/1...var290_t1
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

The term filtered values in variables 164 and 273 indicates that the value is the lowest recorded diameter. File type implemented 1993-04-14.

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description	
1	FILETYPE	1	string	Text	4	Filetype: text string as per application	
		2	string	Text	1	The variable shall assume one of the following values: apt, prd, tid, drf, rep, mas, avs, stm, sti, ktr, kal, cmb, apm, fpm, prm, psu, hks, inv, oai, pri, prl, ghd, spp, ap1. (mandatory)	
		*	3	string	text	1	Code page character set, ISO-code
			4	integer	Code	3	System for measurement 0=meter (SI) 1=inch, Imperial
2 *	ID	1	string	Text	1	The identity of the apt-file	
		2	string	text	3	The name of the apt-file	
		5	string	text	2	The name of the spp-file	
		6	string	text	2	Identity of the spp-file version.	
3 *	MCHNNO	1	string	Text	1	Machine number	
		*	2	String	Text	1	Unique machine identity for each company, for example used when using the harvester to measure for payment.
			5	string	text	2	Machine manufacturer. Free text that describes the machine manufacturer.
			6	string	text	2	Machine model. Free text that describes the model of the machine.
			7	string	text	2	Harvester head manufacturer. Free text that describes the head manufacturer.
5 *	VARIANT		8	string	text	2	Harvester head model. Free text that describes the model of the harvester head.
		1	string	Text	1	Version/model of system control computer (in case of harvester normally identical with bucking computer) used for creating file. Recommended format m.v.n, where m is the make and v.n the version number. Observe that up to 80 characters can be used.	
		*	5	string	text	3	Name and version of program or software application used for creating apt-file from oai- and ap1-files.
12	DATESAVED	1	string	yymmdd	4	(see above)	
		2	string	yymmddhhmm	4	Date when file was last saved	
		3	string	yymmddhhmmss	4	Date when file was last saved	
		4	string	yyyymmddhhmmss	1	Date when file was last saved	
16	STARTDATE	4	string	yyyymmddhhmmss	3	Time and date for starting production at a site for the first time. Mandatory in prd/pri/prl-file.	
17	ENDDATE	4	string	yyyymmddhhmmss	3	Time and date for ending a site. Used only when the when the harvesting machine is not to return to the site. Mandatory in prd-file when site is finished.	

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description	
18	CONTRDATE	4	string	yyyymmddhhmmss	1	Measuring date for each stem (date when stem was harvested and measured by harvester, M1-measurement)	
⋮	21 *	SITENO	1	string	Text	1	Logging unit number (mandatory in prd-, pri-, stm- and ktr-files)
	*		2	string	text	1	Marking for cutting
	*		3	string	text	2	Compartment number
	*		4	string	text	2	Lot number
	*		5	Integer	Code	3	Code to express if the logging site is certified or not: 0 = Not certified 1 = Certified
31 *	ORG	1	string	Text	3	Organization	
	*	2	string	text	3	Region	
	*	3	string	text	3	District	
	*	4	string	text	3	Working team	
	*	5	string	text	3	Wood pile	
34 *	SUBCON	2	string	text	1	The contractors code	
	*	3	string	text	2	The name of the contractor	
	*	4	string	text	2	The address of the contractor	
	*	5	String	Text	2	The e-mail address of the contractor	
	*	6	String	Text	2	The telephone and fax numbers of the subcontractor	
35 *	CONTRACTNO	1	string	Text	1	Contract number	
	*	2	String	Text	1	Contract number in the Swedish VIOL-system	
38	CONTRMEAS	4	integer	code	2	Type of stem selection (for control and calibration): 1-Randomized stem, 2-Manually by operator selected stem, 0-Other	
		5	integer	code	2	Acceptance/rejection of randomized stem, if code in var38_t4 is 1 (used for randomized stem): 1-Accepted, to be manually measured with caliper, 2-Rejected, not to be manually measured with caliper, 0-Other	
110 *	STEMSPEC	1	integer	1,2,3...	1	Stem species	
	*	2	integer	1,2,3...	1	Type 2 is used from 2nd stem onwards if several stems are saved in the same file. If more than one stem are stored in the same file, the common variables could be stored in the beginning of the file. Unique data for every stem starts with var110.	
111	NUMTREESPC	1	integer	no	2	Number of tree species	
112	NUMBARKPAR	1	integer	no	2	Number of bark parameters/tree species: 1...var111_t1. The variable is used together with var113_t1.	

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description	
112	NUMBARKPAR	2	integer	no	2	Number of diameter breaks/tree species: 1...var111_t1. The variable is used together with variable 113, type 2 and type 3. (based on German requirements)	
113	BARKPAR	1	integer	0.01 mm	0.1%%	2	Bark parameters/tree species (first parameter in 100ths of mm; second in 10ths per mille): 1...var112_t1/1...var111_t1
		2	integer	mm		2	Lower diameter limits/tree species: 2...var112_t2/1...var111_t1 (based on German requirements)
		3	integer	0.01 mm		2	Deduction for double bark thickness/tree species: 1...var112_t2/1...var111_t1 (based on German requirements)
		4	long integer	0.00001 degrees		2	Latitude used in bark function
	*	7	integer	code		2	Type of bark function per species: 1...var111_t1 1= Function according to var113_t1 2= Function according to var113_t2 & var113_t3 3=Skogforsk 2004, Scots pine 4=Skogforsk 2004, Norway spruce
116	NUMASST	1	integer	no		2	Number of price matrices/tree species: 1...var111_t1
120	TREESPEC	2	string	Text		3	Name of tree species
121	* ASSTDESCR	4	string	yyyymmddhhmmss		3	Time and date when the ap1-file of the assortment was last saved in the software system of the forest company/ price matrix/tree species: 1...var116_t1/1...var111_t1
		5	string	text		3	Additional assortment identification information / price matrix/tree species: 1...var116_t1/1...var111_t1. User-specified codes.
		6	integer	integer		1	Unique identification information set automatically in bucking or forwarder computer / price matrix/tree species (compare with var441_t12): 1...var116_t1/1...var111_t1. Must be a unique identity / key for a price matrix, never repeated in the same harvester or forwarder file (pri/prd/stm/apt/pri). Not to be changed by operator.
142	NUMGRADUSD	1	integer	no		2	Number of grades used/tree species: 1...var111_t1 (If the code for the highest grade used is 8 in var141_t1, variable 142 is set to 4, even if code 1 is not used.)
143	* GRADESIG	1	string	Text		2	Grade description/grade/tree species: 1...var142_t1/1...var111_t1

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description
170	BUTTDIAM	1	integer	code	2	Type of butt end profile extrapolation method. Used for extrapolation of butt end diameter values. Volume calculation of butt end is done according the extrapolated diameters. Method can be chosen separately for each tree species: 1...var111_t1. 0 or no code = machine specific system for extrapolation, 1 = coefficient tables (type 3-7), 2 = function (type 8-12)
200	OPTNLTXT	2	long string	text	3	Optional free text for sending information to the machine. No changes are allowed in the machine. Maximum 300 characters allowed.
		3	long string	text	3	Optional text for sending information from the machine. Maximum 300 characters allowed.
211	OPERATOR	1	integer	ld no	2	Operator name/id, repeated for each stem in ktr- and stm-files
231	STMSINBNCH	4	integer	pieces	2	Number of multi tree processed stems registered as one stem in stm-file (several stems delimbed and cross cut simultaneously). Registered for each stem in stm-file. Variable should always be included if multi tree handling is used. Default value if variable is not included in file is 1, meaning normal processing with one stem being processed at a time. A value of -1 is used if exact number of multi tree handled stems is unknown. All stems must be registered independently of size when carrying out multi tree processing.
269	STEPLNGTH	1	integer	dm	4	Length of steps between diameter values in the stm-file. Default = 1 dm
		2	integer	cm	1	Length of steps between diameter values in the stm-file.
270	STEMNUM	1	integer	1..9999	1	Number of the stem
		2	integer	integer	2	Unique number of randomly sampled stem, used for identifying control stems. Should be 0 (or excluded) if not sampled for control. Possible for operator to reset/set. To be used even if stem is not used for control measuring (rejected according to var38)
		3	integer	integer	1	Unique stem identity to be used for all types of stems (independently of whether it is a randomly selected stem or not) in both ktr- and stm-files. Not to be modified by operator. Incremented with each harvested stem. Reset when starting at harvesting object.
		4	integer	integer	2	Processing order for multi tree handled stems (tree bunch). Incremented with each multi tree processing of stems. Reset when starting at a new harvesting object. Not to be modified by operator. Observe that var270_t4 is not to be used for single processed stems.
271	STARTHGHT	1	integer	dm	4	Height of first registered diameter value
		2	integer	cm	1	Height of first registered diameter value

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description	
271	STARTHGHT	3	integer	cm	1	Height of first measured, that is not extrapolated, diameter value.	
272	ENDHGHT	1	integer	dm	4	Height of last registered diameter value	
		2	integer	cm	2	Height of last diameter value	
		3	integer	cm	2	Height of last measured, that is not extrapolated, diameter value.	
273 *	STEMDIA	1	integer	mm (ob)	3	Diameter at heights defined by variables 269_t2, 271_t2 and 272_t2. Refers to filtered values over bark (representing the actual point of measuring). Extrapolated diameters at butt end are to be registered. Height of first measured diameter must be registered using var271_t3	
		*	2	integer	mm (ob)	2	Diameter at heights defined by variables 269_t2, 271_t2 and 272_t2. Refers to unfiltered values over bark (see above). Extrapolated diameters at butt end are to be registered. Height of first measured diameter must be registered using var271_t3.
		*	3	integer	mm (ob)	3	Starting diameter and differences, filtered values over bark (see above). Extrapolated diameters at butt end are to be registered. Height of first measured diameter must be registered using var271_t3
		*	4	integer	mm (ob)	2	Starting diameter and differences, unfiltered values over bark (see above). Extrapolated diameters at butt end are to be registered. Height of first measured diameter must be registered using var271_t3
			5	integer	mm	3	Differential X position of the stem centre point, at heights defined by var273_t7. The first value is the absolute offset from the origin and the following values a snapshot difference from the first value. Var522 is the origin/reference point (x,y,z=0,0,0). X and Y centre points can be considered relative to a local co-ordinate system if no GPS co-ordinates are specified (var522).
	6	integer	mm	3	Differential Y position of the stem centre point, at heights defined by variable 273_t7. The first value is the absolute offset from the origin and the following values a snapshot difference from the first position. Var522 is the origin/reference point (x,y,z=0,0,0). X and Y centre points can be considered relative to a local co-ordinate system if no GPS co-ordinates are specified (var522).		

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description
273	STEMDIA	7	integer	mm	3	Differential Z (height) position of the stem centre point. The values should always be a multiple of the interval specified in var269_t2. The first value is the absolute offset from the origin and the following values a snapshot difference from the first position. Var522 is the origin/reference point (x,y,z=0,0,0). X and Y centre points can be considered relative to a local co-ordinate system if no GPS co-ordinates are specified (var522)
		10	integer	mm (ob)	3	Measured diameters of butt end at heights defined by variables 269_t2 and 271_t3. Refers to filtered values over bark (representing the actual point of measuring). Used only for additional information when extrapolated diameters of butt end are registered in one of types of var273_t1-4. Start at height 0 cm and end at var271_t3. Not measured values registered as 0.
		11	integer	mm (ob)	3	Measured diameters of butt end at heights defined by variables 269_t2 and 271_t3. Refers to unfiltered values over bark (representing the actual point of measuring). Used only for additional information when extrapolated diameters of butt end are registered in var273_t1-4. Start at height 0 cm and end at var271_t3. Not measured values registered as 0
		20	integer	mm (ob)	3	Measured diameters over bark, first unfiltered diameter value from cross measurement with 90 dgrs angle (measured by machine, M1). Diameter at heights defined by variables 269_t2 and 272_t3. Start always at height 0 cm and end at var271_t3. Not measured values registered as 0.
		21	integer	mm (ob)	3	Measured diameters over bark, second unfiltered diameter value from cross measurement with 90 dgrs angle (measured by machine, M1). Diameter at heights defined by variables 269_t2 and 272_t3. Start always at height 0 cm and end at var271_t3. Not measured values registered as 0.
274	NUMGRADEBR	1	integer	no	2	Number of grade breaks.
		2	integer	no	3	By calculation automatically generated grade limits
275	HGHTGRADBRK	1	integer	cm	2	Height of grade break. Specifies the height at which the grade starts. 1...var274_t1
		2	integer	cm	4	Height of grade break. Specifies the height at which the grade ends. 1...var274_t1
		3	integer	cm	3	Height where stem diameter is equal to the diameter of the grade cylinder in var274_t2: 1...var274_t2
276	GRADE	1	integer	Integer	2	Grade: 1...var274_t1. The following grade numbers are used: 0, 1, 2, 4 or 8 (pulpwood = 0) Always binary number
		*	string	Text	4	Grade description:1...var274_t1

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description
276	GRADE	3	integer	no	3	Specification of qualities (from butt end) generated automatically by calculation: 1...var274_t2
277	STARTHGHT2	1	integer	dm	4	Copy of original value of variable 271. Used if stem profile extrapolated to butt end.
		2	integer	cm	4	(see above)
278	ENDHGHT2	1	integer	dm	4	Copy of original value of variable 272. Used if stem profile extrapolated to top.
		2	integer	cm	4	(see above)
279 *	FORMQUOT	1	integer	%	3	Form quotient
281	DBH	1	integer	mm	3	Breast height diameter on bark used in calculation of quality limits, measured value. Height of DBH as specified in var500_t1.
		2	integer	mm	3	Breast height diameter on bark used in calculation of quality limits, estimated value. Height of DBH as specified in var500_t2.
288	BUCKCODE	1	integer	Code	3	Code for bucking. 1=Bucking to value 2=Apportionment bucking If the bucking has been done by simulation software add 50 to the code. If the variable 288 is missing, the file will be treated as an old file.
289	STEMVALUE	1	integer	Currency	3	The value of the stem according to the showed bucking alternative.
290	NUMLOGS	1	integer	pieces	2	Number of logs (sawlogs and pulpwood). All logs registered in the current file are to be included.
291	TOPDIAOB	1	integer	mm (o.b.)	4	Top diameter of logs on bark: 1...var290_t1
		5	integer	mm (o.b.)	2	Top diameter of logs on bark (measured by machine, M1): 1...var290_t1
		11	integer	mm (o.b.)	3	Measured top diameters of logs over bark, first unfiltered diameter value from cross measurement with 90 dgrs angle(measured by machine, M1): 1...var290_t1
		12	integer	mm (o.b.)	3	Measured top diameters of logs over bark, second unfiltered diameter value from cross measurement with 90 dgrs angle (measured by machine, M1): 1...var290_t1
292	TOPDIAUB	1	integer	mm (u.b.)	4	Top diameter of logs under bark: 1...var290_t1
		5	integer	mm (u.b.)	2	Top diameter of logs under bark (measured by machine): 1...var290_t1
293	LOGLNGTH	1	integer	cm	4	Log length: 1...var290_t1
		5	integer	cm	2	Length of logs, (measured by machine, M1): 1...var290_t1

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description
293	LOGLNGTH	7	integer	mm	2	Value of separate length correction of the butt log, in millimeters. Values can be either positive (+) or negative (-). Used for butt end logs only (one value per stem). Only used/registered if separate correction function for butt logs is implemented and used in harvester.
294	LOGDIACCLASS	1	integer	Integer	2	Registered diameter class of logs: 1...var290_t1
		2	integer	mm	2	Lower limit of diameter class: 1...var290_t1
295	LOGLNGTHCL	1	integer	Integer	2	Registered length class of logs: 1...var290_t1
		2	integer	cm	2	Lower limit of length class: 1...var290_t1
296	PRICEMATR	1	integer	integer	2	Registered price matrix/var110 for logs: 1... var290_t1 1... = Price matrix number (positive integer) 0 = Reject -1... = Pulpwood (negative integer if pulpwood specified using variables 181 and 182)
		2	string	text	2	Description of price matrix: 1...var290_t1
		3	string	Assortment code	2	Assortment code (same code as in var121_t2) /log: 1...var290_t1
		*	4	integer	code	2
297	LOGGRADE	1	integer	Integer	2	Registered grade of log: 1...var290_t1
298	LOGSPCS	1	integer	Integer	2	Registered tree species for logs: 1...var290_t1
299	LOGVOL	1	integer	0.0001 m3	2	Volume of logs as specified by var296_t4: 1...var290_t1

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description
299	LOGVOL	2	Integer	0.0001 m3sub	2	Solid volume of logs under bark: 1...var290_t1
		3	Integer	0.0001 m3sob	2	Solid volume of logs on bark, measured by harvester: 1...var290_t1
300 *	FORCEDCUT	1	integer	Integer	2	<p>Automatic/Operator selected cross cut: 1...var290_t1</p> <p>0 = Automatic bucking            1 = Operator selected due to decay            2 = " " damage            3 = " " crook            4 = " " sweep            5 = " " grade break            6 = " " pulpwood grade            7 = " " top break            9 = " " miscellaneous</p> <p>If the log is bucked outside the normal "cutting window" (Swedish "kapfönster") 50 should be added to the code. If the quality change after the bucking 100 should be added. If the log is unclassified 200 may be added to the code.</p> <p>10 = Automatic, spinning            Indicates that harvester head cannot feed any further (feed rollers spinning) and last log is cut.</p>
303	TOPLNGTH	1	integer	cm	3	Length of top
		2	integer	cm	2	Estimated length of top
304	NUMMARKS	1	integer	no	3	Number of marks
305	MARKING	1	integer	cm or integer	3	<p>(Start, end, code) 1...var304_t1</p> <p>Start = Start position measured from butt end            End = End position            Code 1 = Decay            Code 2 = Damage            Code 3 = Crook            Code 4 = Sweep</p>
306	LOGID	1	string	Text	3	Log ID. e.g. position in stem, Log No., etc.: 1...var290_t1
		2	integer	integer	3	Unique log number for randomly sampled stems, used for identifying control logs. Should be 0 (or excluded) if not sampled for control. To be used even if stem is not used for control measuring (rejected according to var38) :1...var290_t1
340	STARTTIM	1	string	hhmmss	3	Start time for processing of a stem
341	ENDTIM	1	string	hhmmss	3	End time for processing of a stem
		2	String	ttmmss	3	End time for processing of a log: 1...var290_t1
342	MOVETIM	1	integer	seconds	3	Moving time
		2	integer	seconds	3	Moving time during processing
343	STARTDEL	1	string	hhmmss	3	Delay start time
344	ENDDDEL	1	string	hhmmss	3	Delay end time

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description
345	DELCOD	1	integer	-	3	Delay code (one character)
346	BOOMPRO	1	integer	seconds	3	Boom time during processing
347	BOOMNOPRO	1	integer	seconds	3	Boom time not during processing
348	MOVENOPRO	1	integer	seconds	3	Moving time not during processing
349	BOMMOVEPRO	1	integer	seconds	3	Boom and moving time during processing
350	BOOMMOVENO	1	integer	seconds	3	Boom and moving time not during processing
360	DIA3M	1	integer	mm	4	Diameter at height of 3 m (30 dm)
361	SAMPLE	1	integer	Integer	2	Sampling principle for stm files:1 = all stems, 2 = random sample
		2	integer	no	3	Sampling interval, fixed
		3	integer	no	3	Sampling interval, random
		4	Integer	Code	3	Code stating the type of interval between samples for present species: 1 = Number of stems, (one control stem per frequency according to var361_t3) 2 = Time, (one control stem per machine hour according to var361_t3) 3 = Volume, (one control stem per m3sob according to var361_t3)
		5	integer	mm (o.b.)	3	Minimum DBH for randomly selected tree
		6	integer	no	3	Log number when operator is notified that the stem has been randomly selected for control purposes. Is to be done when position for cutting of log has been decided but prior to the actual cutting of the log.
		7	string	Hhmmss	3	Earliest time when stem is to be randomly selected, used in order to avoid random selection during the dark hours. This variable must be used in ktr-files if a timer exist for turning off random selection.
		8	string	Hhmmss	3	Latest time when stem is to be randomly selected, used in order to avoid random selection during the dark hours. This variable must be used in ktr-files if a timer exist for turning off random selection.
	*	9	integer	cm	3	Minimum log length for randomly selected stems. At least one log within a stem must be at least this long if stem is to be selected as a randomly selected control stem.  Operator is never notified that it is a control stem until this criterion is met. Criterion in var361_t6 also has to be met before operator is notified. This means that the operator may be notified at a log no higher than set in var361_t6 if var361_t9 is larger than 0. Observe the similarities with var361_t5.

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description
361	SAMPLE	20	integer	no	2	Number of random control stem settings per species, recommendation is the last five settings:1..var111_t1 The order shall be latest setting first.
		21	integer	no	2	Sampling interval for randomly selected control stems (for present species): 1..var361_t20/1..var111_t1 Observe that unit depends on code in var321_t22
		22	Integer	Code	2	Code stating the type of interval between samples for present species: 1..var361_t20/1..var111_t1 1 = Number of stems, (one control stem per frequency according to var361_t21) 2 = Time, (one control stem per machine hour according to var361_t21) 3 = Volume, (one control stem per m3sob according to var361_t21)
		23	integer	mm (o.b.)	2	Minimum DBH for randomly selected tree: 1..var361_t20/1..var111_t1
		24	integer	no	2	Log number when operator is notified that the stem has been randomly selected for control purposes. Is to be done when position for cutting of log has been decided but prior to the actual cutting of the log: 1...var361_t20/1..var111_t1
		25	string	Hhmmss	3	Earliest time when stem is to be randomly selected, used in order to avoid random selection during the dark hours: 1...var361_t20/1..var111_t1 This variable must be used in ktr-files if a timer exist for turning off random selection.
		26	string	Hhmmss	3	Latest time when stem is to be randomly selected, used in order to avoid random selection during the dark hours: 1...var361_t20/1..var111_t1 This variable must be used in ktr-files if a timer exist for turning off random selection.
		*	27	integer	cm	3
362	LENGTHDED	1	integer	dm	4	Length deduction:1...var290_t1
		2	integer	cm	3	(see above)

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description
363	DIAMDED	1	integer	cm	3	Diameter deduction:1...var290_t1
364	LIMSAMPLE	1	integer	Integer	4	Limitation during stem sampling, 0 = no limitation, 1 = some limitation
365	APPBUCK	1	integer	Integer	4	The log is bucked using dimension apportionment, 0 = no, 1 = yes:1...var290_t1
500	DBHHT	1	integer	cm	3	Height above stump of DBH, when DBH is a measured value (normally 120 cm above stump in Finland and Sweden, 110cm in Norway), per tree species:1...var111_t1
		2	Integer	cm	3	Height above stump of DBH, when DBH is a calculated value, per tree species:1...var111_t1
520	COORDREF	1	integer	code	2	Position of coordinate registration in file: 1= Base machine position 2= Crane tip position when felling the tree (harvester) 3 = Crane tip position when processing the tree (harvester)
521	COORDTYPE	1	integer	code	2	1=coordinates stored as a difference from the starting coordinates (COORDSTART var522) 2=absolute coordinates are stored in the file.
		2	integer	code	2	Coordinate system used in file: 1=WGS84 (Default)
522	COORDSTART	1	long integer	0.00001 degrees	2	Latitude, absolute value, primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values. Registered according to var521_t2 and var520_t1.
		2	integer	code	2	1=North, 2=South Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values, registered according to var521_t2 and var520_t1.
523	COORDLONG	3	long integer	0.00001 degrees	2	Longitude, absolute value, primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values. Registered according to var521_t2 and var520_t1.
		4	integer	code	2	1=East, 2=West Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values, registered according to var521_t2 and var520_t1.
524	COORDALT	5	integer	meter	2	Altitude, height above sea level, registered according to var521_t2 and var520_t1. Primarily used as reference point in case coordinates in var523, var266, var446 and var441 are stored as relative values.
525	COORDTIME	6	string	yyyymmddhhmmss	2	Date and time when recording data in var522.

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description
523	COORD	1	long integer	0.00001 degrees	2	Latitude, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t1) is recorded as the difference from var522_t1. Variable excluded when no signal (invalid) is received from the gps.
		2	integer	code	2	1=North, 2=South The code in var522_t2 is valid for all coordinates if this code is excluded. Variable excluded when no signal (invalid) is received from the gps.
		3	long integer	0.00001 degrees	2	Longitude, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t3) is recorded as the difference from var522_t3. Variable excluded when no signal (invalid) is received from the gps.
		4	integer	code	2	1=East, 2=West The code in var522_t4 is valid for all coordinates if this code is excluded. Variable excluded when no signal (invalid) is received from the gps.
		5	integer	meter	2	Altitude, height above sea level, registered according to var521_t1, var521_t2, var520_t1 and var523_t7. When var521_t1 = 1 this variable (var523_t5) is recorded as the difference from var522_t5. Variable excluded when no signal (invalid) is received from the gps.
		6	string	yyyymmddhhmmss	2	Date and time when coordinates in var523 were recorded Variable excluded when no signal (invalid) is received from the gps.
		7	integer	code	2	Code for type of object with position according to coordinates in var523, point of measurement is according to var520_t1: 1 = harvested stem (in stm-file) 2 = alarm coordinates (one per harvesting site) Variable excluded when no signal (invalid) is received from the gps.
		8	string	text	2	Free descriptive text
530	NMDSEC	1	integer	no	2	Number of diameter sections / tree species: 1...var111_t1
531	DSEC	1	string	text	2	Description of diameter section / diameter section / tree species: 1...var530_t1 / 1...var111_t1 Descriptions can be free text and are company specific (not standardized).
		2	string	text	2	Code for diameter section / diameter section / tree species: 1... var530_t1 / 1...var111_t1 Codes are company specific.
		3	integer	mm	2	Minimum diameter o.b. of diameter section / diameter section / tree species: 1... var530_t1/1...var111_t1

## Stem-data variables (stm file)

Var #	Name	Type	Data type	Unit	Pri	Description
531	DSEC	4	integer	cm	2	Minimum length of diameter section / diameter section / tree species: 1... var530_t1/1...var111_t1 Value 0 means that minimum length requirement is not in use. The smallest diameter section of a tree species does not have a minimum length requirement. More detailed descriptions can be found in Diameter Sections documents (only in Finnish).
		5	integer	text	2	User code/diameter section/ tree species: 1... var530_t1/1...var111_t1 Diameter section is used either for commercial volume measurement (code 1) or only for buyer's own needs (code 0)
540	NMDSECST	1	integer	no	2	Number of diameter sections / stem
541	DSECDSCST	1	string	text	2	Description of each diameter section / stem: 1...var540_t1 According to var531_t1
		2	string	text	2	Code for each diameter section / stem: 1...var540_t1 According to var531_t2
542	DSECST	1	integer	mm	2	Registered diameter section limit values (minimum diameters) of diameter sections / stem: 1...var540_t1
543	DSECHGTST	1	integer	cm	2	Heights of the registered diameter section limit values of diameter sections / stem. Heights from the butt end (cutting level): 1...var540_t1 The last height should be equal to the height of the top of the last log
544	DSECLOGVOL	1	integer	0,0001 m3sob	2	Volume (m3 solid o.b., excluding unclassified logs) of diameter sections per log: 1...var540_t1/1...var290_t1 Volume of a diameter section which does not exist in a log is 0. Reject pieces have volume 0.
605 *	APTERI	1	string	text	3	Special variable used by Finnish Apter software, described in appendix
		2	string	yyyymmddhhmmss	3	Special variable used by Finnish Apter software, described in appendix
660	STANDAGE	1	Integer	Year	3	The mean age of the stand.
		2	Integer	Year	3	Standard deviation for var660_t1.
991	CHECKSUM1	0		(mandatory)	1	Checksum for file as per checksum 1 in Kermit protocol. This is mandatory for data transfer using Kermit.
992	CHECKSUM2	0			3	Checksum as per checksum 2 in Kermit
993	CHECKSUM3	0			3	Checksum as per checksum 3 in Kermit

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## Stem-data variables (stm file)

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Var #	Name	Type	Data type	Unit	Pri	Description
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Variables 340-350 and 360 are only used in special studies. STM files may therefore be shortened to avoid causing delays in production.

If several stems are included in the same file, the file must start with the appropriate general variables (var. 1-21). The record for each stem must start with the tree-species variable (var. 110). The variable type for the first stem must be set to 1, with variable type 2 being used for subsequent stems.

The term filtered values in variable 273 indicates that the value is the lowest recorded diameter.

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Stem-data variables (stm file)

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Var #	Name	Type	Data type	Unit	Pri	Description
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