

StanForD 2010 - Rules

VERSION HISTORY

Date	Version	Description	Authors
2.2.2011	1.0	First released finalized version	John Arlinger, Skogforsk Juha-Antti Sorsa,Metsäteho

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1 INTRODUCTION

StanForD 2010 schemas are used for checking that StanForD 2010 messages are valid. However there are many kinds of requirements for StanForD 2010 messages that cannot be checked using schema validation. One example is if we want to pass some optional information coming from the company to the machine back to the company. These kinds of dependencies cannot be checked using pure schema validation. Additionally there might be different kinds of constraints inside one message that cannot be validated using schema but that we want to be obeyed. These kinds of rules may be validated in future using new versions of XML Schema language or implementing specific validation tools.

In this document we list and define rules that all the parties should follow when developing and manipulating StanForD 2010 messages. Usually these rules are mandatory (MUST or MUST NOT) but it is also possible to have weighty requests (SHOULD or SHOULD NOT) or very rarely if we want to define the possibility (MAY). Rules are divided in chapters that try to classify their target domain. Rules are numbered using letters R, chapter number, “.” and sequential integer number inside chapter e.g. “R2.1”

2 GENERAL RULES

Rule#	Rule	Description/Reason	Related messages	Date
R2.1	<i>ZIP DEFLATE algorithm SHOULD be used as standard compression method in StanForD 2010 messages.</i>	Reasons for ZIP with DEFLATE: <ul style="list-style-type: none"> • "De-facto" standard • Most used • Public and patent free • Most tools support it • Implementations are freely available in many languages 	All	21.9.2010
R2.2	<i>A static folder (location) SHOULD be implemented where files are saved by default, it is acceptable to have separate folders for different file types</i>	It is for example important that hpr messages are not saved in different folders depending on harvesting object or harvesting date.	All	

3 HARVESTING INSTRUCTION RULES

Rule#	Rule	Description/Reason	Related messages	Date
R3.2	<i>The following instruction messages MUST not include machine specific information: oin, pin, spi, foi, fdi and ogi.</i>		pin oin spi foi fdi ogi	
R3.3	<i>Key and ModificationDate MUST be updated when modifying a Definition in the machine, e.g. updating prices and length classes of a ProductDefinition.</i>		pin oin spi foi fdi ogi	
R3.7	<i>All product and species group definitions used for producing at least one log MUST be included in hpr message!</i>		pin hpr	
R3.8	<i>It MUST be possible for operator to edit products and species groups during production if attribute modificationRestricted is false. ProductKey and SpeciesGroupKey MUST be updated if product or species group is modified.</i>		pin spi	
R3.14	<i>A negative cutting window MUST always decrease the class length, both when LengthClassAdjustment is equal to "length class smaller or equal to log length" and when equal to "closest length class, normal rounding" .</i>		pin	
R3.15	<i>Log length rounding MUST have a higher priority than cutting window when classifying a log into a length class.</i>		pin	
R3.16	<i>Upper limit of cutting window MUST not be above lower length class limit nor above lower length class limit for the "cutting window" (135_t3) of the next length class.</i>		pin	

4 HARVESTED PRODUCTION RULES

Rule#	Rule	Description/Reason	Related messages	Date
R4.1	<i>The volume units m3sub and m3sob MUST always be registered for all logs from SingleTreeProcessed stems in hpr-, and thp-messages if bark function is used. The volume units Estimated3sub and Estimatedm3sob MUST always be registered for all logs from MultiTree-Processed stems in hpr-, and thp-messages if bark function is used.</i>		hpr thp	18.12.2009
R4.2	<i>MachineKey for each machine MUST be globally unique and set in the machine. All other “Key” elements under MachineKey MUST be unique for the machine (MachineKey), all set in the machine. This means that a combination of for example MachineKey, StemKey and LogKey must always be globally unique.</i>	This means that a combination of for example MachineKey, StemKey and LogKey must always be globally unique.	hpr thp hqc fpr fqc ogr mom	
R4.3	<i>All Keys except MachineKey, ObjectKey, SubObjectKey, OperatorKey and LocationKey MUST be updated if any changes or modifications to the definition (e.g. ProductDefinition) are carried out or when it is used by the machine for the first time. ObjectKey, SubObjectKey and OperatorKey MUST only be set when a new object, sub-objector operator definition is created in the forest.</i>		hpr thp hqc fpr fqc ogr mom	
R4.4	<i>All ModificationDates MUST be updated if any changes or modifications to the definitions are carried out.</i>		hpr thp hqc fpr fqc ogr mom	
R4.6	<i>Element StemNumber MUST be reset when starting on new harvesting object</i>		hpr hqc	

R4.7	<i>It MUST be possible to generate complete production messages including all harvested and forwarded production from one specific harvesting object (fpr, thp, hpr). This means that it is possible to generate an hpr-file including all data from StartDate of a harvesting object until the time the message was created.</i>		hpr thp fpr	
R4.9	<i>It MUST be possible to generate a time oriented mom-file</i>		mom	
R4.11	<i>HarvestDate is an optional element for stems that MUST be possible to activate. It SHOULD be easy for the operator to turn this on or off.</i>		hpr hqc	
R4.13	<i>Unclassified logs MUST be registered in the same structure as normal logs. However the ProductKey for these logs MUST refer to a hard coded ProductDefinition of the type UnclassifiedProduct. This ProductDefinition for unclassified logs MUST not be sent to machine from logging organization.</i>		hpr hqc	
R4.18	<i>All registered diameters incl top diameters MUST be based on filtered values (no increasing values allowed) at the position. No average values allowed..</i>		hpr hqc	
R4.19	<i>The hqc sent to control and calibration system MUST include historical log regarding rejected stems and calibration. Element DiameterVector MUST be included with diameters per each dm module. This means that StanForD2010 harvesters MUST "offer" a complete hqc (including M1 data and calibration/reject log) to the control and calibration system (for example a caliper together with a com driver).</i>	<ul style="list-style-type: none"> • Com driver: communication software located either in sending or receiving part of the system (harvester / caliper / measuring sensor). • When using com driver it will be machine manufacturer's and caliper manufacturer's joint decision which communication protocol and what type of files are to be used. • It was <u>decided</u>, in order to avoid the problem described above, that the hqc files sent from control and calibration system is not to be modified in any way by the harvester. 	hqc	

5 OTHER MESSAGE SPECIFIC RULES

Rule#	Rule	Description/Reason	Related messages	Date
R5.2	<p><i>If the optional identity elements ProductInfo, ProductIDInfo, ProductBuyer, LoggingOrganization, ForestOwner, ContractNumber, RealEstateIDObject and AuditingOrganization are included in pin-message, that information SHOULD be copied as it is to the hpr-, thp- and hqc -messages.</i></p>	<p>Certain identity elements will be used by some organization while other organization will use other elements. A certain identity element might also only be used in certain cases. This rule makes certain that all identities sent from the logging organization are always included in the production messages.</p>	<p>pin oin spi hpr thp hqc</p>	<p>3.12.2009</p>

6 NATIONAL SCHEMA RULES

Rule#	Rule	Description/Reason	Related messages	Date
R6.1	<i>National transformation schemas MUST be designed so that they only reduce the properties of StanForD 2010 messages. The national version of the StanForD 2010 message MUST be valid StanForD 2010 message.</i>		hpr	10.11.2010
R6.2	<i>The file names of the national transformation schemas MUST have the national identification abbreviation with underscores between the message type name and version number.</i>	For example Finnish national schema for harvested production message is named HarvestedProduction_fin_V1p0.xsd	hpr	10.11.2010
R6.3	<i>The versioning of the national transformation schemas MUST be the same as in StanForD 2010 schemas.</i>	It's too complicated to manage schemas if they don't follow same versioning policy.	hpr	10.11.2010

7 STANFORD 2010 ENVELOPE RULES

Rule#	Rule	Description/Reason	Related messages	Date
R7.1	<i>It SHOULD be possible to use StanForD 2010 envelope as a StanForD 2010 message container for communication but it MUST also be possible to generate the basic individual StanForD 2010 messages without envelope wrapper in the forest machines</i>		StanForD 2010 Envelope	10.2.2010
R7.2	<i>An “escape sequences”(referring to XML-standard section 2.4. http://www.w3.org/TR/REC-xml/#syntax) MUST be used for “<” and “>”</i>	Embedded documents in envelope message are implemented using Any-element. The content of the Any-element have to be well-formed XML. The StanForD 2010 messages are not totally well-formed because of the general structure of XML-documents. So all characters “<” and “>” have to be changed to escape sequences < and >.	StanForD 2010 Envelope	10.11.2010
R7.3	<i>The content of Any-elements in StanForD 2010 Envelope message when implementing embedded documents MUST contain Content-element.</i>	Embedded documents in envelope message are implemented using Any-element. The content of the Any-element have to be well-formed XM. Therefore the content of it must contain at least one element (start and end tags). The actual document is put inside that element. It is important that everyone is using same name for that element for the implementation reasons of the systems/applications.	StanForD 2010 Envelope	10.11.2010
R7.4	<i>All binary files (for example compressed files and pictures) that are embedded in StanForD 2010 envelope message MUST be encoded using Base64 encoding.</i>		StanForD 2010 Envelope	10.11.2010
R7.5	<i>StanForD 2010 Envelope SHOULD be used to enclose additional files in case of ogr and ogr.</i>	Management of additional files in messages is easier if they are wrapped with envelope.	StanForD 2010 Envelope	10.11.2010