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# Revision History

| **Date** | **Author** | **Description of Change** |
| --- | --- | --- |
| **April 14, 2010** | Stephen Sabey,  PASI Solution Architect | Initial draft |
| **April 21, 2010** | Bryon Duff | Added standalone apostrophe error |
| **Marh 4, 2016** | Stephen Sabey | Correction to Character Not Permitted regular expression |

# Audiences

**Involvement Types: R -** review ; **A -** approve ; **C -** consume; **I -** Informational

|  |  |  |  |
| --- | --- | --- | --- |
| **Audience** | **Improvement Type** | **Performed Involvement On** | **Notes** |
| PASI Director, Sam Radke | RA |  |  |
| Data & Information Standards Sub-Committee | RA |  |  |
| Ministry Business Representative | R |  |  |
| PASI Clients | C |  |  |
| PASI Core Team | C |  |  |

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# Introduction

This document provides implementation guidance to software designers and developers incorporating PASI Student Name Guidelines and Standards compliance into their products.

# Scope

The scope of this document is restricted to providing additional detail and guidance on the use of the PASI Student Name Guidelines and Standards document. Whereas the PASI Student Name Guidelines and Standards document is intended to convey information using general purpose business language, this document communicates those same specifications using technical languages and constructs.

# Augmented BNF Syntax

Augmented BNF (ABNF) is a formal notation for specifying syntax and is commonly used in the development of Internet Requests for Comments (RFC's) and other technical specifications. Additional details regarding ABNF may be found in [RFC 2234](http://www.ietf.org/rfc/rfc2234.txt). Note that the maximum length restriction for each field in the PASI Name Standard is not specified as part of the ABNF grammer: it is provided in the comments. All terminal hex values represent the unicode code points and map directly to the character value under the following encodings: UTF-16, Windows-1252, and ISO-8859-1.

###### ABNF for PASI Name Standard

FirstName = NameWordSequence ; maximum length is 50 chars  
MiddleName = [NameWordSequence] ; maximum length is 50 chars  
LastName = NameWordSequence ; maximum length is 50 chars  
Suffix = [NameWordSequence] ; maximum length is 15 chars

NameWordSequence = NameWord \*((Space / Hyphen) NameWord)  
NameWord = [Apostrophe] 1\*(1\*Letter [Apostrophe]) [Period]

Space = %x20  
Hyphen = %x2D ; -  
Apostrophe = %x27 ; '  
Period = %x2E ; .

Letter = PlainLetter / AccentLetter  
PlainLetter = %x41-5A / %x61-7A ; A-Z / a-z  
AccentLetter = %xC0-C5/%xC7-CF/%xD1-D6/ ; ÀÁÂÃÄÅ / ÇÈÉÊËÌÍÎÏ / ÑÒÓÔÕÖ  
 %xD9-DD/%xE0-E5/%xE7-EF/ ; ÙÚÛÜÝ / àáâãäå / çèéêëìíîï  
 %xF1-F6/%xF9-FD/%xFF ; ñòóôõö / ùúûüý / ÿ

# Regular Expressions

Regular expressions are a widely supported technology for validating input against specific format and syntax requirements. To support the use of regular expressions as a tool for validating against the PASI Student Name Standard, a set of regular expressions is provided.

The first regular expression provided, NameFieldValidatorRegularExpression, yields a single match when applied to a name field that is in compliance with the Student Name Standard. A failure to yield a match against this expression indicates that the Name Field contains one or more violations of the name standard. To assist in the identification of the individual errors in the name field, a set of error matching regular expressions is provided. Each of the error matching regular expressions yields one or more matches against a name field that contains the specific error.

Each name field also has minmum and maximum length restrictions. Validation of field lengths is expected to be performed prior to matching against the regular expressions.

###### PASI Name Field Length Restrictions

FirstName and LastName are mandatory (1<=length<=50)

MiddleName is optional (0<=length<=50)

Suffix is optional (0<=length<=15)

###### Name Field Validator Regular Expression

The following regular expression will yield a single match when applied to a non-empty name field that adheres to the PASI Student Name Standard. Validating the field length should be performed prior to validating against this regular expression.

**^(\x27?([a-zA-Z\xC0-\xC5\xC7-\xCF\xD1-\xD6\xD9-\xDD\xE0-\xE5  
\xE7-\xEF\xF1-\xF6\xF9-\xFD\xFF]+\x27?)+\x2E?)([\x20\x2D](\x27?([a-zA-Z  
\xC0-\xC5\xC7-\xCF\xD1-\xD6\xD9-\xDD\xE0-\xE5\xE7-\xEF\xF1-\xF6  
\xF9-\xFD\xFF]+\x27?)+\x2E?))\*$**

###### Error Matching Regular Expressions

The following table of regular expressions match against violations of the name standard. The general pattern of use should be to first apply the NameFieldValidatorRegularExpression and then, if the field fails to provide a match, apply the following error matching regular expressions to the failed input to produce a detailed list of validations errors.

|  |  |
| --- | --- |
| **Validation Error** | **Matching Regular Expression** |
| Leading space | **^\x20** |
| Trailing space | **\x20$** |
| Repeated space | **\x20{2,}** |
| Leading hyphen | **^\x2D** |
| Trailing hyphen | **\x2D$** |
| Repeated hyphen | **\x2D{2,}** |
| Space around hyphen | **(\x20\x2D)|(\x2D\x20)** |
| Repeated apostrophe | **\x27{2,}** |
| Standalone apostrophe | **(\x20|\x2D|^)\x27(\x20|\x2D|$)** |
| Period at start of word | **(\x20|\x2D|^)\x2E** |
| Period in middle of word | **\x2E[^\x20\x2D]** |
| Character not permitted | **[^\x20\x27\x2D\x2Ea-zA-Z\xC0-\xC5\xC7-\xCF\xD1-\xD6 \xD9-\xDD\xE0-\xE5\xE7-\xEF\xF1-\xF6\xF9-\xFD\xFF]** |

# Indicating Requirement Levels

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119](http://rfc.sunsite.dk/rfc/rfc2119.html).

**“MUST** This word, or the terms "REQUIRED" or "SHALL", mean that the definition is an absolute requirement of the standard.

**MUST NOT** This phrase, or the phrase "SHALL NOT", mean that the definition is an absolute prohibition of the standard.

**SHOULD** This word, or the adjective "RECOMMENDED", mean that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.

**SHOULD NOT** This phrase, or the phrase "NOT RECOMMENDED" mean that there may exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.

**MAY** This word, or the adjective "OPTIONAL", mean that an item is truly optional. One vendor may choose to include the item because a particular application requires it or because the vendor feels that it enhances the product while another vendor may omit the same item. An implementation, which does not include a particular option, MUST be prepared to interoperate with another implementation, which does include the option, though perhaps with reduced functionality. In the same vein an implementation, which does include a particular option MUST be prepared to interoperate with another implementation, which does not include the option (except, of course, for the feature the option provides)