



Department of Information Technology,
Ministry of Communications and Information Technology,
Government of India, New Delhi

Policy Document For

INTERNATIONALIZED DOMAIN NAMES

Language: MALAYALAM



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1. AUGMENTED BACKUS-NAUR FORMALISM (ABNF)

1.1 Naming of Variables:

Dash	→ Hyphen -
Digit	→ Indo-Arabic digits [0-9]
C	→ Consonant
V	→ Vowel
M	→ Matra
D	→ Anusvara
X	→ Visarga
H	→ Halant/Chandrakala/Virama
Y	→ Avagraha/Praslesham
L	→ Chillu

1.2 ABNF Operators

S. No.	Symbols	Functions
1	“/”	Alternative
2	“[]”	Optional
3	“*”	Variable Repetition
4	“()”	Sequence Group

In what follows the Vowel Sequence and the Consonant Sequence pertinent to Malayalam are given. To facilitate use, equivalents in Devanagari are provided.



1.3 The Vowel Sequence

A vowel sequence is made up of a single vowel. It may be followed but not necessarily (optionally) by an Anusvara (D) or a Visarga (X) The number of D or X which can follow a V in Malayalam may be restricted to one.

The vowel sequence in Malayalam is therefore V [D | X]

Examples:

V	അ	അ
V[D]	അം	അ്
V[X]	അഃ	അഃ

1.4 Consonant Sequence

A consonant sequence admits the following shapes:

1. A single consonant (C or L)

Example:

C	ക	ക
L	ണ	

2. A consonant optionally followed by dependent vowel sign[M] or Anusvara[D] or visarga[X] or Halanta [H]

C[M|D|X|H]

Example:

C[M]	കി	കി
C[D]	കം	ക്
C[X]	കഃ	കഃ
C[H]	ക്	ക് (Pure Consonant)



2.a. A CM sequence can be optionally followed by D or X
(CM)[D|X]

Example:

CM[D]	കിം	किं
CM[X]	കിഃ	कीः

3. A sequence of consonants (up to 4) joined by Halanta *3(CH)C

Example:

CHCHCHC	നൃത്യ	→	ന + ് + ത + ് + ര + ് + യ
			न + ळ + त + ळ + र + ळ + य

Subsets

3.a. The combination may be followed by H, M, D or X

*3(CH)C[H|M|D|X]

Example:

CHC[M]	കി	ക ് ക ്	कि
CHC[D]	കിം	ക ് ക ്	कं
CHC[X]	കിഃ	ക ് ക ്	कः
CHC[H]	കി	ക ് ക ്	क्

3.b. *3(CH)CM may be followed by a D or X

*3(CH)CM[D|X]

Example:

CHCM[D]	കിം	ക ് ക ്	किं
CHCM[X]	കിഃ	ക ് ക ്	किः

4. A Chillu character may be followed by a Virama and consonant.

LHC

Example:



LHC ന്റം¹

5. A LHC can be optionally followed by a Anusvara[D], Matra[M] or Virama[H]
LHC[D|H|M]

Example:

LHC[D] ന്റം

LHC[H] ന്റ്

LHC[M] ന്റി

6. A LHCM can be optionally followed by a Anusvara[D]
LHCM[D]

Example:

LHCM[D] ന്റിം

1.5 ABNF Applied to MALAYALAM IDN

Consonant Sequence → *3(CH) C [H|D|X|M[D|X]] | L[HC[D|H|M[D]]]

Vowel Sequence → V[D|X]

Sequence → Consonant Sequence[Y] | Vowel Sequence[Y]

IDN-Label → (Sequence | digit)*([dash](Sequence | digit))

1 . Combination only exist where L is ന് (0D7B) and the following consonant must be റ (0D31).



2. RESTRICTION RULES:

The ABNF is generic in nature and when applied to a specific language/script certain restriction rules apply. In other words, in a given language some of the Formalism structures do not necessarily apply. To take care of such cases restriction rules are set in place. These restrictions will help to fine-tune the ABNF. In the case of Malayalam the following rules apply:

1. H | D|X |M can not occur in the beginning of an IDN domain name

Example:

ഓ	ക്
ഈ	കി
ഊ	ക
ഘ	ക

As can be seen they will result automatically in a “golu” marking an invalid character. This is an intrinsic property of the Indic syllable and is quasi automatically applied wherever supported by the OS.

2. H is not permitted after V, D, X, M, digit and dash

Example:

ഓ	ഘ
കഓ	ക്
കഘ	ക്
കീ	കി
1	1
-	-

3. Number of D or X permitted after consonant-sequence or vowel-sequence or M is restricted to one

Example:





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കംഠഠ	കഠഠ
കഠഠഠ	കഠഠഠഠ
കീഠഠഠ	കീഠഠഠഠ
കീഠഠഠഠ	കീഠഠഠഠഠഠ
അഠഠഠഠ	അഠഠഠഠഠഠ
അഠഠഠഠഠഠ	അഠഠഠഠഠഠഠഠഠ

4. Number of M permitted after consonant-sequence is restricted to one
Example:

കീഠീ	കീഠീഠീ
------	--------

5. M is not permitted after V
Example:

ഇഠഠഠ	ഠീ
------	----

6. The combination of Anusvara+Visarga and vice-versa is not permissible
Example:

കഠഠഠഠ	കഠഠഠഠഠഠ
കഠഠഠഠഠഠ	കഠഠഠഠഠഠഠഠ

7. “H” is permitted after only one “L” ie.ഠഠ(0D7B) and the following consonant must be ഠ(0D31).

8. A consonant syllable that is intended to end with Halant [H] can only be followed by Hyphen or digit.



3. EXAMPLES

Following are the some examples of MALAYALAM IDN Label.

C	ക	കട
CH	ക്	അഴക്
CM	കി	കിണർ
CD	കം	കംഗാരു
CX	നഃ	പുനഃസംഘടന
CMD	കിം	കിംവദന്തി
CMX	ദുഃ	ദുഃഖം
CHC	ക്ക	നടക്കുക
CHCHC	ഞ്	വഞ്
V	അ	അവധി
VD	അം	അംഗീകാരം
L	ൽ	പാൽ
LHC	ൻറ	അൻറാർട്ടിക്ക
LHCD	ൻറം	ഫാൻറം
LHCM	ൻറി	ആൻറി



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4. LANGUAGE TABLE: MALAYALAM¹

¹ Characters marked in yellow are not applicable to the language.





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0D00

Malayalam

0D7F

	0D0	0D1	0D2	0D3	0D4	0D5	0D6	0D7
0	ഃ 0D00	ഐ 0D10	ഠ 0D20	ര 0D30	ഠി 0D40		ഋ 0D60	ൠ 0D70
1	ഌ 0D01		ഡ 0D21	റ 0D31	ഠു 0D41		ൡ 0D61	ൢ 0D71
2	ഡ 0D02	ഓ 0D12	ഢ 0D22	ല 0D32	ഠു 0D42		ഠി 0D62	ൣ 0D72
3	ഔ 0D03	ഔ 0D13	ണ 0D23	ള 0D33	ഠു 0D43		ഠി 0D63	൤ 0D73
4		ഔ 0D14	ത 0D24	ഴ 0D34	ഠു 0D44	ഠു 0D54		ഠി 0D74
5	അ 0D05	ക 0D15	ഥ 0D25	വ 0D35		യ് 0D55		ഠി 0D75
6	ആ 0D06	ഖ 0D16	ഭ 0D26	ശ 0D36	ഠെ 0D46	ഠു 0D56	ഠ 0D66	ഠമ 0D76
7	ഇ 0D07	ഗ 0D17	ധ 0D27	ഷ 0D37	ഠേ 0D47	ഠു 0D57	ഠ 0D67	ഠൺ 0D77
8	ഈ 0D08	ഘ 0D18	ന 0D28	സ 0D38	ഠൈ 0D48	ഠി 0D58	ഠ 0D68	ഠ൩ 0D78
9	ഉ 0D09	ങ 0D19	ണ 0D29	ഹ 0D39		ൡ 0D59	ൢ 0D69	ൣ 0D79
A	ഊ 0D0A	ച 0D1A	പ 0D2A	ഠ 0D3A	ഠൊ 0D4A	ൡ 0D5A	ൢ 0D6A	ൣ 0D7A
B	ഋ 0D0B	ൠ 0D1B	ൡ 0D2B	ൢ 0D3B	ൣ 0D4B	൤ 0D5B	൥ 0D6B	൦ 0D7B
C	൦ 0D0C	൧ 0D1C	ൡ 0D2C	ൢ 0D3C	ൣ 0D4C	൤ 0D5C	൥ 0D6C	൦ 0D7C
D		൧ 0D1D	ൡ 0D2D	ൢ 0D3D	ൣ 0D4D	൤ 0D5D	൥ 0D6D	൦ 0D7D
E	൦ 0D0E	൧ 0D1E	ൡ 0D2E	ൢ 0D3E	ൣ 0D4E	൤ 0D5E	൥ 0D6E	൦ 0D7E
F	൦ 0D0F	൧ 0D1F	ൡ 0D2F	ൢ 0D3F	ൣ 0D4F	൤ 0D5F	൥ 0D6F	൦ 0D7F

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5. NOMENCLATURAL DESCRIPTION TABLE OF MALAYALAM LANGUAGE TABLE

Unicode Value	Character	Character Name
ANUSVARA (D)		
0D02	◌ം	MALAYALAM SIGN ANUSVARA
VISARGA (X)		
0D03	◌ഃ	MALAYALAM SIGN VISARGA
VOWEL LETTERS (V)		
0D05	അ	MALAYALAM LETTER A
0D06	ആ	MALAYALAM LETTER AA
0D07	ഇ	MALAYALAM LETTER I
0D08	ഈ	MALAYALAM LETTER II
0D09	ഉ	MALAYALAM LETTER U
0D0A	ഊ	MALAYALAM LETTER UU
0D0B	ഋ	MALAYALAM LETTER VOCALIC R
0D0C	ൠ	MALAYALAM LETTER VOCALIC L
0D0E	എ	MALAYALAM LETTER E
0D0F	ഈ	MALAYALAM LETTER EE
0D10	ഐ	MALAYALAM LETTER AI
0D12	ഒ	MALAYALAM LETTER O
0D13	ഓ	MALAYALAM LETTER OO
0D14	ഔ	MALAYALAM LETTER AU
CONSONANTS (C)		
0D15	ക	MALAYALAM LETTER KA



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0D16	ഖ	MALAYALAM LETTER KHA
0D17	ഗ	MALAYALAM LETTER GA
0D18	ഘ	MALAYALAM LETTER GHA
0D19	ങ	MALAYALAM LETTER NGA
0D1A	ച	MALAYALAM LETTER CA
0D1B	ഛ	MALAYALAM LETTER CHA
0D1C	ജ	MALAYALAM LETTER JA
0D1D	ഝ	MALAYALAM LETTER JHA
0D1E	ഞ	MALAYALAM LETTER NYA
0D1F	ട	MALAYALAM LETTER TTA
0D20	ഠ	MALAYALAM LETTER TTHA
0D21	ഡ	MALAYALAM LETTER DDA
0D22	ഢ	MALAYALAM LETTER DDHA
0D23	ണ	MALAYALAM LETTER NNA
0D24	ത	MALAYALAM LETTER TA
0D25	ഥ	MALAYALAM LETTER THA
0D26	ദ	MALAYALAM LETTER DA
0D27	ധ	MALAYALAM LETTER DHA
0D28	ന	MALAYALAM LETTER NA
0D2A	പ	MALAYALAM LETTER PA
0D2B	ഫ	MALAYALAM LETTER PHA
0D2C	ബ	MALAYALAM LETTER BA
0D2D	ഭ	MALAYALAM LETTER BHA
0D2E	മ	MALAYALAM LETTER MA
0D2F	യ	MALAYALAM LETTER YA
0D30	ര	MALAYALAM LETTER RA
0D31	റ	MALAYALAM LETTER RRA



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0D32	ല	MALAYALAM LETTER LA
0D33	ള	MALAYALAM LETTER LLA
0D34	ഴ	MALAYALAM LETTER LLLA
0D35	വ	MALAYALAM LETTER VA
0D36	ശ	MALAYALAM LETTER SHA
0D37	ഷ	MALAYALAM LETTER SSA
0D38	സ	MALAYALAM LETTER SA
0D39	ഹ	MALAYALAM LETTER HA
VOWEL SIGNS (MATRAS) (M)		
0D3E	ഓ	MALAYALAM VOWEL SIGN AA
0D3F	ഈ	MALAYALAM VOWEL SIGN I
0D40	ഐ	MALAYALAM VOWEL SIGN II
0D41	ഊ	MALAYALAM VOWEL SIGN U
0D42	ഘ	MALAYALAM VOWEL SIGN UU
0D43	ഘ	MALAYALAM VOWEL SIGN VOCALIC R
0D46	ഐ	MALAYALAM VOWEL SIGN E
0D47	ഐ	MALAYALAM VOWEL SIGN EE
0D48	ഐ	MALAYALAM VOWEL SIGN AI
0D4A	ഐ	MALAYALAM VOWEL SIGN O
0D4B	ഐ	MALAYALAM VOWEL SIGN OO
0D57	ഐ	MALAYALAM AU LENGTH MARK
0D62	ഐ	MALAYALAM VOWEL SIGN VOCALIC L
VIRAMA (H)		
0D4D	ഐ	MALAYALAM SIGN VIRAMA
AVAGRAHA (Y)		
0D3D	ഐ	MALAYALAM SIGN AVAGRAHA
CHILLU LETTERS (L)		



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0D7A	ൺ	MALAYALAM LETTER CHILLU NN
0D7B	ന	MALAYALAM LETTER CHILLU N
0D7C	ര	MALAYALAM LETTER CHILLU RR
0D7D	ൽ	MALAYALAM LETTER CHILLU L
0D7E	ൾ	MALAYALAM LETTER CHILLU LL



6. VARIANT TABLE

VARIANTS	
ഇള 0D33 + 0D33	ഇള 0D33 + 0D4D + 0D33
തൃ 0D24 + 0D4D + 0D38	തൃ 0D1D
ശ്ശ 0D17 + 0D4D + 0D17	ശ്ശ 0D17 + 0D4D + 0D32
നന് 0D28 + 0D4D + 0D24	നന് 0D28 + 0D4D + 0D28
ശ്ശ 0D36 + 0D4D + 0D32	ശ്ശ 0D36 + 0D4D + 0D36
സ്മ 0D38 + 0D4D + 0D38	സ്മ 0D21 + 0D4D + 0D21
ബ്ബ 0D2C + 0D4D + 0D27	ബ്ബ 0D2C + 0D4D + 0D26



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7. EXPERTS/BODIES CONSULTED

Expertise provided by C-DAC Thiruvananthapuram.



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8. Country Code Top Level Domain (ccTLD) FOR MALAYALAM

India (Bhārat) localized in Malayalam – ഭാരതം (xn--rvc1e0am3e)