



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

Draft Policy Document For

INTERNATIONALIZED DOMAIN NAMES

Language: ORIYA



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RECORD OF CHANGES

***A - ADDED M - MODIFIED D - DELETED**

VERSION NUMBER	DATE	PAGES AFFECTED	A* M D	TITLE OR BRIEF DESCRIPTION	COMPLIANCE VERSION OF MAIN POLICY DOCUMENT
1.0	20/11/09	Whole Document	M	Language Specific Policy Document for ORIYA	1.5
1.1	22/11/2010	Page No 9, 19	A	Restriction rule added, ccTLD added	1.6



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1. AUGMENTED BACKUS-NAUR FORMALISM (ABNF)

1.1 Declaration of variables

Dash	→ Hyphen -
Digit	→ Indo-Arabic digits [0-9]
C	→ Consonant
M	→ Matra
V	→ Vowel
D	→ Anusvara
B	→ Chandrabindu
X	→ Visarga
Y	→ Avagraha
H	→ Virama / Halant
N	→ Nukta

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 Oriya 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), Chandrabindu (B) or a Visarga (X). The number of D, B or X which can follow a V in Oriya may be restricted to one. The possibility of a Visarga following a Chandrabindu or Anusvara is ruled out.

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

Examples:

V	ଅ	ଅ
V[D]	ଅ°	ଅं
V[B]	ଅँ	ଅँ
V[X]	ଅଃ	ଅଃ

1.4 Consonant Sequence

A consonant sequence admits the following shapes:

1. A single consonant (C)

Example:

C	କ	କ
C[N]	କ୍	କ୍ ି ି ି ି

2. A consonant optionally followed by dependent vowel sign[M] or Anusvara[D] or Chandrabindu[B] or visarga[X] or Virama / Halant [H]

C[M|D|B|X|H]

Example:

C[M]	କି	କି
C[D]	କ°	କं
C[B]	କँ	କँ
C[X]	କଃ	କଃ



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C[H] क् क् (Pure Consonant)

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

Example:

CM[D] क० की

CM[B] क॑ काँ

CM[X] क॑१ कीः

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

Example:

CHCHCHC क्य → न् + क् + र् + ऌ न+्+क+्+र+्+य

Subsets

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

Example:

CHC[M] क॑ क् क ॑ क्वी क् क ी

CHC[D] क० क् क ० क्वं क् क ०

CHC[B] क॑ क् क ॑ क्वँ क् क ॑

CHC[X] क॑१ क् क १ क्वः क् क १

3.b. *3(CH)CM may be followed by a *1 D, B or X

Example:

CHCM[D] क॑ क् क १ ० क्वी क् क ी ०

CHCM[B] क॑ क् क १ ॑ क्वँ क् क १ ॑

CHCM[X] क॑१ क् क १ १ क्वः क् क १ १

The final canonical structure of the consonant sequence in IDN can be defined in ABNF as:

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



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1.5 ABNF Applied to the ORIYA IDN

The formalism can be applied to create/validate IDN labels. So a valid IDN label can be defined as follows.

Vowel-sequence \rightarrow V [D | B | X]

Consonant-sequence \rightarrow *3(C[N]H)C[N] [H|D|B|X |M[D|B|X]]

Sequence \rightarrow consonant-sequence[Y] | vowel-sequence [Y]

IDN-label \rightarrow (sequence | digit) * ([dash] (sequence |digit))

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 Oriya the following rules apply:

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

Example:

କ୍	କ
ିକ	ିକ
ଂକ	ଂକ
କ୍	କ
ଃକ	ଃକ

As can be seen they will result automatically in a “golū” 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, B, X, M, digit and dash

Example

ଅ୍	ଅ
କଂ	କଂ
କ୍	କ୍
କଃ	କଃ
କି	କି
୧	୧
-	-



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

Example

क००	कं०
क४०४	कः०ः
क०१००	कीं०
कौ०	कौं०
क१४०४	कीः०ः
अ००	अं०
अौ०	अौं०
अ४०४	अः०ः

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

क१०१	कीी
------	-----

5. M is not permitted after V
Example:

कौा	कौा
-----	-----

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

क००४	कं०ः
कौ००	कौं०
क४००	कः०

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



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3. EXAMPLES

Following are the some examples of ORIYA IDN.

Combination	Example	Word containing example
C	ମ	ମହୁରୀ
CH	ମ୍	ସ୍ବାଗତମ୍
CM	ମୁ	ମୁରାରି
CD	ରଂ	ବରଂ
CB	ହ୍ନ	ହ୍ନସ
CX	ତଃ	ଅତଃ
CMD	ହିଂ	ହିଂସା
CMB	ହ୍ନା,	ମୁହ୍ନା ମୁହ୍ନି
CMX	ଦୁଃ	ଦୁଃଖ
CHC	ପ୍କ	ରୁପ୍କର
V	ଆ	କୁଆଡେ
VD	ଅଂ	ଅଂଶ
VB	ଇଁ	କଇଁଫୁଲ
VX	ଆଃ	ଆଃହା



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4. LANGUAGE TABLE : ORIYA¹

0B00

Oriya

0B7F

	0B0	0B1	0B2	0B3	0B4	0B5	0B6	0B7
0	୦	୧	୨	୩	୪	୫	୬	୭
1	୮	୯	୧୦	୧୧	୧୨	୧୩	୧୪	୧୫
2	୧୬	୧୭	୧୮	୧୯	୨୦	୨୧	୨୨	୨୩
3	୨୪	୨୫	୨୬	୨୭	୨୮	୨୯	୩୦	୩୧
4	୩୨	୩୩	୩୪	୩୫	୩୬	୩୭	୩୮	୩୯
5	୪୦	୪୧	୪୨	୪୩	୪୪	୪୫	୪୬	୪୭
6	୪୮	୪୯	୫୦	୫୧	୫୨	୫୩	୫୪	୫୫
7	୫୬	୫୭	୫୮	୫୯	୬୦	୬୧	୬୨	୬୩
8	୬୪	୬୫	୬୬	୬୭	୬୮	୬୯	୭୦	୭୧
9	୭୨	୭୩	୭୪	୭୫	୭୬	୭୭	୭୮	୭୯
A	୮୦	୮୧	୮୨	୮୩	୮୪	୮୫	୮୬	୮୭
B	୮୮	୮୯	୯୦	୯୧	୯୨	୯୩	୯୪	୯୫
C	୯୬	୯୭	୯୮	୯୯	୧୦୦	୧୦୧	୧୦୨	୧୦୩
D	୧୦୪	୧୦୫	୧୦୬	୧୦୭	୧୦୮	୧୦୯	୧୧୦	୧୧୧
E	୧୧୨	୧୧୩	୧୧୪	୧୧୫	୧୧୬	୧୧୭	୧୧୮	୧୧୯
F	୧୨୦	୧୨୧	୧୨୨	୧୨୩	୧୨୪	୧୨୫	୧୨୬	୧୨୭

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



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5. NOMENCLATURAL DESCRIPTION TABLE OF ORIYA LANGUAGE TABLE

Hex Entity	Character	Character Name
Chandrabindu(B)		
0B01	ଂ	ORIYA SIGN CANDRABINDU
Anusvara (D)		
0B02	ଂ	ORIYA SIGN ANUSVARA
Visarga (X)		
0B03	ଃ	ORIYA SIGN VISARGA
Oriya Vowels (V)		
0B05	ଅ	ORIYA LETTER A
0B06	ଆ	ORIYA LETTER AA
0B07	ଇ	ORIYA LETTER I
0B08	ଈ	ORIYA LETTER II
0B09	ଉ	ORIYA LETTER U
0B0A	ଊ	ORIYA LETTER UU
0B0B	ଋ	ORIYA LETTER VOCALIC R
0B0F	ଏ	ORIYA LETTER E
0B10	ଐ	ORIYA LETTER AI



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0B13	ଓ	ORIYA LETTER O
0B14	ଔ	ORIYA LETTER AU
Consonants (C)		
0B15	କ	ORIYA LETTER KA
0B16	ଖ	ORIYA LETTER KHA
0B17	ଗ	ORIYA LETTER GA
0B18	ଘ	ORIYA LETTER GHA
0B19	ଙ	ORIYA LETTER NGA
0B1A	ଚ	ORIYA LETTER CA
0B1B	ଛ	ORIYA LETTER CHA
0B1C	ଜ	ORIYA LETTER JA
0B1D	ଝ	ORIYA LETTER JHA
0B1E	ଞ	ORIYA LETTER NYA
0B1F	ଟ	ORIYA LETTER TTA
0B20	ଠ	ORIYA LETTER TTHA
0B21	ଡ	ORIYA LETTER DDA
0B22	ଢ	ORIYA LETTER DDHA
0B23	ଣ	ORIYA LETTER NNA



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0B24	ଡ	ORIYA LETTER TA
0B25	ଥ	ORIYA LETTER THA
0B26	ଦ	ORIYA LETTER DA
0B27	ଧ	ORIYA LETTER DHA
0B28	ନ	ORIYA LETTER NA
0B2A	ପ	ORIYA LETTER PA
0B2B	ଫ	ORIYA LETTER PHA
0B2C	ବ	ORIYA LETTER BA
0B2D	ଭ	ORIYA LETTER BHA
0B2E	ମ	ORIYA LETTER MA
0B2F	ଯ	ORIYA LETTER YA = ja
0B30	ର	ORIYA LETTER RA
0B32	ଲ	ORIYA LETTER LA
0B33	ଳ	ORIYA LETTER LLA
0B35	ଞ	ORIYA LETTER VA
0B36	ଶ	ORIYA LETTER SHA
0B37	ଷ	ORIYA LETTER SSA



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0B38	ସ	ORIYA LETTER SA
0B39	ହ	ORIYA LETTER HA
0B5C	ଢ଼	ORIYA LETTER RRA
0B5D	ଢ଼	ORIYA LETTER RHA
0B5F	ୟ	ORIYA LETTER YYA
0B71	ଞ୍	ORIYA LETTER WA

ORIYA Vowel Signs (MATRAS) (M)

0B3E	ା	ORIYA VOWEL SIGN AA
0B3F	ି	ORIYA VOWEL SIGN I
0B40	ିଂ	ORIYA VOWEL SIGN II
0B41	ୁ	ORIYA VOWEL SIGN U
0B42	ୁଂ	ORIYA VOWEL SIGN UU
0B43	ୃ	ORIYA VOWEL SIGN VOCALIC R
0B47	େ	ORIYA VOWEL SIGN E
0B48	ୈ	ORIYA VOWEL SIGN AI
0B4B	ୋ	ORIYA VOWEL SIGN O
0B4C	ୌ	ORIYA VOWEL SIGN AU

Nukta (N)



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0B3C	ୠ	ORIYA SIGN NUKTA
Avagraha (Y)		
0B3D	ୡ	ORIYA SIGN AVAGRAHA
Virama / Halant (H)		
0B4D	ୢ	ORIYA SIGN VIRAMA



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6. VARIANT TABLE

VARIANTS	
୭ + ୨ 0B21+ 0B3C	୭ 0B5C
୭ + ୨ 0B22 + 0B3C	୭ 0B5D



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7. EXPERTS CONSULTED

Dr P.K. Tripathi. (retd) Author of Books, Dictionaries and Grammars of Oriya. The Proposal was evaluated, refined and modified as to variant tables by Dr Sanghamitra Mohanty of Utkal University.



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8. PROPOSED ccTLD FOR ORIYA

India (Bhārat) localized in Oriya - ଭାରତ

Note : You can send your feedbacks to ids-feedback@cdac.in