# IANA Charset MIB

# Table of Contents

# Introduction

This IANA Charset MIB [CHARMIB] module defines the single textual convention 'IANACharset'. Once adopted, all future versions of the IANA Charset MIB [CHARMIB] may be machine−generated, whenever the IANA Charset Registry [CHARSET] is updated by IANA staff according to the procedures defined in [RFC2978], using the utility [CHARGEN] described in section 3 of this document or any other machine−generation method.

It is strongly recommended that future updates to the IANA Charset MIB [CHARMIB] be machine generated (rather than hand−edited) to avoid asynchrony between the IANA Charset Registry [CHARSET] and the IANA Charset MIB [CHARMIB].

Note: Questions and comments on this IANA Charset MIB [CHARMIB] should be sent to the editor (imcdonald@sharplabs.com) and IANA (iana@iana.org) with a copy to the IETF Charsets mailing list (ietf−charset@iana.org).

## Conformance Terminology

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 [RFC2119].

## Charset Terminology

The following terms are used in this specification, exactly as defined in section 1 'Definitions and Notation' of the IANA Charset Registration Procedures [RFC2978]: "character", "charset", "coded character set (CCS)", and "character encoding scheme (CES)".

# The Internet−Standard Management Framework

For a detailed overview of the documents that describe the current Internet−Standard Management Framework, please refer to section 7 of RFC 3410 [RFC3410].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIv2, which is described in STD 58, RFC 2578 [RFC2578], STD 58, RFC 2579 [RFC2579] and STD 58, RFC 2580 [RFC2580].

# Generation of IANA Charset MIB

Intellectual Property: The C language utility 'ianachar.c' [CHARGEN] and the IANA Charset MIB template file [CHARTEMP] are hereby donated by the author (Ira McDonald) to IANA, in perpetuity, free of license or any other restraint.

The [CHARGEN] utility may be used to generate an updated version of the 'IANACharset' textual convention by reading and parsing the (currently plaintext) IANA Charset Registry [CHARSET].

This utility parses each charset registration, finding (in order):

```
1)  The 'Name' field (which is saved for a fallback − see below);

2)  The 'MIBenum' field (which contains the IANA−assigned positive
    decimal enum value); and

3)  The (usually present) 'Alias' field that begins with 'cs' (that
    contains the IANA−assigned enum label).  If an 'Alias' field is
    not found, the utility constructs one from the 'Name' field by:

    − Beginning the enum label with a lowercase 'cs' prefix;

    − Copying _only_ alpha/numeric characters from the 'Name' field
      to the enum label (ignoring punctuation, whitespace, etc.).
```

# Definition of IANA Charset MIB

```
IANA-CHARSET-MIB DEFINITIONS ::= BEGIN
--  http://www.iana.org/assignments/ianacharset-mib

IMPORTS
    MODULE-IDENTITY,
        mib-2
            FROM SNMPv2-SMI
    TEXTUAL-CONVENTION
            FROM SNMPv2-TC;

ianaCharsetMIB MODULE-IDENTITY
    LAST-UPDATED    "200302100000Z"
    ORGANIZATION    "IANA"
    CONTACT-INFO    "       Internet Assigned Numbers Authority

                    Postal: ICANN
                            4676 Admiralty Way, Suite 330
                            Marina del Rey, CA 90292

                    Tel:    +1 310 823 9358
                    E-Mail: iana@iana.org"

    DESCRIPTION     "This MIB module defines the IANACharset Textual
                    Convention.  The IANACharset TC is used to specify
                    the encoding of string objects defined in a MIB.

                    Each version of this MIB is machine-generated from
                    the IANA Charset Registry file (see RFC 2978) at
                    http://www.iana.org/assignments/character-sets.

                    Note:  The IANACharset TC, originally defined in
                    RFC 1759, was inaccurately named CodedCharSet.

                    Note:  Best practice is to define new MIB string
                    objects with invariant UTF-8 (RFC 2279) syntax
                    using the SnmpAdminString TC (defined in RFC 3411)
                    in accordance with IETF Policy on Character Sets and
                    Languages (RFC 2277).

                    Copyright (C) The Internet Society (year).  This
                    version of this MIB module is part of RFC xxxx;
                    see the RFC itself for full legal notices."
                    -- RFC Editor should assign xxxx and year above.

    --  revision history

    REVISION        "200302100000Z" -- February 10, 2003
    DESCRIPTION     "Original version transferred from Printer MIB,
                    generated from the IANA maintained assignments
                    http://www.iana.org/assignments/character-sets."

                    -- RFC Editor should regenerate this MIB module
                    -- (using 'ianachar.c' or some other utility)
                    -- immediately prior to publication as an RFC,
                    -- to align with latest IANA charset assignments.

    ::= { mib-2 nnn } -- nnnn to be assigned by IANA
```

```
IANACharset ::= TEXTUAL-CONVENTION
    STATUS  current
    DESCRIPTION
        "Specifies an IANA registered 'charset' - coded character set
        (CCS) plus optional character encoding scheme (CES) - terms
        defined in 'IANA Charset Registration Procedures' (RFC 2978).

        Objects of this syntax are used to specify the encoding for
        string objects defined in one or more MIBs.  For example, the
        prtLocalizationCharacterSet, prtInterpreterDefaultCharSetIn, and
        prtInterpreterDefaultCharSetOut objects defined in Printer MIB.

        The current list of 'charset' names and enumerated values
        is contained in the IANA Character Set Registry at:

           http://www.iana.org/assignments/character-sets

        Enum names are derived from the IANA Charset Registry 'Alias'
        fields that begin with 'cs' (for character set).
        Enum values are derived from the parallel 'MIBenum' fields."
    SYNTAX  INTEGER {
        other(1),   -- used if the designated
                    -- character set is not currently
                    -- registered by IANA
        unknown(2), -- used as a default value
        csASCII(3),
        csISOLatin1(4),
        csISOLatin2(5),
        csISOLatin3(6),
        csISOLatin4(7),
        csISOLatinCyrillic(8),
        csISOLatinArabic(9),
        csISOLatinGreek(10),
        csISOLatinHebrew(11),
        csISOLatin5(12),
        csISOLatin6(13),
        csISOTextComm(14),
        csHalfWidthKatakana(15),
        csShiftJIS(17),
        csEUCPkdFmtJapanese(18),
        csEUCFixWidJapanese(19),
        csISO4UnitedKingdom(20),
        csISO11SwedishForNames(21),
        csISO15Italian(22),
        csISO17Spanish(23),
        csISO21German(24),
        csISO60DanishNorwegian(25),
        csISO69French(26),
        csISO10646UTF1(27),
        csISO646basic1983(28),
        csINVARIANT(29),
        csISO2IntlRefVersion(30),
        csNATSSEFI(31),
        csNATSSEFIADD(32),
        csNATSDANO(33),
        csNATSDANOADD(34),
        csISO10Swedish(35),
        csKSC56011987(36),
        csISO2022KR(37),
        csEUCKR(38),
        csISO2022JP(39),
```

```
        csISO2022JP2(40),
        csISO13JISC6220jp(41),
        csISO14JISC6220ro(42),
        csISO16Portuguese(43),
        csISO18Greek7Old(44),
        csISO19LatinGreek(45),
        csISO25French(46),
        csISO27LatinGreek1(47),
        csISO5427Cyrillic(48),
        csISO42JISC62261978(49),
        csISO47BSViewdata(50),
        csISO49INIS(51),
        csISO50INIS8(52),
        csISO51INISCyrillic(53),
        csISO54271981(54),
        csISO57GB1988(56),
        csISO58GB231280(57),
        csISO61Norwegian2(58),
        csISO70VideotexSupp1(59),
        csISO84Portuguese2(60),
        csISO85Spanish2(61),
        csISO86Hungarian(62),
        csISO87JISX0208(63),
        csISO88Greek7(64),
        csISO89ASMO449(65),
        csISO90(66),
        csISO91JISC62291984a(67),
        csISO92JISC62991984b(68),
        csISO93JIS62291984badd(69),
        csISO94JIS62291984hand(70),
        csISO95JIS62291984handadd(71),
        csISO96JISC62291984kana(72),
        csISO2033(73),
        csISO99NAPLPS(74),
        csISO102T617bit(75),
        csISO103T618bit(76),
        csISO111ECMACyrillic(77),
        csa71(78),
        csa72(79),
        csISO123CSAZ24341985gr(80),
        csISO88596E(81),
        csISO88596I(82),
        csISO128T101G2(83),
        csISO88598E(84),
        csISO88598I(85),
        csISO139CSN369103(86),
        csISO141JUSIB1002(87),
        csISO143IECP271(88),
        csISO146Serbian(89),
        csISO147Macedonian(90),
        csISO150(91),
        csISO151Cuba(92),
        csISO6937Add(93),
        csISO153GOST1976874(94),
        csISO8859Supp(95),
        csISO10367Box(96),
        csISO158Lap(97),
        csISO159JISX02121990(98),
        csISO646Danish(99),
        csUSDK(100),
        csDKUS(101),
```

```
        csKSC5636(102),
        csUnicode11UTF7(103),
        csISO2022CN(104),
        csUTF8(106),
        csISO885914(110),
        csISO885916(112),
        csGB18030(114),
        csUnicode(1000),
        csUCS4(1001),
        csUnicodeASCII(1002),
        csUnicodeLatin1(1003),
        csUnicodeIBM1261(1005),
        csUnicodeIBM1268(1006),
        csUnicodeIBM1276(1007),
        csUnicodeIBM1264(1008),
        csUnicodeIBM1265(1009),
        csUnicode11(1010),
        csSCSU(1011),
        csUTF16BE(1013),
        csUTF16(1015),
        csUTF32(1017),
        csUTF32LE(1019),
        csWindows30Latin1(2000),
        csWindows31Latin1(2001),
        csWindows31Latin2(2002),
        csWindows31Latin5(2003),
        csHPRoman8(2004),
        csAdobeStandardEncoding(2005),
        csVenturaUS(2006),
        csVenturaInternational(2007),
        csDECMCS(2008),
        csPC850Multilingual(2009),
        csPCp852(2010),
        csPC8CodePage437(2011),
        csPC8DanishNorwegian(2012),
        csPC862LatinHebrew(2013),
        csPC8Turkish(2014),
        csIBMSymbols(2015),
        csIBMThai(2016),
        csHPLegal(2017),
        csHPPiFont(2018),
        csHPMath8(2019),
        csHPPSMath(2020),
        csHPDesktop(2021),
        csVenturaMath(2022),
        csMicrosoftPublishing(2023),
        csWindows31J(2024),
        csGB2312(2025),
        csBig5(2026),
        csMacintosh(2027),
        csIBM037(2028),
        csIBM038(2029),
        csIBM273(2030),
        csIBM274(2031),
        csIBM275(2032),
        csIBM277(2033),
        csIBM278(2034),
        csIBM280(2035),
        csIBM281(2036),
        csIBM284(2037),
        csIBM285(2038),
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        csIBM290(2039),
        csIBM297(2040),
        csIBM420(2041),
        csIBM423(2042),
        csIBM424(2043),
        csIBM500(2044),
        csIBM851(2045),
        csIBM855(2046),
        csIBM857(2047),
        csIBM860(2048),
        csIBM861(2049),
        csIBM863(2050),
        csIBM864(2051),
        csIBM865(2052),
        csIBM868(2053),
        csIBM869(2054),
        csIBM870(2055),
        csIBM871(2056),
        csIBM880(2057),
        csIBM891(2058),
        csIBM903(2059),
        csIBBM904(2060),
        csIBM905(2061),
        csIBM918(2062),
        csIBM1026(2063),
        csIBMEBCDICATDE(2064),
        csEBCDICATDEA(2065),
        csEBCDICCAFR(2066),
        csEBCDICDKNO(2067),
        csEBCDICDKNOA(2068),
        csEBCDICFISE(2069),
        csEBCDICFISEA(2070),
        csEBCDICFR(2071),
        csEBCDICIT(2072),
        csEBCDICPT(2073),
        csEBCDICES(2074),
        csEBCDICESA(2075),
        csEBCDICESS(2076),
        csEBCDICUK(2077),
        csEBCDICUS(2078),
        csUnknown8BiT(2079),
        csMnemonic(2080),
        csMnem(2081),
        csVISCII(2082),
        csVIQR(2083),
        csKOI8R(2084),
        csIBM866(2086),
        csPC775Baltic(2087),
        csKOI8U(2088),
        csIBM00924(2090),
        csIBM01141(2092),
        csIBM01143(2094),
        csIBM01145(2096),
        csIBM01147(2098),
        csIBM01149(2100),
        csIBM1047(2102),
        cswindows1250(2250),
        cswindows1252(2252),
        cswindows1254(2254),
        cswindows1256(2256),
        cswindows1258(2258),
```

```
        reserved(3000)
    }
END
```

# IANA Considerations

IANA should assign a base arc in the 'mgmt' (standards track) OID tree for the 'ianaCharset' MODULE−IDENTITY defined in the IANA Charset MIB [CHARMIB].

Whenever any 'charset' is added to the IANA Charset Registry [CHARSET], a new version of the IANA Charset MIB [CHARMIB] should be machine−generated using the C language utility [CHARGEN] described in section 3 of this document or some other utility.

# Intellectual Property

The IETF takes no position regarding the validity or scope of any intellectual property or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; neither does it represent that it has made any effort to identify any such rights. Information on the IETF's procedures with respect to rights in standards−track and standards−related documentation can be found in RFC 2028. Copies of claims of rights made available for publication and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementors or users of this specification can be obtained from the IETF Secretariat.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights which may cover technology that may be required to practice this standard. Please address the information to the IETF Executive Director.

# Internationalization Considerations

The IANA Charset MIB [CHARMIB] defines the 'IANACharset' textual convention that may be used in a given MIB module to supply explicit character set labels for one or more text string objects defined in that MIB module.

For example, the Printer MIB [RFC1759] defines the three character set label objects 'prtLocalizationCharacterSet' (for description and console strings), 'prtInterpreterDefaultCharSetIn' (for received print job input data), and 'prtIntpreterDefaultCharSetOut' (for processed print job output data).

The IANA Charset MIB [CHARMIB] supports implementation of the best practices specified in "IETF Policy on Character Sets and Languages" [RFC2277].

Note: The use of the 'SnmpAdminString' textual convention defined in [RFC3411], which has a fixed character set of UTF−8 [RFC2779], is STRONGLY RECOMMENDED in defining new MIB modules. The IANA Charset MIB [CHARMIB] supports locale−specific MIB objects with variable character sets.

# Security Considerations

This MIB module does not define any management objects. Instead, it defines a (set of) textual convention(s) which may be used by other MIB modules to define management objects.

Meaningful security considerations can only be written in the MIB modules that define management objects. This document has therefore no impact on the security of the Internet.

# Acknowledgements

The editor would like to thank: Bert Wijnen (Lucent) for his original suggestion that the 'IANACharset' textual convention should be extracted from Printer MIB v2 (work−in−progress) [RFC1759bis]; Ron Bergman (Hitachi Printing Solutions) and Harry Lewis (IBM) for their many years of effort as editors of Printer MIB v2 (work−in−progress) [RFC1759bis].

# Normative References


[CHARGEN] IANA Charset MIB Generation Utility (archived at):
http://www.pwg.org/pub/pwg/pmp/tools/ianachar.c

[CHARMIB] IANA Charset MIB (in the future, to be archived at):
http://www.iana.org/assignments/ianacharset−mib

[CHARSET] IANA Charset Registry (archived at): http://www.iana.org/assignments/character−sets

[CHARTEMP] IANA Charset MIB template file (archived at):
http://www.pwg.org/pub/pwg/pmp/tools/ianachar.dat

[RFC2119] Bradner. "Key words for use in RFCs to Indicate Requirement Levels", RFC 2119, March 1997.

[RFC2277] Alvestrand. "IETF Policy on Character Sets and Languages", RFC 2277, January 1998.

[RFC2279] Yergeau. "UTF−8, a Transformation of ISO 10646", RFC 2279, January 1998.

[RFC2578] McCloghrie, Perkins, Schoenwaelder, Case, Rose, Waldbusser. "Structure of Management Information Version 2 (SMIv2)", STD 58, RFC 2578, April 1999.

[RFC2579] McCloghrie, Perkins, Schoenwaelder, Case, Rose, Waldbusser. "Textual Conventions for SMIv2", STD 58, RFC 2579, April 1999.

[RFC2580] McCloghrie, Perkins, Schoenwaelder, Case, Rose, Waldbusser. "Conformance Statements for SMIv2", STD 58, RFC 2580, April 1999.

[RFC2978] Freed, Postel. "IANA Charset Registration Procedures", RFC 2978, October 2000.

[RFC3411] Wijnen, Harrington, Presuhn. "An Architecture for Describing SNMP Network Management Frameworks", STD 62, RFC 3411, December 2002.

# Informative References

[RFC1759] Smith, Wright, Hastings, Zilles, Gyllenskog. "Printer MIB", RFC 1759, March 1995.

[RFC1759bis] Bergman, Lewis, McDonald. "Printer MIB v2" (work−in−progress), <draft−ietf−printmib−mib−info−14.txt>, February 2003.

[RFC3410] Case, Mundy, Partain, Stewart. "Introduction and Applicability Statements for Internet−Standard Network Management Framework", RFC 3410, December 2002.

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Note: Questions and comments on this IANA Charset MIB [CHARMIB] should be sent to the editor (imcdonald@sharplabs.com) and IANA (iana@iana.org) with a copy to the IETF Charsets mailing list (ietf−charset@iana.org).

# Full Copyright Statement

# Appendix X − Change Log

[[RFC Editor − delete this section before publication as an RFC]]

<draft−mcdonald−iana−charset−mib−02.txt> (10 February 2003)

- * Added section 1.2 'Charset Terminology', for clarity.
- * Replaced section 2 'The Internet−Standard Management Framework' with new MIB boilerplate, per request of Bert Wijnen.
- * Revised section 5 'IANA Considerations', to clarify that IANA MAY use the supplied IANA Charset MIB generation tool, or any other method.
- * Added section 6 'Intellectual Property', per request of Bert Wijnen.
- * Replaced section 8 'Security Considerations' with new text, written by Bert Wijnen.
- * Revised section 10 'Normative References' and section 11 'Informative References' to correct SNMPv3 references to RFC 3410/3411, per request of Bert Wijnen.
- * Added section 14 'Appendix X − Change Log', to be deleted before publication as an RFC.
- * Revised MODULE−IDENTITY in IANA Charset MIB template file, renaming from 'ianaCharset' to 'ianaCharsetMIB', revising DESCRIPTION clause to add MIB copyright, revising REVISION clause to state that the MIB was machine generated from the IANA Charset Registry (with durable URL), and changing OID from 'mib−2 999' to 'mib−2 nnn', per request of Bert Wijnen.

<draft−mcdonald−iana−charset−mib−01.txt> (8 October 2002)

- * Revised Abstract and Introduction, to clarify that IANA MAY use the supplied IANA Charset MIB generation tool, or any other method.
- * Revised MODULE−IDENTITY in IANA Charset MIB template file to add full IANA address to CONTACT−INFO clause and expanded DESCRIPTION clause.
- * Renamed textual convention from CodedCharSet (an inaccurate name) to IANACharset, per request of David Hopwood.

<draft−mcdonald−iana−charset−mib−00.txt> (5 August 2002)

- * Initial version, extracted from Printer MIB v2, at the suggestion of Bert Wijnen, with the concurrence (by email) of Ned Freed and Patrik Faltstrom.
- * Released required IANA Charset MIB generation C utility program.