

## IANA Charset MIB

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### Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. This IANA Charset MIB is now an IANA registry. In particular, a single textual convention 'IANACcharset' is defined that may be used to specify charset labels in MIB objects. 'IANACcharset' was extracted from Printer MIB v2 (RFC 3805). 'IANACcharset' was originally defined (and mis-named) as 'CodedCharSet' in Printer MIB v1 (RFC 1759). A tool has been written in C, that may be used by IANA to regenerate this IANA Charset MIB, when future charsets are registered in accordance with the IANA Charset Registration Procedures (RFC 2978).

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## 1. Introduction

This IANA Charset MIB [CHARMIB] module defines the single textual convention 'IANACcharset'. 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).

### 1.1. 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 BCP 14, RFC 2119 [RFC2119].

### 1.2. 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)".

## 2. 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].

### 3. 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 'IANACcharset' 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.).

### 4. 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                -- [RFC2578]
    TEXTUAL-CONVENTION
        FROM SNMPv2-TC;                -- [RFC2579]
```

ianaCharsetMIB MODULE-IDENTITY

```
    LAST-UPDATED      "200406080000Z"
    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](mailto: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 will be released based on  
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 3629) syntax  
using the SnmpAdminString TC (defined in RFC 3411)  
in accordance with IETF Policy on Character Sets and  
Languages (RFC 2277).

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initial version of this MIB module was published  
in RFC 3808; for full legal notices see the RFC  
itself. Supplementary information may be  
available on  
<http://www.ietf.org/copyrights/ianamib.html>."

-- revision history

REVISION "200406080000Z"  
DESCRIPTION "Original version transferred from Printer MIB,  
generated from the IANA maintained assignments  
<http://www.iana.org/assignments/character-sets>."

::= { mib-2 106 }

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),
    csJISEncoding(16),
    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),
csISO5428Greek(55),
csISO57GB1988(56),
csISO58GB231280(57),
csISO61Norwegian2(58),
csISO70VideotexSuppl(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),  
csISO2022CNEXT(105),  
csUTF8(106),  
csISO885913(109),  
csISO885914(110),  
csISO885915(111),  
csISO885916(112),  
csGBK(113),  
csGB18030(114),  
csOSDEBCDICDF0415(115),  
csOSDEBCDICDF03IRV(116),  
csOSDEBCDICDF041(117),  
csUnicode(1000),  
csUCS4(1001),  
csUnicodeASCII(1002),  
csUnicodeLatin1(1003),  
csUnicodeIBM1261(1005),  
csUnicodeIBM1268(1006),  
csUnicodeIBM1276(1007),  
csUnicodeIBM1264(1008),  
csUnicodeIBM1265(1009),  
csUnicode11(1010),  
csSCSU(1011),  
csUTF7(1012),  
csUTF16BE(1013),  
csUTF16LE(1014),  
csUTF16(1015),  
csCESU8(1016),  
csUTF32(1017),  
csUTF32BE(1018),

```
csUTF32LE(1019),
csBOCU1(1020),
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),
csIBM290(2039),
csIBM297(2040),
csIBM420(2041),
csIBM423(2042),
csIBM424(2043),
csIBM500(2044),
csIBM851(2045),
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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),  
csEBCDICESSE(2076),  
csEBCDICUK(2077),  
csEBCDICUS(2078),  
csUnknown8BiT(2079),  
csMnemonic(2080),  
csMnem(2081),  
csVISCII(2082),  
csVIQR(2083),  
csKOI8R(2084),  
csHZGB2312(2085),  
csIBM866(2086),  
csPC775Baltic(2087),  
csKOI8U(2088),  
csIBM00858(2089),  
csIBM00924(2090),  
csIBM01140(2091),  
csIBM01141(2092),  
csIBM01142(2093),

```
    csIBM01143(2094),
    csIBM01144(2095),
    csIBM01145(2096),
    csIBM01146(2097),
    csIBM01147(2098),
    csIBM01148(2099),
    csIBM01149(2100),
    csBig5HKSCS(2101),
    csIBM1047(2102),
    csPTCP154(2103),
    csAmiga1251(2104),
    csKOI7switched(2105),
    cswindows1250(2250),
    cswindows1251(2251),
    cswindows1252(2252),
    cswindows1253(2253),
    cswindows1254(2254),
    cswindows1255(2255),
    cswindows1256(2256),
    cswindows1257(2257),
    cswindows1258(2258),
    csTIS620(2259),
    reserved(3000)
}
END
```

## 5. IANA Considerations

IANA has assigned 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] may be machine-generated using the C language utility [CHARGEN], described in section 3 of this document or some other utility.

## 6. Internationalization Considerations

The IANA Charset MIB [CHARMIB] defines the 'IANASet' 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 [RFC3629], is STRONGLY RECOMMENDED in defining new MIB modules. The IANA Charset MIB [CHARMIB] supports locale-specific MIB objects with variable character sets.

## 7. 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. Therefore, this document has no impact on the security of the Internet.

## 8. Acknowledgements

The editor would like to thank: Bert Wijnen (Lucent) for his original suggestion that the 'IANACcharset' textual convention should be extracted from Printer MIB v2 [RFC3805]; Ron Bergman (Hitachi Printing Solutions) and Harry Lewis (IBM) for their many years of effort as editors of Printer MIB v2 [RFC3805].

## 9. References

### 9.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.
- [RFC2277] Alvestrand, H., "IETF Policy on Character Sets and Languages", RFC 2277, January 1998.
- [RFC2578] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Structure of Management Information Version 2 (SMIv2)", STD 58, RFC 2578, April 1999.
- [RFC2579] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Textual Conventions for SMIv2", STD 58, RFC 2579, April 1999.

- [RFC2580] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Conformance Statements for SMIV2", STD 58, RFC 2580, April 1999.
- [RFC2978] Freed, N. and J. Postel, "IANA Charset Registration Procedures", BCP 19, RFC 2978, October 2000.
- [RFC3411] Harrington, D., Presuhn, R., and B. Wijnen, "An Architecture for Describing SNMP Network Management Frameworks", STD 62, RFC 3411, December 2002.
- [RFC3629] Yergeau, F., "UTF-8, a transformation format of ISO 10646", RFC 3629, November 2003.

## 9.2. Informative References

- [CHARGEN] IANA Charset MIB Generation Utility (archived at):  
<ftp://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):  
<ftp://www.pwg.org/pub/pwg/pmp/tools/ianachar.dat>
- [RFC1759] Smith, R., Wright, F., Hastings, T., Zilles, S., and J. Gyllenskog. "Printer MIB", RFC 1759, March 1995.
- [RFC3805] Bergman, R., Lewis, H., and I. McDonald, "Printer MIB v2", RFC 3805, June 2004.
- [RFC3410] Case, J., Mundy, P., Partain, D., and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Network Management Framework", RFC 3410, December 2002.

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