



XML Character Entities

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Abstract:

This Standard defines XML encodings of the 19 standard character entity sets defined in Non-normative Annex D of [SGML].

Status:

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This Standard defines XML encodings of the standard SGML character entity sets.

Non-normative Annex D of [SGML] defines 19 standard SGML character entity sets: Added Latin 1, Added Latin 2, Greek Letters, Monotoniko Greek, Russian Cyrillic, Non-Russian Cyrillic, Numeric and Special Graphic, Diacritical Marks, Publishing, Box and Line Drawing, General Technical, Greek Symbols, Alternative Greek Symbols, Added Math Symbols: Ordinary, Added Math Symbols: Binary Operators, Added Math Symbols: Relations, Added Math Symbols: Negated Relations, Added Math Symbols: Arrow Relations, Added Math Symbols: Delimiters. The SGML declarations for these entities use the specific character data (SDATA) entity type that is not supported in XML, so alternative XML declarations are necessary.

In XML, the specific character data of most entities can be expressed as a [Unicode] character.

1. XML Character Entity Sets

The character entity sets defined by this Standard are summarized in Appendix A through Appendix S.

In order to use these entities in a document, they must be declared. Entities can be declared in the external subset or the internal subset, as described in [XML]. An example document, with the declaration in the internal subset, is shown in Example 1.

Example 1. Declaring and Using the ISO Latin 1 Character Entity Set

```
<!DOCTYPE doc [
<!ENTITY % iso-lat1 PUBLIC "ISO 8879:1986//ENTITIES Added Latin 1//EN//XML"
                "http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-lat1.ent">
%iso-lat1;
]>
<doc>
<p>This document declares the ISO Latin 1 Character Entity Set, providing
access to the ISO Latin 1 entities, such as "&acute;" and "&copy;".</p>
</doc>
```

Note

Non-validating XML Parsers may choose not to process externally declared entities. This Standard does not alter the semantics of XML processors. If a processor does not see the declaration for an entity, it will not be able to report the correct replacement text for that entity.

1.1. Multi-Character Replacements

The replacement text of some entities includes more than a single Unicode character. Some characters are composed with the "combining reverse solidus overlay" (20E5) and some are composed with a variation selector (FE00, FE01, ...).

1.2. Duplicate Entities

Historically, the `inodot` entity is multiply defined in `iso-lat2.ent` and `iso-amso.ent`. If both entity sets are included, some parsers will warn about redefinition of this entity. The warning can be ignored.

1.3. Entities with no Mapping

There are a small number of entities that have no [Unicode] representation. These entities are all mapped to the Unicode character "FFFD", the "replacement character".

Entity Name	Entity Set	Description
<code>fjlig</code>	<code>iso-pub.ent</code>	Small fj ligature
<code>gnap</code>	<code>iso-amsn.ent</code>	Greater, not approximate
<code>jnodot</code>	<code>iso-amso.ent</code>	Small j, no dot
<code>lnap</code>	<code>iso-amsn.ent</code>	Less, not approximate
<code>lpargt</code>	<code>iso-amsc.ent</code>	Greater than, left arc
<code>nsmid</code>	<code>iso-amsn.ent</code>	Negated short mid
<code>prnE</code>	<code>iso-amsn.ent</code>	Precedes, not double equals
<code>rpargt</code>	<code>iso-amsc.ent</code>	Right paren, greater than
<code>scnE</code>	<code>iso-amsn.ent</code>	Succeeds, not double equals
<code>smid</code>	<code>iso-amsr.ent</code>	shortmid r
<code>vsubnE</code>	<code>iso-amsn.ent</code>	Subset not double equals, variant

Users needing these characters will have to rely on the private use area or other non-portable mechanisms to access them.

1.4. Entities with Substituted Mappings

There are a few more for which there is no specific [Unicode] representation but where a reasonable substitution has been used:

Entity Name	Entity Set	Substitution	Description
<code>bepsi</code>	<code>iso-amsr.ent</code>	220D	Back epsilon: such that

Entity Name	Entity Set	Substitution	Description
ges	iso-amsr.ent	2265	Greater-or-equal, slanted
gvnE	iso-amsn.ent	2269	Gt, vert, not double equals
iff	iso-tech.ent	21D4	If and only if
les	iso-amsr.ent	2264	Less-than-or-equal, slanted
lozf	iso-pub.ent	2726	Lozenge, filled
lvnE	iso-amsn.ent	2268	Less, vert, not double equals
nge	iso-amsn.ent	2271	Neither greater-than nor equal to
nle	iso-amsn.ent	2270	Not less-than-or-equal
npre	iso-amsn.ent	22E0	Not precedes, equals
nsce	iso-amsn.ent	22E1	Not succeeds, equals
nspar	iso-amsn.ent	2226	Not short parallel
pre	iso-amsr.ent	227C	Precedes, equals
spar	iso-amsr.ent	2225	Short parallel
ssetmn	iso-amsb.ent	2216	Small set minus (reverse solidus)
star	iso-pub.ent	22C6	Star operator
starf	iso-pub.ent	2605	Black star
thkap	iso-amsr.ent	2248	Thick approximate
thksim	iso-amsr.ent	223C	Thick similar
vsubne	iso-amsn.ent	228A	Subset, not equals, variant
vsupnE	iso-amsn.ent	228B	Subset not double equals, variant
vsupne	iso-amsn.ent	228B	Superset, not equals, variant
xhArr	iso-amsa.ent	2194	Long left and right double arr
xharr	iso-amsa.ent	2194	Long left and right arr
xlArr	iso-amsa.ent	21D0	Long left double arrow
xrArr	iso-amsa.ent	21D2	Long right double arr
ssmile	iso-amsr.ent	2323	Small smile
sfrown	iso-amsr.ent	2322	Small frown

Users needing alternate glyphs for these characters will have to rely on redefining them to use the private use area or other non-portable mechanisms to access them.

2. XML Character Elements

Named XML entities (except for the five predefined entities [<http://www.w3.org/TR/REC-xml#sec-predefined-ent>]) cannot be used if they are not declared. Entity declaration requires either an external or an internal subset. Some classes of applications forbid the occurrence of markup declarations in documents. For these documents, named character entities are inaccessible.

In this section, we introduce an XML vocabulary with the semantics of character entity reference. This Standard defines the semantics of elements and attributes declared in the "<http://www.oasis-open.org/docbook/xmlchar-ent/names>" namespace.

This namespace contains exactly one element, `char`. The `char` element has two attributes, `entity` and `name`. They are mutually exclusive.

The `entity` attribute identifies characters by their character entity names. (The set of valid names is the closed set of names associated with character entity sets defined by this Standard.) Case is significant in entity names.

The `name` attribute identifies characters by their Unicode character names. (The set of valid names is the set of character names published in the [Unicode] specification, or any later version of that specification.) Case is insignificant in character names.

The [RELAX NG] definition of this namespace is shown in figure Figure 1.

Figure 1. The RELAX NG Definition of the <http://www.oasis-open.org/docbook/xmlcharent/names> Namespace

```
<?xml version="1.0"?>
<grammar xmlns="http://relaxng.org/ns/structure/0.9"
         ns="http://www.oasis-open.org/docbook/xmlcharent/names">

<start>
  <element name="char">
    <choice>
      <attribute name="entity">
        <ref name="EntityNames"/>
      </attribute>
      <attribute name="name">
        <ref name="UnicodeNames"/>
      </attribute>
    </choice>
  </element>
</start>

<define name="EntityNames">
  <!-- Logically, this is the list of ISO 9573 Character Entity Names -->
  <!-- For now, just text. -->
  <text/>
</define>

<define name="UnicodeNames">
  <!-- Logically, this is the list of Unicode Character Names -->
  <!-- For now, just text. -->
  <text/>
</define>

</grammar>
```

Example 2 shows a sample document using this mechanism.

Example 2. Declaring and Using the ISO Latin 1 Character Entity Set

```
<doc xmlns:e="http://www.oasis-open.org/docbook/xmlcharent/names">
<p>This document uses the character names element to access
character entities, such as "<e:char name="eacute"/>" and
"<e:char name="COPYRIGHT SIGN"/>".</p>
</doc>
```

The character names element is limited to contexts where elements may occur. In particular, elements may not occur in XML attribute values. Note, however, that internationalization requirements such as bidirectional language support and Ruby already require structure in arbitrary contexts. It is probably an error to use attributes for human-readable content.

Added Latin 1

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Added Latin 1//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-lat1.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
aacute	00E1	á	small a, acute accent
Aacute	00C1	Á	capital A, acute accent
acirc	00E2	â	small a, circumflex accent
Acirc	00C2	Â	capital A, circumflex accent
agrave	00E0	à	small a, grave accent
Agrave	00C0	À	capital A, grave accent
aring	00E5	å	small a, ring
Aring	00C5	Å	capital A, ring
atilde	00E3	ã	small a, tilde
Atilde	00C3	Ã	capital A, tilde
auml	00E4	ä	small a, dieresis or umlaut mark
Auml	00C4	Ä	capital A, dieresis or umlaut mark
aelig	00E6	æ	small ae diphthong (ligature)
AElig	00C6	Æ	capital AE diphthong (ligature)

Entity Name	Unicode Code point	Sample Glyph	Description
ccedil	00E7	ç	small c, cedilla
Ccedil	00C7	Ç	capital C, cedilla
eth	00F0	ð	small eth, Icelandic
ETH	00D0	Ð	capital Eth, Icelandic
eacute	00E9	é	small e, acute accent
Eacute	00C9	É	capital E, acute accent
ecirc	00EA	ê	small e, circumflex accent
Ecirc	00CA	Ê	capital E, circumflex accent
egrave	00E8	è	small e, grave accent
Egrave	00C8	È	capital E, grave accent
euml	00EB	ë	small e, dieresis or umlaut mark
Euml	00CB	Ë	capital E, dieresis or umlaut mark
iacute	00ED	í	small i, acute accent
Iacute	00CD	Í	capital I, acute accent
icirc	00EE	î	small i, circumflex accent
Icirc	00CE	Î	capital I, circumflex accent
igrave	00EC	ì	small i, grave accent
Igrave	00CC	Ì	capital I, grave accent
iuml	00EF	ï	small i, dieresis or umlaut mark

Entity Name	Unicode Code point	Sample Glyph	Description
Iuml	00CF	İ	capital I, dieresis or umlaut mark
ntilde	00F1	ñ	small n, tilde
Ntilde	00D1	Ñ	capital N, tilde
oacute	00F3	ó	small o, acute accent
Oacute	00D3	Ó	capital O, acute accent
ocirc	00F4	ô	small o, circumflex accent
Ocirc	00D4	Ô	capital O, circumflex accent
ograve	00F2	ò	small o, grave accent
Ograve	00D2	Ò	capital O, grave accent
oslash	00F8	ø	small o, slash
Oslash	00D8	Ø	capital O, slash
otilde	00F5	õ	small o, tilde
Otilde	00D5	Õ	capital O, tilde
ouml	00F6	ö	small o, dieresis or umlaut mark
Ouml	00D6	Ö	capital O, dieresis or umlaut mark
szlig	00DF	ß	small sharp s, German (sz ligature)
thorn	00FE	þ	small thorn, Icelandic
THORN	00DE	Þ	capital THORN, Icelandic
uacute	00FA	ú	small u, acute accent

Entity Name	Unicode Code point	Sample Glyph	Description
Uacute	00DA	Ú	capital U, acute accent
ucirc	00FB	û	small u, circumflex accent
Ucirc	00DB	Û	capital U, circumflex accent
ugrave	00F9	ù	small u, grave accent
Ugrave	00D9	Ù	capital U, grave accent
uuml	00FC	ü	small u, dieresis or umlaut mark
Uuml	00DC	Ü	capital U, dieresis or umlaut mark
yacute	00FD	ý	small y, acute accent
Yacute	00DD	Ý	capital Y, acute accent
yuml	00FF	ÿ	small y, dieresis or umlaut mark

Added Latin 2

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Added Latin 2//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-lat2.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
abreve	0103	ă	small a, breve
Abreve	0102	Ă	capital A, breve
amacr	0101	ā	small a, macron
Amacr	0100	Ā	capital A, macron

Entity Name	Unicode Code point	Sample Glyph	Description
aogon	0105	ą	small a, ogonek
Aogon	0104	Ą	capital A, ogonek
ccute	0107	ć	small c, acute accent
Cacute	0106	Ć	capital C, acute accent
ccaron	010D	č	small c, caron
Ccaron	010C	Č	capital C, caron
ccirc	0109	ĉ	small c, circumflex accent
Ccirc	0108	Ĉ	capital C, circumflex accent
cdot	010B	ċ	small c, dot above
Cdot	010A	Ĉ	capital C, dot above
dcaron	010F	ď	small d, caron
Dcaron	010E	Ď	capital D, caron
dstrok	0111	đ	small d, stroke
Dstrok	0110	Đ	capital D, stroke
ecaron	011B	ě	small e, caron
Ecaron	011A	Ě	capital E, caron
edot	0117	ě	small e, dot above
Edot	0116	Ě	capital E, dot above
emacr	0113	ē	small e, macron

Entity Name	Unicode Code point	Sample Glyph	Description
Emacr	0112	Ē	capital E, macron
eogon	0119	ė	small e, ogonek
Eogon	0118	Ė	capital E, ogonek
gacute	01F5	ǵ	small g, acute accent
gbreve	011F	ǵ̇	small g, breve
Gbreve	011E	Ǵ	capital G, breve
Gcedil	0122	Ǵ̃	capital G, cedilla
gcirc	011D	ǵ̂	small g, circumflex accent
Gcirc	011C	Ǵ̂	capital G, circumflex accent
gdot	0121	ǵ̣	small g, dot above
Gdot	0120	Ǵ̣	capital G, dot above
hcirc	0125	ĥ	small h, circumflex accent
Hcirc	0124	Ĥ	capital H, circumflex accent
hstrok	0127	ħ	small h, stroke
Hstrok	0126	Ħ	capital H, stroke
Idot	0130	İ	capital I, dot above
Imacr	012A	Ī	capital I, macron
imacr	012B	ī	small i, macron
ijlig	0133	ij	small ij ligature

Entity Name	Unicode Code point	Sample Glyph	Description
IJlig	0132	IJ	capital IJ ligature
inodot	0131	ı	small i, no dot
iogon	012F	ĩ	small i, ogonek
Iogon	012E	Ĳ	capital I, ogonek
itilde	0129	ĩ	small i, tilde
Itilde	0128	Ĩ	capital I, tilde
jcirc	0135	ĵ	small j, circumflex accent
Jcirc	0134	Ĵ	capital J, circumflex accent
kcedil	0137	ķ	small k, cedilla
Kcedil	0136	Ķ	capital K, cedilla
kgreen	0138	Ɔ	small k, Greenlandic
lacute	013A	ĺ	small l, acute accent
Lacute	0139	Ĺ	capital L, acute accent
lcaron	013E	ľ	small l, caron
Lcaron	013D	Ľ	capital L, caron
lcedil	013C	ļ	small l, cedilla
Lcedil	013B	Ļ	capital L, cedilla
lmidot	0140	ł	small l, middle dot
Lmidot	013F	Ł	capital L, middle dot

Entity Name	Unicode Code point	Sample Glyph	Description
Istrok	0142	ł	small l, stroke
Lstrok	0141	Ł	capital L, stroke
napute	0144	ń	small n, acute accent
Nacute	0143	Ń	capital N, acute accent
eng	014B	ŋ	small eng, Lapp
ENG	014A	Ŋ	capital ENG, Lapp
napos	0149	’n	small n, apostrophe
ncaron	0148	ň	small n, caron
Ncaron	0147	Ň	capital N, caron
ncedil	0146	ņ	small n, cedilla
Ncedil	0145	Ņ	capital N, cedilla
odblac	0151	ő	small o, double acute accent
Odblac	0150	Ő	capital O, double acute accent
Omacr	014C	ō	capital O, macron
omacr	014D	ō	small o, macron
oelig	0153	œ	small oe ligature
OElig	0152	Œ	capital OE ligature
racute	0155	ŕ	small r, acute accent
Racute	0154	Ŕ	capital R, acute accent

Entity Name	Unicode Code point	Sample Glyph	Description
rcaron	0159	ř	small r, caron
Rcaron	0158	Ř	capital R, caron
rcedil	0157	ŗ	small r, cedilla
Rcedil	0156	Ŕ	capital R, cedilla
sacute	015B	ś	small s, acute accent
Sacute	015A	Ś	capital S, acute accent
scaron	0161	š	small s, caron
Scaron	0160	Š	capital S, caron
scedil	015F	ș	small s, cedilla
Scedil	015E	Ș	capital S, cedilla
scirc	015D	ș̂	small s, circumflex accent
Scirc	015C	Ș̂	capital S, circumflex accent
tcaron	0165	ť	small t, caron
Tcaron	0164	Ť	capital T, caron
tcedil	0163	ț	small t, cedilla
Tcedil	0162	Ț	capital T, cedilla
tstrok	0167	ƚ	small t, stroke
Tstrok	0166	Ʀ	capital T, stroke
ubreve	016D	ŭ	small u, breve

Entity Name	Unicode Code point	Sample Glyph	Description
Ubreve	016C	Ů	capital U, breve
udblac	0171	ů	small u, double acute accent
Udblac	0170	Ů	capital U, double acute accent
umacr	016B	ū	small u, macron
Umacr	016A	Ū	capital U, macron
uogon	0173	u̧	small u, ogonek
Uogon	0172	Ů	capital U, ogonek
uring	016F	û	small u, ring
Uring	016E	Ů	capital U, ring
utilde	0169	ũ	small u, tilde
Utilde	0168	Ů	capital U, tilde
wcirc	0175	ŵ	small w, circumflex accent
Weirc	0174	Ŵ	capital W, circumflex accent
ycirc	0177	ŷ	small y, circumflex accent
Ycirc	0176	Ŷ	capital Y, circumflex accent
Yuml	0178	ÿ	capital Y, dieresis or umlaut mark
zacute	017A	ź	small z, acute accent
Zacute	0179	Ź	capital Z, acute accent
zcaron	017E	ž	small z, caron

Entity Name	Unicode Code point	Sample Glyph	Description
Zcaron	017D	Ž	capital Z, caron
zdot	017C	ẏ	small z, dot above
Zdot	017B	Ẑ	capital Z, dot above

Greek Letters

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Greek Letters//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-grk1.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
agr	03B1	α	small alpha, Greek
Agr	0391	Α	capital Alpha, Greek
bgr	03B2	β	small beta, Greek
Bgr	0392	Β	capital Beta, Greek
ggr	03B3	γ	small gamma, Greek
Ggr	0393	Γ	capital Gamma, Greek
dgr	03B4	δ	small delta, Greek
Dgr	0394	Δ	capital Delta, Greek
egr	03B5	ε	small epsilon, Greek
Egr	0395	Ε	capital Epsilon, Greek
zgr	03B6	ζ	small zeta, Greek

Entity Name	Unicode Code point	Sample Glyph	Description
Zgr	0396	Ζ	capital Zeta, Greek
eegr	03B7	η	small eta, Greek
EEgr	0397	Η	capital Eta, Greek
thgr	03B8	θ	small theta, Greek
THgr	0398	Θ	capital Theta, Greek
igr	03B9	ι	small iota, Greek
Igr	0399	Ι	capital Iota, Greek
kgr	03BA	κ	small kappa, Greek
Kgr	039A	Κ	capital Kappa, Greek
lgr	03BB	λ	small lambda, Greek
Lgr	039B	Λ	capital Lambda, Greek
mgr	03BC	μ	small mu, Greek
Mgr	039C	Μ	capital Mu, Greek
ngr	03BD	ν	small nu, Greek
Ngr	039D	Ν	capital Nu, Greek
xgr	03BE	ξ	small xi, Greek
Xgr	039E	Ξ	capital Xi, Greek
ogr	03BF	ο	small omicron, Greek
Ogr	039F	Ο	capital Omicron, Greek

Entity Name	Unicode Code point	Sample Glyph	Description
pgr	03C0	π	small pi, Greek
Pgr	03A0	Π	capital Pi, Greek
rgr	03C1	ρ	small rho, Greek
Rgr	03A1	Ρ	capital Rho, Greek
sgr	03C3	σ	small sigma, Greek
Sgr	03A3	Σ	capital Sigma, Greek
sfgr	03C2	ς	final small sigma, Greek
tgr	03C4	τ	small tau, Greek
Tgr	03A4	Τ	capital Tau, Greek
ugr	03C5	υ	small upsilon, Greek
Ugr	03A5	Υ	capital Upsilon, Greek
phgr	03C6	φ	small phi, Greek
PHgr	03A6	Φ	capital Phi, Greek
khgr	03C7	χ	small chi, Greek
KHgr	03A7	Χ	capital Chi, Greek
psgr	03C8	ψ	small psi, Greek
PSgr	03A8	Ψ	capital Psi, Greek
ohgr	03C9	ω	small omega, Greek
OHgr	03A9	Ω	capital Omega, Greek

Monotoniko Greek

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Monotoniko Greek//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-grk2.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
aacgr	03AC	ά	small alpha, accent, Greek
Aacgr	0386	Α	capital Alpha, accent, Greek
eacgr	03AD	έ	small epsilon, accent, Greek
Eacgr	0388	Ε	capital Epsilon, accent, Greek
eeacgr	03AE	ή	small eta, accent, Greek
EEacgr	0389	Η	capital Eta, accent, Greek
idigr	03CA	ϊ	small iota, dieresis, Greek
Idigr	03AA	Ι	capital Iota, dieresis, Greek
iacgr	03AF	ί	small iota, accent, Greek
Iacgr	038A	Ι	capital Iota, accent, Greek
idiagr	0390	ΐ	small iota, dieresis, accent, Greek
oacgr	03CC	ό	small omicron, accent, Greek
Oacgr	038C	Ο	capital Omicron, accent, Greek
udigr	03CB	ϋ	small upsilon, dieresis, Greek
Udigr	03AB	Υ	capital Upsilon, dieresis, Greek
uacgr	03CD	ύ	small upsilon, accent, Greek

Entity Name	Unicode Code point	Sample Glyph	Description
Uacgr	038E	Υ	capital Upsilon, accent, Greek
udiagr	03B0	ϋ	small upsilon, dieresis, accent, Greek
ohacgr	03CE	ω	small omega, accent, Greek
OHacgr	038F	Ω	capital Omega, accent, Greek

Russian Cyrillic

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Russian Cyrillic//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-cyr1.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
acy	0430	а	small a, Cyrillic
Acy	0410	А	capital A, Cyrillic
bcy	0431	б	small be, Cyrillic
Bcy	0411	Б	capital BE, Cyrillic
vcy	0432	в	small ve, Cyrillic
Vcy	0412	В	capital VE, Cyrillic
gcy	0433	г	small ghe, Cyrillic
Gcy	0413	Г	capital GHE, Cyrillic
dcy	0434	д	small de, Cyrillic
Dcy	0414	Д	capital DE, Cyrillic

Entity Name	Unicode Code point	Sample Glyph	Description
iecy	0435	е	small ie, Cyrillic
IEcy	0415	Е	capital IE, Cyrillic
ioicy	0451	ё	small io, Russian
IOcy	0401	Ё	capital IO, Russian
zhecy	0436	ж	small zhe, Cyrillic
ZHcy	0416	Ж	capital ZHE, Cyrillic
zcy	0437	з	small ze, Cyrillic
Zcy	0417	З	capital ZE, Cyrillic
icy	0438	и	small i, Cyrillic
Icy	0418	И	capital I, Cyrillic
jcy	0439	й	small short i, Cyrillic
Jcy	0419	Й	capital short I, Cyrillic
kcy	043A	к	small ka, Cyrillic
Kcy	041A	К	capital KA, Cyrillic
lcy	043B	л	small el, Cyrillic
Lcy	041B	Л	capital EL, Cyrillic
mcy	043C	м	small em, Cyrillic
Mcy	041C	М	capital EM, Cyrillic
ncy	043D	н	small en, Cyrillic

Entity Name	Unicode Code point	Sample Glyph	Description
Ncy	041D	Н	capital EN, Cyrillic
ocy	043E	о	small o, Cyrillic
Ocy	041E	О	capital O, Cyrillic
pcy	043F	п	small pe, Cyrillic
Pcy	041F	П	capital PE, Cyrillic
rcy	0440	р	small er, Cyrillic
Rcy	0420	Р	capital ER, Cyrillic
scy	0441	с	small es, Cyrillic
Scy	0421	С	capital ES, Cyrillic
tcy	0442	т	small te, Cyrillic
Tcy	0422	Т	capital TE, Cyrillic
ucy	0443	у	small u, Cyrillic
Ucy	0423	У	capital U, Cyrillic
fcy	0444	ф	small ef, Cyrillic
Fcy	0424	Ф	capital EF, Cyrillic
khcy	0445	х	small ha, Cyrillic
KHcy	0425	Х	capital HA, Cyrillic
tscy	0446	ц	small tse, Cyrillic
TScy	0426	Ц	capital TSE, Cyrillic

Entity Name	Unicode Code point	Sample Glyph	Description
chcy	0447	ч	small che, Cyrillic
CHcy	0427	Ч	capital CHE, Cyrillic
shcy	0448	ш	small sha, Cyrillic
SHcy	0428	Ш	capital SHA, Cyrillic
shchcy	0449	щ	small shcha, Cyrillic
SHCHcy	0429	Щ	capital SHCHA, Cyrillic
hardcy	044A	ъ	small hard sign, Cyrillic
HARDcy	042A	Ъ	capital HARD sign, Cyrillic
ycy	044B	ы	small yeru, Cyrillic
Ycy	042B	Ы	capital YERU, Cyrillic
softcy	044C	ь	small soft sign, Cyrillic
SOFTcy	042C	Ь	capital SOFT sign, Cyrillic
ecy	044D	э	small e, Cyrillic
Ecy	042D	Э	capital E, Cyrillic
yucy	044E	ю	small yu, Cyrillic
YUcy	042E	Ю	capital YU, Cyrillic
yacy	044F	я	small ya, Cyrillic
YAcy	042F	Я	capital YA, Cyrillic
numero	2116	№	numero sign

Non-Russian Cyrillic

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Non-Russian Cyrillic//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-cyr2.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
djcy	0452	ђ	small dje, Serbian
DJcy	0402	Ђ	capital DJE, Serbian
gjcy	0453	ѓ	small gje, Macedonian
GJcy	0403	Ѓ	capital GJE Macedonian
jukcy	0454	є	small je, Ukrainian
Jukcy	0404	Є	capital JE, Ukrainian
dscy	0455	ѕ	small dse, Macedonian
DScy	0405	Ѕ	capital DSE, Macedonian
iukcy	0456	і	small i, Ukrainian
Iukcy	0406	І	capital I, Ukrainian
yicy	0457	ї	small yi, Ukrainian
YIcy	0407	Ї	capital YI, Ukrainian
jsercy	0458	ј	small je, Serbian
Jsercy	0408	Ј	capital JE, Serbian
ljcy	0459	љ	small lje, Serbian
LJcy	0409	Љ	capital LJE, Serbian

Entity Name	Unicode Code point	Sample Glyph	Description
njcy	045A	Њ	small nje, Serbian
NJcy	040A	Њ	capital NJE, Serbian
tshcy	045B	ћ	small tshe, Serbian
TSHcy	040B	Ћ	capital TSHE, Serbian
kjcy	045C	ќ	small kje Macedonian
KJcy	040C	Ќ	capital KJE, Macedonian
ubrcy	045E	ў	small u, Byelorussian
Ubrcy	040E	Ў	capital U, Byelorussian
dzcy	045F	џ	small dze, Serbian
DZcy	040F	Џ	capital dze, Serbian

Numeric and Special Graphic

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Numeric and Special Graphic//EN//XML


System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-num.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
half	00BD	½	fraction one-half
frac12	00BD	½	fraction one-half
frac14	00BC	¼	fraction one-quarter
frac34	00BE	¾	fraction three-quarters

Entity Name	Unicode Code point	Sample Glyph	Description	
frac18	215B	$\frac{1}{8}$	fraction one-eighth	
frac38	215C	$\frac{3}{8}$	fraction three-eighths	
frac58	215D	$\frac{5}{8}$	fraction five-eighths	
frac78	215E	$\frac{7}{8}$	fraction seven-eighths	
sup1	00B9	1	superscript one	
sup2	00B2	2	superscript two	
sup3	00B3	3	superscript three	
plus	002B	+	plus sign	[Binary operator]
plusmn	00B1	±	plus-or-minus sign	[Binary operator]
lt	003C	<	less-than sign	[Relation]
equals	003D	=	equals sign	[Relation]
gt	003E	>	greater-than sign	[Relation]
divide	00F7	÷	divide sign	[Binary operator]
times	00D7	×	multiply sign	[Binary operator]
curren	00A4	¤	general currency sign	
pound	00A3	£	pound sign	
dollar	0024	\$	dollar sign	
cent	00A2	¢	cent sign	
yen	00A5	¥	yen sign	

Entity Name	Unicode Code point	Sample Glyph	Description	
num	0023	#	number sign	
percent	0025	%	percent sign	
amp	0026	&	ampersand	
ast	002A	*	asterisk	[Binary operator]
commat	0040	@	commercial at	
lsqb	005B	[left square bracket	[Opening delimiter]
bsol	005C	\	reverse solidus	
rsqb	005D]	right square bracket	[Closing delimiter]
lcub	007B	{	left curly bracket	[Opening delimiter]
horbar	2015	—	horizontal bar	
verbar	007C		vertical bar	
rcub	007D	}	right curly bracket	[Closing delimiter]
micro	00B5	μ	micro sign	
ohm	2126	Ω	ohm sign	
deg	00B0	°	degree sign	
ordm	00BA	º	ordinal indicator, masculine	
ordf	00AA	ª	ordinal indicator, feminine	
sect	00A7	§	section sign	
para	00B6	¶	pilcrow (paragraph sign)	

Entity Name	Unicode Code point	Sample Glyph	Description	
middot	00B7	.	middle dot	[Binary operator]
larr	2190	←	leftward arrow	[Relation (arrow)]
rarr	2192	→	rightward arrow	[Relation (arrow)]
uarr	2191	↑	upward arrow	[Relation (arrow)]
darr	2193	↓	downward arrow	[Relation (arrow)]
copy	00A9	©	copyright sign	
reg	00AE	®	registered sign	
trade	2122	™	trade mark sign	
brvbar	00A6		broken (vertical) bar	
not	00AC	¬	not sign	
sung			music note (sung text sign)	
excl	0021	!	exclamation mark	
isexcl	00A1	¡	inverted exclamation mark	
quot	0022	"	quotation mark	
apos	0027	'	apostrophe	
lpar	0028	(left parenthesis	[Opening delimiter]
rpar	0029)	right parenthesis	[Closing delimiter]
comma	002C	,	comma	[Punctuation]
lowbar	005F	—	low line	

Entity Name	Unicode Code point	Sample Glyph	Description	
hyphen	002D	-	hyphen	
period	002E	.	full stop, period	
sol	002F	/	solidus	
colon	003A	:		[Punctuation]
semi	003B	;	semicolon	[Punctuation]
quest	003F	?	question mark	
iquest	00BF	¿	inverted question mark	
laquo	00AB	«	angle quotation mark, left	
raquo	00BB	»	angle quotation mark, right	
lsquo	2018	‘	single quotation mark, left	
rsquo	2019	’	single quotation mark, right	
ldquo	201C	“	double quotation mark, left	
rdquo	201D	”	double quotation mark, right	
nbspace	00A0	␣	no break (required) space	
shy	00AD	-	soft hyphen	

Diacritical Marks

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Diacritical Marks//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-dia.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
acute	00B4	´	acute accent
breve	02D8	˘	breve
caron	02C7	ˇ	caron
cedil	00B8	¸	cedilla
circ	005E	ˆ	circumflex accent
dblac	02DD	˝	double acute accent
die	00A8	¨	dieresis
dot	02D9	˙	dot above
grave	0060	˘	grave accent
macr	00AF	¯	macron
ogon	02DB	˛	ogonek
ring	02DA	◌̊	ring
tilde	02DC	˜	tilde
uml	00A8	¨	umlaut mark















Publishing
















Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Publishing//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-pub.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
emsp	2003		em space
ensp	2002		en space (1)
emsp13	2004		1space
emsp14	2005		1space
numsp	2007		digit space (width of a number)
puncsp	2008		punctuation space (width of comma)
thinsp	2009		thin space (1)
hairsp	200A		hair space
mdash	2014		em dash
ndash	2013		en dash
dash	2010		hyphen (true graphic)
blank	2423		significant blank symbol
hellip	2026		ellipsis (horizontal)
nldr	2025		double baseline dot (en leader)
frac13	2153	$\frac{1}{3}$	fraction one-third
frac23	2154	$\frac{2}{3}$	fraction two-thirds
frac15	2155	$\frac{1}{5}$	fraction one-fifth
frac25	2156	$\frac{2}{5}$	fraction two-fifths
frac35	2157	$\frac{3}{5}$	fraction three-fifths

Entity Name	Unicode Code point	Sample Glyph	Description
frac45	2158	$\frac{4}{5}$	fraction four-fifths
frac16	2159	$\frac{1}{6}$	fraction one-sixth
frac56	215A	$\frac{5}{6}$	fraction five-sixths
incare	2105	<i>c/o</i>	in-care-of symbol
block	2588		full block
uhblk	2580		upper half block
lhblk	2584		lower half block
blk14	2591		25% shaded block
blk12	2592		50% shaded block
blk34	2593		75% shaded block
marker	25AE		histogram marker
cir	25CB		circle, open
squ	25A1		square, open
rect	25AD		rectangle, open
utri	25B5		up triangle, open
dtri	25BF		down triangle, open
star	22C6		star, open
bull	2022		round bullet, filled
squf	25AA		sq bullet, filled

[Binary operator]

[Binary operator]

Entity Name	Unicode Code point	Sample Glyph	Description	
utrif	25B4	▲	up tri, filled	
dtrif	25BE	▼	dn tri, filled	
ltrif	25C2	◀	l tri, filled	[Relation]
rtrif	25B8	▶	r tri, filled	[Relation]
clubs	2663	♣	club suit symbol	
diams	2666	♦	diamond suit symbol	
hearts	2661	♥	heart suit symbol	
spades	2660	♠	spades suit symbol	
malt	2720	⦿	maltese cross	
dagger	2020	†	dagger	[Binary operator]
Dagger	2021	‡	double dagger	[Binary operator]
check	2713	✓	tick, check mark	
cross	2717	✕	ballot cross	
sharp	266F	♯	musical sharp	
flat	266D	♭	musical flat	
male	2642	♂	male symbol	
female	2640	♀	female symbol	
phone	260E	☎	telephone symbol	
telrec	2315	📞	telephone recorder symbol	

Entity Name	Unicode Code point	Sample Glyph	Description
copysr	2117	Ⓟ	sound recording copyright sign
caret	2041	^	caret (insertion mark)
lsquor	201A	‘	rising single quote, left (low)
ldquor	201E	”	rising dbl quote, left (low)
fflig	FB00	ff	small ff ligature
filig	FB01	fi	small fi ligature
fjlig	FFFD	fj	small fj ligature
ffilig	FB03	ffi	small ffi ligature
ffllig	FB04	ffl	small ffl ligature
fllig	FB02	fl	small fl ligature
mldr	2026	...	em leader
rdquor	201D	”	rising dbl quote, right (high)
rsquor	2019	’	rising single quote, right (high)
vellip	22EE	⋮	vertical ellipsis
hybull	2043	▪	rectangle, filled (hyphen bullet)
loz	25CA	◊	- lozenge or total mark
lozf	2726	◆	- lozenge, filled
ltri	25C3	◀	l triangle, open [Binary operator]
rtri	25B9	▶	r triangle, open [Binary operator]

Entity Name	Unicode Code point	Sample Glyph	Description
starf	2605	★	- star, filled
natur	266E	♮	- music natural
rx	211E	℞	pharmaceutical prescription (Rx)
sext	2736	✳	sextile (6-pointed star)
target	2316	⊕	register mark or target
dlcrop	230D	⌞	downward left crop mark
drcrop	230C	⌟	downward right crop mark
ulcrop	230F	⌵	upward left crop mark
urcrop	230E	⌶	upward right crop mark

Box and Line Drawing

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Box and Line Drawing//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-box.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
boxh	2500	—	horizontal line
boxv	2502		vertical line
boxur	2514	⌞	upper right quadrant
boxul	2518	⌵	upper left quadrant
boxdl	2510	⌟	lower left quadrant

Entity Name	Unicode Code point	Sample Glyph	Description
boxdr	250C		lower right quadrant
boxvr	251C		upper and lower right quadrants
boxhu	2534		upper left and right quadrants
boxvl	2524		upper and lower left quadrants
boxhd	252C		lower left and right quadrants
boxvh	253C		all four quadrants
boxvR	255E		upper and lower right quadrants
boxhU	2568		upper left and right quadrants
boxvL	2561		upper and lower left quadrants
boxhD	2565		lower left and right quadrants
boxvH	256A		all four quadrants
boxH	2550		horizontal line
boxV	2551		vertical line
boxUR	255A		upper right quadrant
boxUL	255D		upper left quadrant
boxDL	2557		lower left quadrant
boxDR	2554		lower right quadrant
boxVR	2560		upper and lower right quadrants
boxHU	2569		upper left and right quadrants

Entity Name	Unicode Code point	Sample Glyph	Description
boxVL	2563		upper and lower left quadrants
boxHD	2566		lower left and right quadrants
boxVH	256C		all four quadrants
boxVr	255F		upper and lower right quadrants
boxHu	2567		upper left and right quadrants
boxVI	2562		upper and lower left quadrants
boxHd	2564		lower left and right quadrants
boxVh	256B		all four quadrants
boxuR	2558		upper right quadrant
boxUl	255C		upper left quadrant
boxdL	2555		lower left quadrant
boxDr	2553		lower right quadrant
boxUr	2559		upper right quadrant
boxuL	255B		upper left quadrant
boxdI	2556		lower left quadrant
boxdR	2552		lower right quadrant

General Technical

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES General Technical//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-tech.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description	
aleph	2135	\aleph	aleph, Hebrew	
and	2227	\wedge	logical and	[Binary operator]
ang90	221F	\angle	right (90 degree) angle	
angsph	2222	\sphericalangle	angle-spherical	
ap	2248	\approx	approximate	[Relation]
becaus	2235	\because	because	[Relation]
bottom	22A5	\perp	perpendicular	[Binary operator]
cap	2229	\cap	intersection	[Binary operator]
cong	2245	\cong	congruent with	[Relation]
conint	222E	\oint	contour integral operator	[Large operator]
cup	222A	\cup	union or logical sum	[Binary operator]
equiv	2261	\equiv	identical with	[Relation]
exist	2203	\exists	at least one exists	
forall	2200	\forall	for all	
fnof	0192	<i>f</i>	function of (italic small f)	
ge	2265	\geq	greater-than-or-equal	[Relation]
iff	21D4	\Leftrightarrow	if and only if	
infin	221E	∞	infinity	

Entity Name	Unicode Code point	Sample Glyph	Description	
int	222B	\int	integral operator	[Large operator]
isin	2208	\in	set membership	[Relation]
lang	3008	\langle	left angle bracket	[Opening delimiter]
lArr	21D0	\Leftarrow	is implied by	[Relation (arrow)]
le	2264	\leq	less-than-or-equal	[Relation]
minus	2212	$-$	minus sign	[Binary operator]
mnplus	2213	\mp	minus-or-plus sign	[Binary operator]
nabla	2207	∇	del, Hamilton operator	
ne	2260	\neq	not equal	[Relation]
ni	220B	\ni	contains	[Relation]
or	2228	\vee	logical or	[Binary operator]
par	2225	\parallel	parallel	[Relation]
part	2202	∂	partial differential	
permil	2030	‰	per thousand	
perp	22A5	\perp	perpendicular	[Relation]
prime	2032	\prime	prime or minute	
Prime	2033	''	double prime or second	
prop	221D	\propto	is proportional to	[Relation]
radic	221A	$\sqrt{\quad}$	radical	

Entity Name	Unicode Code point	Sample Glyph	Description	
rang	3009	\rangle	right angle bracket	[Closing delimiter]
rArr	21D2	\Rightarrow	implies	[Relation (arrow)]
sim	223C	\sim	similar	[Relation]
sime	2243	\approx	similar, equals	[Relation]
square	25A1	\square	square	[Binary operator]
sub	2282	\subset	subset or is implied by	[Relation]
sube	2286	\subseteq	subset, equals	[Relation]
sup	2283	\supset	superset or implies	[Relation]
supe	2287	\supseteq	superset, equals	[Relation]
there4	2234	\therefore	therefore	[Relation]
Verbar	2016	\parallel	dbl vertical bar	
angst	212B	\AA	Angstrom =capital A, ring	
bernou	212C	\mathcal{B}	Bernoulli function (script capital B)	
compfn	2218	\circ	composite function (small circle)	[Binary operator]
Dot	00A8	$\ddot{\circ}$	dieresis or umlaut mark	
DotDot	20DC	\cdots	four dots above	
hamilt	210B	\mathcal{H}	Hamiltonian (script capital H)	
lagran	2112	\mathcal{L}	Lagrangian (script capital L)	
lowast	2217	$*$	low asterisk	

Entity Name	Unicode Code point	Sample Glyph	Description	
notin	2209	∉	negated set membership	[Relation (negated)]
order	2134	ο	order of (script small o)	
phmmat	2133	Μ	physics M-matrix (script capital M)	
tdot	20DB	⋯	three dots above	
tprime	2034	≡	triple prime	
wedgeq	2259	≅	corresponds to (wedge, equals)	[Relation]

Greek Symbols

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Greek Symbols//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-grk3.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
alpha	03B1	α	small alpha, Greek
beta	03B2	β	small beta, Greek
gamma	03B3	γ	small gamma, Greek
Gamma	0393	Γ	capital Gamma, Greek
gammad	03DC	Ƴ	
delta	03B4	δ	small delta, Greek
Delta	0394	Δ	capital Delta, Greek
epsi	03B5	ε	small epsilon, Greek

Entity Name	Unicode Code point	Sample Glyph	Description
epsiv	025B	ε	
epsis	03B5	ε	
zeta	03B6	ζ	small zeta, Greek
eta	03B7	η	small eta, Greek
thetas	03B8	θ	straight theta
Theta	0398	Θ	capital Theta, Greek
thetav	03D1	ϑ	- curly or open theta
iota	03B9	ι	small iota, Greek
kappa	03BA	κ	small kappa, Greek
kappav	03F0	ϰ	
lambda	03BB	λ	small lambda, Greek
Lambda	039B	Λ	capital Lambda, Greek
mu	03BC	μ	small mu, Greek
nu	03BD	ν	small nu, Greek
xi	03BE	ξ	small xi, Greek
Xi	039E	Ξ	capital Xi, Greek
pi	03C0	π	small pi, Greek
piv	03D6	ϖ	
Pi	03A0	Π	capital Pi, Greek

Entity Name	Unicode Code point	Sample Glyph	Description
rho	03C1	ρ	small rho, Greek
rhov	03F1	ϱ	
sigma	03C3	σ	small sigma, Greek
Sigma	03A3	Σ	capital Sigma, Greek
sigmav	03C2	ς	
tau	03C4	τ	small tau, Greek
upsi	03C5	υ	small upsilon, Greek
Upsi	03D2	Υ	capital Upsilon, Greek
phis	03C6	φ	- straight phi
Phi	03A6	Φ	capital Phi, Greek
phiv	03D5	ϕ	- curly or open phi
chi	03C7	χ	small chi, Greek
psi	03C8	ψ	small psi, Greek
Psi	03A8	Ψ	capital Psi, Greek
omega	03C9	ω	small omega, Greek
Omega	03A9	Ω	capital Omega, Greek

Alternative Greek Symbols

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Alternative Greek Symbols//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-grk4.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
b.alpha	03B1	α	small alpha, Greek
b.beta	03B2	β	small beta, Greek
b.gamma	03B3	γ	small gamma, Greek
b.Gamma	0393	Γ	capital Gamma, Greek
b.gammad	03DC	Ɔ	
b.delta	03B4	δ	small delta, Greek
b.Delta	0394	Δ	capital Delta, Greek
b.epsi	03B5	ε	small epsilon, Greek
b.epsiv	025B	ⵈ	
b.opsis	03B5	ϵ	
b.zeta	03B6	ζ	small zeta, Greek
b.eta	03B7	η	small eta, Greek
b.thetas	03B8	θ	straight theta
b.Theta	0398	Θ	capital Theta, Greek
b.thetav	03D1	ϑ	- curly or open theta
b.iota	03B9	ι	small iota, Greek
b.kappa	03BA	κ	small kappa, Greek
b.kappav	03F0	ϰ	

Entity Name	Unicode Code point	Sample Glyph	Description
b.lambda	03BB	λ	small lambda, Greek
b.Lambda	039B	Λ	capital Lambda, Greek
b.mu	03BC	μ	small mu, Greek
b.nu	03BD	ν	small nu, Greek
b.xi	03BE	ξ	small xi, Greek
b.Xi	039E	Ξ	capital Xi, Greek
b.pi	03C0	π	small pi, Greek
b.Pi	03A0	Π	capital Pi, Greek
b.piv	03D6	ϖ	
b.rho	03C1	ρ	small rho, Greek
b.rhov	03F1	ϱ	
b.sigma	03C3	σ	small sigma, Greek
b.Sigma	03A3	Σ	capital Sigma, Greek
b.sigmap	03C2	ς	
b.tau	03C4	τ	small tau, Greek
b.upsilon	03C5	υ	small upsilon, Greek
b.Upsi	03D2	Υ	capital Upsilon, Greek
b.phis	03C6	φ	- straight phi
b.Phi	03A6	Φ	capital Phi, Greek

Entity Name	Unicode Code point	Sample Glyph	Description
b.phiv	03D5	ϕ	- curly or open phi
b.chi	03C7	χ	small chi, Greek
b.psi	03C8	ψ	small psi, Greek
b.Psi	03A8	Ψ	capital Psi, Greek
b.omega	03C9	ω	small omega, Greek
b.Omega	03A9	Ω	capital Omega, Greek

Added Math Symbols: Ordinary












Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Added Math Symbols: Ordinary//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-amso.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
ang	2220	∠	- angle
angmsd	2221	∠	- angle-measured
beth	2136	ב	- beth, Hebrew
bprime	2035	∕	- reverse prime
comp	2201	∕	- complement sign
daleth	2138	ד	- daleth, Hebrew
ell	2113	ℓ	- cursive small l
empty	2205	∅	small o, slash

Entity Name	Unicode Code point	Sample Glyph	Description
gimel	2137		- gimel, Hebrew
image	2111		- imaginary
inodot	0131		small i, no dot
jnodot	FFFD		- small j, no dot
nexist	2204		- negated exists
oS	24C8		- capital S in circle
planck	0127		- Planck's over 2pi
real	211C		- real
sbsol	FE68		- short reverse solidus
vprime	2032		- prime, variant
weierp	2118		- Weierstrass p




Added Math Symbols: Binary Operators




















Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Added Math Symbols: Binary Operators//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-amsb.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description
amalg	2201		amalgamation or coproduct [Binary operator]
Barwed	22BC		log and, dbl bar [Binary operator]
barwed	22BC		logical and, bar above [Binary operator]

Entity Name	Unicode Code point	Sample Glyph	Description	
Cap	22D2		dbl intersection	[Binary operator]
Cup	22D3		dbl union	[Binary operator]
cuvee	22CE		curly logical or	[Binary operator]
cuwed	22CF		curly logical and	[Binary operator]
diam	22C4		open diamond	[Binary operator]
divonx	22C7		division on times	[Binary operator]
intcal	22BA		intercal	[Binary operator]
lthree	22CB			[Binary operator]
ltimes	22C9		times sign, left closed	[Binary operator]
minusb	229F		minus sign in box	[Binary operator]
oast	229B		asterisk in circle	[Binary operator]
ocir	229A		open dot in circle	[Binary operator]
odash	229D		hyphen in circle	[Binary operator]
odot	2299		middle dot in circle	[Binary operator]
ominus	2296		minus sign in circle	[Binary operator]
oplus	2295		plus sign in circle	[Binary operator]
osol	2298		solidus in circle	[Binary operator]
otimes	2297		multiply sign in circle	[Binary operator]
plusb	229E		plus sign in box	[Binary operator]

Entity Name	Unicode Code point	Sample Glyph	Description	
plusdo	2214	$\dot{+}$	plus sign, dot above	[Binary operator]
rthree	22CC	\sphericalangle		[Binary operator]
rtimes	22CA	\boxtimes	times sign, right closed	[Binary operator]
sdot	22C5	\cdot	small middle dot	[Binary operator]
sdotb	22A1	\boxdot	small dot in box	[Binary operator]
setmn	2216	\backslash	reverse solidus	[Binary operator]
sqcap	2293	\sqcap	square intersection	[Binary operator]
sqcup	2294	\sqcup	square union	[Binary operator]
ssetmn	2216	\backslash	sm reverse solidus	[Binary operator]
sstarf	22C6	\star	small star, filled	[Binary operator]
timesb	22A0	\boxtimes	multiply sign in box	[Binary operator]
top	22A4	\top	inverted perpendicular	[Binary operator]
uplus	228E	\uplus	plus sign in union	[Binary operator]
wreath	2240	\wr	wreath product	[Binary operator]
xcirc	25EF	\bigcirc	large circle	[Binary operator]
xdtri	25BD	∇	big dn tri, open	[Binary operator]
xutri	25B3	\triangle	big up tri, open	[Binary operator]
coprod	2210	\amalg	coproduct operator	[Large operator]
prod	220F	\prod	product operator	[Large operator]

Entity Name	Unicode Code point	Sample Glyph	Description	
sum	2211	Σ	summation operator	[Large operator]

Added Math Symbols: Relations




















Identifiers for this entity set:




















Public identifier: ISO 8879:1986//ENTITIES Added Math Symbols: Relations//EN//XML




















System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-amr.ent>















The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description	
ape	224A	\approx	approximate, equals	[Relation]
asympt	224D	\asymp	asymptotically equal to	[Relation]
bcong	224C	\Rrightarrow	reverse congruent	[Relation]
bepsi	220D	\beth	such that	[Relation]
bowtie	22C8	\bowtie		[Relation]
bsim	223D	\sim	reverse similar	[Relation]
bsime	22CD	\simeq	reverse similar, eq	[Relation]
bump	224E	\bumpeq	bumpy equals	[Relation]
bumpe	224F	\Bumpeq	bumpy equals, equals	[Relation]
cire	2257	\circ	circle, equals	[Relation]
colone	2254	\doteq	colon, equals	[Relation]
cuepr	22DE	\curlyeqprec	curly eq, precedes	[Relation]
cuesc	22DF	\curlyeqsucc	curly eq, succeeds	[Relation]

Entity Name	Unicode Code point	Sample Glyph	Description	
cupre	227C		curly precedes, eq	[Relation]
dashv	22A3		dash, vertical	[Relation]
ecir	2256		circle on equals sign	[Relation]
ecolon	2255		equals, colon	[Relation]
eDot	2251		eq, even dots	[Relation]
esdot	2250		equals, single dot above	[Relation]
efDot	2252		eq, falling dots	[Relation]
egs	22DD		equal-or-gtr, slanted	[Relation]
els	22DC		eq-or-less, slanted	[Relation]
erDot	2253		eq, rising dots	[Relation]
fork	22D4		pitchfork	[Relation]
frown	2322		down curve	[Relation]
gap	2273		greater, approximate	[Relation]
gsdot	22D7		greater than, single dot	[Relation]
gE	2267		greater, double equals	[Relation]
gel	22DB		greater, equals, less	[Relation]
gEl	22DB		gt, dbl equals, less	[Relation]
ges	2265		gt-or-equal, slanted	[Relation]
Gg	22D9		triple gtr-than	[Relation]

Entity Name	Unicode Code point	Sample Glyph	Description	
gl	2277		greater, less	[Relation]
gsim	2273		greater, similar	[Relation]
Gt	226B		dbl greater-than sign	[Relation]
lap	2272		less, approximate	[Relation]
ldot	22D6		less than, with dot	[Relation]
lE	2266		less, double equals	[Relation]
lEg	22DA		less, dbl eq, greater	[Relation]
leg	22DA		less, eq, greater	[Relation]
les	2264		less-than-or-eq, slant	[Relation]
lg	2276		less, greater	[Relation]
Ll	22D8		triple less-than	[Relation]
lsim	2272		less, similar	[Relation]
Lt	226A		double less-than sign	[Relation]
ltrie	22B4		left triangle, eq	[Relation]
mid	2223			[Relation]
models	22A7			[Relation]
pr	227A		precedes	[Relation]
prap	227E		precedes, approximate	[Relation]
pre	227C		precedes, equals	[Relation]

Entity Name	Unicode Code point	Sample Glyph	Description	
prsim	227E		precedes, similar	[Relation]
rtrie	22B5		right tri, eq	[Relation]
samalg	2210		small amalg	[Relation]
sc	227B		succeeds	[Relation]
scap	227F		succeeds, approximate	[Relation]
sccue	227D		succeeds, curly eq	[Relation]
sce	227D		succeeds, equals	[Relation]
scsim	227F		succeeds, similar	[Relation]
sfrown	2322		small down curve	[Relation]
smid	FFFD			
smile	2323		up curve	[Relation]
spar	2225		short parallel	[Relation]
sqsub	228F		square subset	[Relation]
sqsube	2291		square subset, equals	[Relation]
sqsup	2290		square superset	[Relation]
sqsupe	2292		square superset, eq	[Relation]
ssmile	2323		small up curve	[Relation]
Sub	22D0		double subset	[Relation]
subE	2286		subset, dbl equals	[Relation]

Entity Name	Unicode Code point	Sample Glyph	Description	
Sup	22D1		dbl superset	[Relation]
supE	2287		superset, dbl equals	[Relation]
thkap	2248		thick approximate	[Relation]
thksim	223C		thick similar	[Relation]
trie	225C		triangle, equals	[Relation]
twixt	226C		between	[Relation]
vdash	22A2		vertical, dash	[Relation]
Vdash	22A9		dbl vertical, dash	[Relation]
vDash	22A8		vertical, dbl dash	[Relation]
veebar	22BB		logical or, bar below	[Relation]
vltri	22B2		l tri, open, var	[Relation]
vprop	221D		proportional, variant	[Relation]
vrtri	22B3		r tri, open, var	[Relation]
Vvdash	22AA		triple vertical, dash	[Relation]




















Added Math Symbols: Negated Relations




















Identifiers for this entity set:




















Public identifier: ISO 8879:1986//ENTITIES Added Math Symbols: Negated Relations//EN//XML



System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-amsn.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description	
gnap	FFFD		greater, not approximate	
gne	2269		greater, not equals	[Relation (negated)]
gnE	2269		greater, not dbl equals	[Relation (negated)]
gnsim	22E7		greater, not similar	[Relation (negated)]
gvnE	2269		gt, vert, not dbl eq	[Relation (negated)]
lnap	FFFD		less, not approximate	
lnE	2268		less, not double equals	[Relation (negated)]
lne	2268		less, not equals	[Relation (negated)]
lnsim	22E6		less, not similar	[Relation (negated)]
lvnE	2268		less, vert, not dbl eq	[Relation (negated)]
nap	2249		not approximate	[Relation (negated)]
ncong	2247		not congruent with	[Relation (negated)]
nequiv	2262		not identical with	[Relation (negated)]
ngE	2271		not greater, dbl equals	[Relation (negated)]
nge	2271		not greater-than-or-equal	[Relation (negated)]
nges	2271		not gt-or-eq, slanted	[Relation (negated)]
ngt	226F		not greater-than	[Relation (negated)]
nle	2270		not less-than-or-equal	[Relation (negated)]
nlE	2270		not less, dbl equals	[Relation (negated)]

Entity Name	Unicode Code point	Sample Glyph	Description	
nles	2270		not less-or-eq, slant	[Relation (negated)]
nlt	226E		not less-than	[Relation (negated)]
nltri	22EA		not left triangle	[Relation (negated)]
nltrie	22EC		not l tri, eq	[Relation (negated)]
nmid	2224			
npar	2226		not parallel	[Relation (negated)]
npr	2280		not precedes	[Relation (negated)]
npre	22E0		not precedes, equals	[Relation (negated)]
nrtri	22EB		not rt triangle	[Relation (negated)]
nrtrie	22ED		not r tri, eq	[Relation (negated)]
nsc	2281		not succeeds	[Relation (negated)]
nsce	22E1		not succeeds, equals	[Relation (negated)]
nsim	2241		not similar	[Relation (negated)]
nsime	2244		not similar, equals	[Relation (negated)]
nsmid	FFFD			
nspar	2226		not short par	[Relation (negated)]
nsub	2284		not subset	[Relation (negated)]
nsube	2288		not subset, equals	[Relation (negated)]
nsubE	2288		not subset, dbl eq	[Relation (negated)]

Entity Name	Unicode Code point	Sample Glyph	Description	
nsup	2285		not superset	[Relation (negated)]
nsupE	2289		not superset, dbl eq	[Relation (negated)]
nsupe	2289		not superset, equals	[Relation (negated)]
nvdash	22AC		not vertical, dash	[Relation (negated)]
nvDash	22AD		not vertical, dbl dash	[Relation (negated)]
nVDash	22AF		not dbl vert, dbl dash	[Relation (negated)]
nVdash	22AE		not dbl vertical, dash	[Relation (negated)]
prnap	22E8		precedes, not approx	[Relation (negated)]
prnE	FFFD		precedes, not dbl eq	
prnsim	22E8		precedes, not similar	[Relation (negated)]
scnap	22E9		succeeds, not approx	[Relation (negated)]
scnE	FFFD		succeeds, not dbl eq	
scnsim	22E9		succeeds, not similar	[Relation (negated)]
subne	228A		subset, not equals	[Relation (negated)]
subnE	228A		subset, not dbl eq	[Relation (negated)]
supne	228B		superset, not equals	[Relation (negated)]
supnE	228B		superset, not dbl eq	[Relation (negated)]
vsubnE	FFFD		subset not dbl eq, var	
vsubne	228A		subset, not eq, var	[Relation (negated)]

Entity Name	Unicode Code point	Sample Glyph	Description	
vsupne	228B		superset, not eq, var	[Relation (negated)]
vsupnE	228B		super not dbl eq, var	[Relation (negated)]













Added Math Symbols: Arrow Relations




















Identifiers for this entity set:




















Public identifier: ISO 8879:1986//ENTITIES Added Math Symbols: Arrow Relations//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-amsa.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description	
cularr	21B6		left curved arrow	[Relation (arrow)]
curarr	21B7		rt curved arrow	[Relation (arrow)]
dArr	21D3		down dbl arrow	[Relation (arrow)]
darr2	21CA		two down arrows	[Relation (arrow)]
dharl	21C3		dn harpoon-left	[Relation (arrow)]
dharr	21C2		down harpoon-rt	[Relation (arrow)]
lAarr	21DA		left triple arrow	[Relation (arrow)]
Larr	219E			[Relation (arrow)]
larr2	21C7		two left arrows	[Relation (arrow)]
larrhk	21A9		left arrow-hooked	[Relation (arrow)]
larrlp	21AB		left arrow-looped	[Relation (arrow)]
larrtl	21A2		left arrow-tailed	[Relation (arrow)]

Entity Name	Unicode Code point	Sample Glyph	Description	
lhard	21BD		l harpoon-down	[Relation (arrow)]
lharu	21BC		left harpoon-up	[Relation (arrow)]
hArr	21D4		l&r dbl arrow	[Relation (arrow)]
harr	2194		l&r arrow	[Relation (arrow)]
lrarr2	21C6		l arr over r arr	[Relation (arrow)]
rlarr2	21C4		r arr over l arr	[Relation (arrow)]
harrw	21AD		l&r arr-wavy	[Relation (arrow)]
rlhar2	21CC		r harp over l	[Relation (arrow)]
lhar2	21CB		l harp over r	[Relation (arrow)]
lsh	21B0			[Relation (arrow)]
map	21A6			[Relation (arrow)]
mumap	22B8			[Relation (arrow)]
nearr	2197		NE pointing arrow	[Relation (arrow)]
nlArr	21CD		not implied by	[Relation (arrow)]
nlarr	219A		not left arrow	[Relation (arrow)]
nhArr	21CE		not l&r dbl arr	[Relation (arrow)]
nharr	21AE		not l&r arrow	[Relation (arrow)]
nrarr	219B		not right arrow	[Relation (arrow)]
nrArr	21CF		not implies	[Relation (arrow)]

Entity Name	Unicode Code point	Sample Glyph	Description	
nwarr	2196		NW pointing arrow	[Relation (arrow)]
olarr	21BA		l arr in circle	[Relation (arrow)]
orarr	21BB		r arr in circle	[Relation (arrow)]
rAarr	21DB		right triple arrow	[Relation (arrow)]
Rarr	21A0			[Relation (arrow)]
rarr2	21C9		two rt arrows	[Relation (arrow)]
rarrhk	21AA		rt arrow-hooked	[Relation (arrow)]
rarrlp	21AC		rt arrow-looped	[Relation (arrow)]
rarrtl	21A3		rt arrow-tailed	[Relation (arrow)]
rarrw	21DD		rt arrow-wavy	[Relation (arrow)]
rhard	21C1		rt harpoon-down	[Relation (arrow)]
rharu	21C0		rt harpoon-up	[Relation (arrow)]
rsh	21B1			[Relation (arrow)]
drarr	2198		downward rt arrow	[Relation (arrow)]
dlarr	2199		downward l arrow	[Relation (arrow)]
uArr	21D1		up dbl arrow	[Relation (arrow)]
uarr2	21C8		two up arrows	[Relation (arrow)]
vArr	21D5		up&down dbl arrow	[Relation (arrow)]
varr	2195		up&down arrow	[Relation (arrow)]

Entity Name	Unicode Code point	Sample Glyph	Description	
uharl	21BF	↰	up harpoon-left	[Relation (arrow)]
uharr	21BE	↱	up harp-r	[Relation (arrow)]
xlArr	21D0	⇐	long l dbl arrow	[Relation (arrow)]
xhArr	2194	↔	long l&r dbl arr	[Relation (arrow)]
xharr	2194	↔	long l&r arr	[Relation (arrow)]
xrArr	21D2	⇒	long rt dbl arr	[Relation (arrow)]

Added Math Symbols: Delimiters

Identifiers for this entity set:

Public identifier: ISO 8879:1986//ENTITIES Added Math Symbols: Delimiters//EN//XML

System identifier: <http://www.oasis-open.org/docbook/xmlcharent/0.3/iso-amsc.ent>

The following character entities are defined in this entity set:

Entity Name	Unicode Code point	Sample Glyph	Description	
rceil	2309	⌋	right ceiling	[Closing delimiter]
rfloor	230B	⌋	right floor	[Closing delimiter]
rpargt	FFFD	⌋	right paren, gt	
urcorn	231D	⌋	upper right corner	[Closing delimiter]
drcorn	231F	⌋	downward right corner	[Closing delimiter]
lceil	2308	⌈	left ceiling	[Opening delimiter]
lfloor	230A	⌈	left floor	[Opening delimiter]
lpargt	FFFD	⌈	left parenthesis, gt	

Entity Name	Unicode Code point	Sample Glyph	Description	
ulcorn	231C	⏏	upper left corner	[Opening delimiter]
dlcorn	231E	⏏	downward left corner	[Opening delimiter]

Unicode Glyphs

The Unicode reference glyphs in this document are examples only. Some characters have more than one Unicode representation and different Unicode characters may be appropriate in different contexts. The glyph images offer only one of many possible representations for the specified character.

Most of the glyphs this reference are from the TmsPF Roman font by Production First Software [<http://ourworld.compuserve.com/homepages/profirst/homepagx.htm>]. A few glyphs are from Everson Mono [<http://www.indigo.ie/egt/celtsript/>].

Unicode support requires much more than a simple character to glyph mapping; for more information on Unicode, consult *The Unicode Standard, Version 2.0* [<http://www.unicode.org/unicode/uni2book/u2.html>] and *Unicode Technical Report #8* [<http://www.unicode.org/unicode/reports/tr8.html>], which describes Unicode Version 2.1.

OASIS DocBook Technical Committee (Non-Normative)

The following individuals were members of the committee during the formulation of this Standard:

- Dennis Evans
- Patricia Gee-Best
- Paul Grosso
- Dick Hamilton
- Nancy (Paisner) Harrison
- Sabine Ocker
- Michael Sabrio
- Michael Smith
- Tim Teebken (prospective)
- Norman Walsh (Chair, Editor)

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Revision History

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