

# The soulutf8 package

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## Abstract

This package extends package `soul` and adds some support for UTF-8. Namely the input encodings `utf8.def` from package `inputenc` and package `ucs`'s `utf8x.def` are supported.

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## 1 Documentation

This package `soulutf8` does not have own options and does not define new user commands. Any option is passed to package `soul` [1] that is loaded first. Then some internal macros of `soul` are redefined to add support for UTF-8. The following input encodings are supported:

```
utf8      LATEX base    TDS:tex/latex/base/utf8.def [3]
utf8x     Package ucs   TDS:tex/latex/ucs/utf8x.def [2]
```

UTF-8 byte sequences are added as token group to a word, even if these UTF-8 characters are some kind of hyphen or space. As exception the following three Unicode characters are handled specially:

Slot	Name	Action
U+00A0	NO-BREAK SPACE	like ~
U+2013	EN DASH	--
U+2014	EM DASH	---

### 1.1 Patch

Also package `soulutf8` tries to patch package `soul` to improve its behaviour:

- A problem with additional levels of curly braces is fixed. As advantage more implicate kernings are detected. However, the result may be incompatible with the original behaviour of package `soul` because of these respected implicate kernings.
- $\varepsilon$ -T<sub>E</sub>X, especially `\unexpanded` is supported. This allows a better protection of token groups (`\mbox{...}`, `math, ...`).

### 1.2 Future

Currently package `soul` does not seem to be maintained. Nevertheless if there will be a new version that adds support for UTF-8, then this package may become obsolete.

## 2 Implementation

```
1 <*package>
```

### 2.1 Reload check and package identification

Reload check, especially if the package is not used with L<sup>A</sup>T<sub>E</sub>X.

```
2 \begingroup
3 \catcode44 12 % ,
4 \catcode45 12 % -
5 \catcode46 12 % .
6 \catcode58 12 % :
7 \catcode64 11 % @
8 \expandafter\let\expandafter\x\csname ver@soulutf8.sty\endcsname
9 \ifcase 0%
10 \ifx\x\relax % plain
11 \else
```

```

12     \ifx\x\empty % LaTeX
13     \else
14         1%
15     \fi
16 \fi
17 \else
18     \catcode35 6 % #
19     \catcode123 1 % {
20     \catcode125 2 % }
21     \expandafter\ifx\csname PackageInfo\endcsname\relax
22         \def\x#1#2{%
23             \immediate\write-1{Package #1 Info: #2.}%
24         }%
25     \else
26         \def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
27     \fi
28     \x{soulutf8}{The package is already loaded}%
29 \endgroup
30 \expandafter\endinput
31 \fi
32 \endgroup

```

Package identification:

```

33 \begingroup
34 \catcode35 6 % #
35 \catcode40 12 % (
36 \catcode41 12 % )
37 \catcode44 12 % ,
38 \catcode45 12 % -
39 \catcode46 12 % .
40 \catcode47 12 % /
41 \catcode58 12 % :
42 \catcode64 11 % @
43 \catcode123 1 % {
44 \catcode125 2 % }
45 \expandafter\ifx\csname ProvidesPackage\endcsname\relax
46     \def\x#1#2#3[#4]{\endgroup
47         \immediate\write-1{Package: #3 #4}%
48         \xdef#1{#4}%
49     }%
50 \else
51     \def\x#1#2[#3]{\endgroup
52         #2[#{#3}]%
53         \ifx#1\relax
54             \xdef#1{#3}%
55         \fi
56     }%
57 \fi
58 \expandafter\x\csname ver@soulutf8.sty\endcsname
59 \ProvidesPackage{soulutf8}%
60 [2007/09/09 v1.0 Adding support for UTF-8 to soul (H0)]

```

## 2.2 Catcodes

```

61 \begingroup
62 \catcode123 1 % {
63 \catcode125 2 % }
64 \def\x{\endgroup
65     \expandafter\edef\csname SOuL@AtEnd\endcsname{%
66         \catcode35 \the\catcode35\relax
67         \catcode64 \the\catcode64\relax
68         \catcode123 \the\catcode123\relax
69         \catcode125 \the\catcode125\relax

```

```

70    }%
71  }%
72 \x
73 \catcode35 6 % #
74 \catcode64 11 % @
75 \catcode123 1 % {
76 \catcode125 2 % }
77 \def\TMP@EnsureCode#1#2{%
78   \edef\Soul@AtEnd{%
79     \Soul@AtEnd
80     \catcode#1 \the\catcode#1\relax
81   }%
82   \catcode#1 #2\relax
83 }
84 \TMP@EnsureCode{10}{12}% ^^J
85 \TMP@EnsureCode{33}{12}% !
86 \TMP@EnsureCode{34}{12}% "
87 \TMP@EnsureCode{36}{3}% $
88 \TMP@EnsureCode{39}{12}% '
89 \TMP@EnsureCode{40}{12}% (
90 \TMP@EnsureCode{41}{12}% )
91 \TMP@EnsureCode{42}{12}% *
92 \TMP@EnsureCode{43}{12}% +
93 \TMP@EnsureCode{44}{12}% ,
94 \TMP@EnsureCode{45}{12}% -
95 \TMP@EnsureCode{46}{12}% .
96 \TMP@EnsureCode{47}{12}% /
97 \TMP@EnsureCode{58}{12}% :
98 \TMP@EnsureCode{60}{12}% <
99 \TMP@EnsureCode{61}{12}% =
100 \TMP@EnsureCode{62}{12}% >
101 \TMP@EnsureCode{94}{7}% ^
102 \TMP@EnsureCode{96}{12}% ‘
103 \TMP@EnsureCode{126}\active % ~
104 \TMP@EnsureCode{128}{12}% ^^80
105 \TMP@EnsureCode{147}{12}% ^^93
106 \TMP@EnsureCode{148}{12}% ^^94
107 \TMP@EnsureCode{160}{12}% ^^a0
108 \TMP@EnsureCode{194}{12}% ^^c2
109 \TMP@EnsureCode{226}{12}% ^^e2

```

## 2.3 Loading packages

Package soul uses \documentclass to detect L<sup>A</sup>T<sub>E</sub>X.

```
110 \ifx\documentclass\@undefined
```

### 2.3.1 plain-T<sub>E</sub>X

First we check, whether package soul is already loaded.

```
111 \expandafter\ifx\csname SOUL@endcsname\relax
```

In case of plain-T<sub>E</sub>X package soul defines some macros in a simple manner that will break the definitions of minil<sub>T</sub><sub>E</sub><sub>X</sub>.tex, for example. Therefore these macros are first saved and restored afterwards.

```

112   \let\Soul@orgDeclareRobustCommand\DeclareRobustCommand
113   \let\Soul@orgnewcommand           \newcommand
114   \let\Soul@orgDeclareOption       \DeclareOption
115   \let\Soul@orgPackageError        \PackageError
116   \def\Soul@restorelatexcmds{%
117     \let\DeclareRobustCommand\Soul@orgDeclareRobustCommand
118     \let\newcommand           \Soul@orgnewcommand
119     \let\DeclareOption       \Soul@orgDeclareOption
120     \let\PackageError        \Soul@orgPackageError

```

```

121    }%
122    \input soul.sty\relax
123    \SOuL@restorelatexcmds
124    \fi

```

`\SOUL@error` Package soul's use of `\PackageError` is replaced by `\@PackageError` of package `infwarerr`.

```

125    \input infwarerr.sty\relax
126    \let\SOuL@orgSOUL@error\SOUL@error
127    \def\SOUL@error{%
128        \begingroup
129        \let\PackageError\@PackageError
130        \SOuL@orgSOUL@error
131    \endgroup
132    }%

133    \input etexcmds.sty\relax

```

`\@onelevel@sanitize` Define L<sup>A</sup>T<sub>E</sub>X's `\@onelevel@sanitize` if not already available.

```

134    \expandafter\ifx\csname @onelevel@sanitize\endcsname\relax
135        \def\@onelevel@sanitize#1{%
136            \edef#1{%
137                \expandafter\strip@prefix\meaning#1%
138            }%
139        }%

```

`\strip@prefix`

```

140    \def\strip@prefix#1>{ }%

141    \fi
142    \else

```

### 2.3.2 L<sup>A</sup>T<sub>E</sub>X

```

143    \DeclareOption*{\PassOptionsToPackage{\CurrentOption}{soul}}%
144    \ProcessOptions\relax
145    \RequirePackage{soul}[2003/11/17]%
146    \RequirePackage{infwarerr}[2007/09/09]%
147    \RequirePackage{etexcmds}[2007/09/09]%
148    \fi

```

### 2.3.3 $\epsilon$ -T<sub>E</sub>X

In plain-T<sub>E</sub>X command `\+` is an *outer* macro. Therefore numbers are used to avoid problems.

```

149    \ifetex@unexpanded
150        \catcode33=14 % '!': comment
151        \catcode43=9  % '+': ignore
152    \else
153        \catcode33=9  % '!': ignore
154        \catcode43=14 % '+': comment
155    \fi

```

## 2.4 Macro for redefinitions

`\SOuL@redefine`

```

156    \def\SOuL@redefine#1{%
157        \begingroup
158        \def\SOuL@cmd{#1}%
159        \afterassignment\SOuL@cmdcheck
160        \def\SOuL@temp
161    }

```

\SOUL@cmdcheck

```

162 \def\SOUL@cmdcheck{%
163   \expandafter\ifx\SOUL@cmd\SOUL@temp
164   \else
165     \edef\SOUL@temp*{\expandafter\string\SOUL@cmd}%
166     \@PackageWarningNoLine{soulutf8}{%
167       Command \SOUL@temp* has changed.\MessageBreak
168       Supported versions of package 'soul': 2003/11/17.\MessageBreak
169       Depending on the unknown changes the redefinition\MessageBreak
170       of \SOUL@temp* may not behave correctly%
171     }%
172   \fi
173 \expandafter\endgroup
174 \expandafter\def\SOUL@cmd
175 }

```

## 2.5 Redefinition of \SOUL@eval

\SOUL@eval Macro \SOUL@eval is redefined to add detection of the first byte of a UTF-8 sequence. Because \SOUL@eval is overwritten, a warning is issued, if the contents of \SOUL@eval is not as expected.

```

176 \SOUL@redefine\SOUL@eval{%

```

First the expected definition.

```

177 \def\SOUL@n*##1{\SOUL@scan}%
178 \if\noexpand\SOUL@@\SOUL@spc
179 \else
180   \SOUL@ignorespacesfalse
181 \fi
182 \ifnum\SOUL@minus=\thr@@
183   \SOUL@flushminus
184 \else\ifnum\SOUL@comma=\tw@
185   \SOUL@flushcomma
186 \else\ifnum\SOUL@apo=\tw@
187   \SOUL@flushapo
188 \else\ifnum\SOUL@grave=\tw@
189   \SOUL@flushgrave
190 \fi\fi\fi\fi
191 \ifx\SOUL@@-\else\SOUL@flushminus\fi
192 \ifx\SOUL@,@\else\SOUL@flushcomma\fi
193 \ifx\SOUL@@'\else\SOUL@flushapo\fi
194 \ifx\SOUL@@'\else\SOUL@flushgrave\fi
195 \ifx\SOUL@@-%
196   \advance\SOUL@minus\@ne
197 \else\ifx\SOUL@@,%
198   \advance\SOUL@comma\@ne
199 \else\ifx\SOUL@@'%
200   \advance\SOUL@apo\@ne
201 \else\ifx\SOUL@@'\%
202   \advance\SOUL@grave\@ne
203 \else
204   \SOUL@flushminus
205   \SOUL@flushcomma
206   \SOUL@flushapo
207   \SOUL@flushgrave
208   \ifx\SOUL@@\SOUL@stop
209     \def\SOUL@n*{%
210       \SOUL@doword
211       \SOUL@eventuallyexhyphen\null
212     }%
213   \else\ifx\SOUL@@\par
214     \def\SOUL@n*\par{\par\leavevmode\SOUL@scan}%

```



```

276 \ifx\SOUL@@-\else\SOUL@flushminus\fi
277 \ifx\SOUL@,@\else\SOUL@flushcomma\fi
278 \ifx\SOUL@@'\else\SOUL@flushapo\fi
279 \ifx\SOUL@@'\else\SOUL@flushgrave\fi
280 \ifx\SOUL@@-%
281   \advance\SOUL@minus\@ne
282 \else\ifx\SOUL@,@,%
283   \advance\SOUL@comma\@ne
284 \else\ifx\SOUL@@'\%
285   \advance\SOUL@apo\@ne
286 \else\ifx\SOUL@@'\%
287   \advance\SOUL@grave\@ne
288 \else
289   \SOUL@flushminus
290   \SOUL@flushcomma
291   \SOUL@flushapo
292   \SOUL@flushgrave
293   \ifx\SOUL@@\SOUL@stop
294     \def\SOUL@n*{%
295       \SOUL@doword
296       \SOUL@eventuallyexhyphen\null
297     }%
298   \else\ifx\SOUL@@\par
299     \def\SOUL@n*\par{\par\leavevmode\SOUL@scan}%
300   \else\if\noexpand\SOUL@@\SOUL@spc
301     \SOUL@doword
302     \SOUL@eventuallyexhyphen\null
303     \ifSOUL@ignorespaces
304     \else
305       \SOUL@everyspace{}%
306     \fi
307     \def\SOUL@n* {\SOUL@scan}%
308   \else\ifx\SOUL@@\%
309     \SOUL@doword
310     \SOUL@eventuallyexhyphen\null
311     \SOUL@everyspace{\unskip\nobreak\hfil\break}%
312     \SOUL@ignorepacestrue
313   \else\ifx\SOUL@@~%
314     \SOUL@doword
315     \SOUL@eventuallyexhyphen\null
316     \SOUL@everyspace{\nobreak}%
317   \else\ifx\SOUL@@\slash
318     \SOUL@doword
319     \SOUL@eventuallyexhyphen{/}%
320     \SOUL@exhyphen{/}%
321   \else\ifx\SOUL@@\mbox
322     \def\SOUL@n*{\SOUL@addprotect}%
323   \else\ifx\SOUL@@\hbox
324     \def\SOUL@n*{\SOUL@addprotect}%
325   \else\ifx\SOUL@@\soulomit
326     \def\SOUL@n*\soulomit##1{%
327       \SOUL@doword
328       {\spaceskip\SOUL@spaceskip##1}%
329       \SOUL@scan
330     }%
331   \else\ifx\SOUL@@\break
332     \SOUL@doword
333     \break
334   \else\ifx\SOUL@@\linebreak
335     \SOUL@doword
336     \SOUL@everyspace{\linebreak}%
337   \else\ifcat\bgroup\noexpand\SOUL@@

```



The current token is examined to detect the start of a UTF-8 sequence.

## 2.6 UTF-8 analysis

```

360 \def\SuL@defsanitizedstring#1#2{%
361   \expandafter\def\csname SuL@string#1\endcsname{#2}%
362   \expandafter\@onelevel@sanitize\csname SuL@string#1\endcsname
363 }
364 \SuL@defsanitizedstring{UTFviii}{UTFviii@}
365 \SuL@defsanitizedstring{octets}{@octets}
366 \SuL@defsanitizedstring{two}{two}
367 \SuL@defsanitizedstring{three}{three}
368 \SuL@defsanitizedstring{four}{four}
369 \SuL@defsanitizedstring{macrocolon}{macro:}
370 \SuL@defsanitizedstring{csnameu}{csname u8-}
371 \SuL@defsanitizedstring{undeferr}{utf{viii}undeferr}
372 \def\SuL@stringendash{^e2^80^93}
373 \def\SuL@stringemdash{^e2^80^94}
374 \def\SuL@stringnobreakspace{^c2^a0}
375 \edef\SuL@charhash{\string #}
376 \edef\SuL@chartwo{\string 2}
377 \edef\SuL@charthree{\string 3}
378 \def\SuL@empty{}

```

\S0uL@analyzeutfviii

9

```

391 \def\Soul@temp{#2}%
392 \chardef\Soul@octets=%
393 \ifx\Soul@temp\Soul@stringtwo
394 \tw@
395 \else\ifx\Soul@temp\Soul@stringthree
396 \thr@@
397 \else\ifx\Soul@temp\Soul@stringfour
398 4 %
399 \else
400 \z@
401 \fi\fi\fi
402 }

```

### 2.6.3 Support for utf8x.def

\Soul@analyzeutfviiiix

```

403 \begingroup
404 \edef\x{\endgroup
405 \def\noexpand\Soul@analyzeutfviiiix{%
406 \noexpand\expandafter\noexpand\Soul@checkutfviiiix
407 \noexpand\meaning\noexpand\Soul@@
408 \Soul@stringmacrocolon\Soul@charhash1{}-{}-{}-{}%
409 \Soul@stringcsnameu\Soul@stringundeferr
410 \noexpand\@nil
411 }%

```

\Soul@checkutfviiiix

```

412 \def\noexpand\Soul@checkutfviiiix
413 ##1\Soul@stringmacrocolon\Soul@charhash1##2##3##4##5##6%
414 \Soul@stringcsnameu##7\Soul@stringundeferr##8\noexpand\@nil
415 }%
416 \x{%
417 \def\Soul@temp{#7}%
418 \ifx\Soul@temp\Soul@empty
419 \chardef\Soul@octets=\z@
420 \else
421 \def\Soul@temp{#5}%
422 \ifx\Soul@temp\Soul@charthree
423 \chardef\Soul@octets=4 %
424 \else
425 \def\Soul@temp{#3}%
426 \ifx\Soul@temp\Soul@chartwo
427 \chardef\Soul@octets=\thr@@
428 \else
429 \chardef\Soul@octets=\tw@
430 \fi
431 \fi
432 \fi
433 }

```

## 2.7 Actions for UTF-8 sequences

\Soul@addtwooctets

```

434 \def\Soul@addtwooctets#1#2{%
435 \def\Soul@temp{#1#2}%
436 \@onelevel@sanitize\Soul@temp
437 \ifx\Soul@temp\Soul@stringnobreakspace
438 \Soul@doword
439 \Soul@eventuallyexhyphen\null
440 \Soul@everySPACE{\nobreak}%
441 \let\Soul@next\Soul@scan

```

```

442 \else
443   \def\Soul@next{%
444 !     \Soul@addtoken{\noexpand#1\noexpand#2}}%
445 +     \Soul@addtoken{\etex@unexpanded{#1#2}}}%
446   }%
447 \fi
448 \Soul@next
449 }

```

**\Soul@addthreeoctets**

```

450 \def\Soul@addthreeoctets#1#2#3{%
451   \def\Soul@temp{#1#2#3}%
452   \@onelevel@sanitize\Soul@temp
453   \ifx\Soul@temp\Soul@stringendash
454     \Soul@doword
455     \Soul@eventuallyexhyphen{-}%
456     \Soul@exhyphen{--}%
457     \let\Soul@next\Soul@scan
458   \else
459     \ifx\Soul@temp\Soul@stringemdash
460       \Soul@doword
461       \Soul@eventuallyexhyphen{-}%
462       \Soul@exhyphen{---}%
463       \let\Soul@next\Soul@scan
464     \else
465       \def\Soul@next{%
466 !         \Soul@addtoken{\noexpand#1\noexpand#2\noexpand#3}}%
467 +         \Soul@addtoken{\etex@unexpanded{#1#2#3}}}%
468       }%
469     \fi
470   \fi
471   \Soul@next
472 }

```

**\Soul@addfouroctets**

```

473 \def\Soul@addfouroctets#1#2#3#4{%
474 ! \Soul@addtoken{\noexpand#1\noexpand#2\noexpand#3\noexpand#4}}%
475 + \Soul@addtoken{\etex@unexpanded{#1#2#3#4}}}%
476 }

```

## 2.7.1 Redefinition of \Soul@splittoken

**\Soul@splittoken** Macro **\Soul@splittoken** separates the first token or token group from a word and redefines the word to contain the remaining tokens. However if the remaining tokens are a token group, then the curly braces will be removed and the token group is splitted by the next call of **\Soul@splittoken**. The redefinition avoids the removal of curly braces around the remaining tokens.

```

477 \Soul@redefine\Soul@splittoken#1#2\Soul@stop{%
478   \global\Soul@token={#1}%
479   \global\Soul@word={#2}%
480 }#1{%
481   \global\Soul@token={#1}%
482   \Soul@remainingtoken\relax
483 }

```

**\Soul@remainingtoken**

```

484 \def\Soul@remainingtoken#1\Soul@stop{%
485   \global\Soul@word=\expandafter{\@gobble#1}%
486 }

```

## 2.8 Patches

The fixed `\SOUL@splittoken` allows to remove the double sets of curly braces in other macros of package `soul`. The benefit is that implicate kernings are more often detected and fixes a bug in package `soul`. The disadvantage is incompatibility. The width of the resulting strings may change.

`\SOUL@flushcomma`

```
487 \SOUL@redefine\SOUL@flushcomma{%
488   \ifcase\SOUL@comma
489   \or
490     \edef\x{\SOUL@word={\the\SOUL@word,}}\x
491   \or
492     \edef\x{\SOUL@word={\the\SOUL@word{,,}}}\x
493   \fi
494   \SOUL@comma\z@
495 }{%
496   \ifcase\SOUL@comma
497   \or
498     \edef\x{\SOUL@word={\the\SOUL@word,}}\x
499   \or
500     \edef\x{\SOUL@word={\the\SOUL@word{,,}}}\x
501   \fi
502   \SOUL@comma\z@
503 }
```

`\SOUL@flushapo`

```
504 \SOUL@redefine\SOUL@flushapo{%
505   \ifcase\SOUL@apo
506   \or
507     \edef\x{\SOUL@word={\the\SOUL@word'}}\x
508   \or
509     \edef\x{\SOUL@word={\the\SOUL@word{' '}}}\x
510   \fi
511   \SOUL@apo\z@
512 }{%
513   \ifcase\SOUL@apo
514   \or
515     \edef\x{\SOUL@word={\the\SOUL@word'}}\x
516   \or
517     \edef\x{\SOUL@word={\the\SOUL@word{' '}}}\x
518   \fi
519   \SOUL@apo\z@
520 }
```

`\SOUL@flushgrave`

```
521 \SOUL@redefine\SOUL@flushgrave{%
522   \ifcase\SOUL@grave
523   \or
524     \edef\x{\SOUL@word={\the\SOUL@word'}}\x
525   \or
526     \edef\x{\SOUL@word={\the\SOUL@word{' '}}}\x
527   \fi
528   \SOUL@grave\z@
529 }{%
530   \ifcase\SOUL@grave
531   \or
532     \edef\x{\SOUL@word={\the\SOUL@word'}}\x
533   \or
534     \edef\x{\SOUL@word={\the\SOUL@word{' '}}}\x
535   \fi
536   \SOUL@grave\z@
537 }
```

\SOUL@addgroup

```

538 \SOUL@redefine\SOUL@addgroup#1#2{%
539   {%
540     \let\protect\noexpand
541     \edef\x{%
542       \global\SOUL@word={%
543         \the\SOUL@word
544         {\noexpand#1#2}}}%
545     }%
546   }%
547   \x
548 }%
549 \SOUL@scan
550 }#1#2{%
551   \begingroup
552   \let\protect\noexpand
553   \edef\x{\endgroup
554     \SOUL@word={%
555       \the\SOUL@word
556       {\noexpand#1{#2}}}%
557   +   {\etex@unexpanded{#1{#2}}}}%
558   }%
559 }%
560 \x
561 \SOUL@scan
562 }

```

\SOUL@addmath

```

563 \SOUL@redefine\SOUL@addmath$#1${%
564   {%
565     \let\protect\noexpand
566     \edef\x{%
567       \global\SOUL@word={%
568         \the\SOUL@word
569         {\hbox{ $#1$ }}}%
570     }%
571   }%
572   \x
573 }%
574 \SOUL@scan
575 }$#1${%
576   \begingroup
577   \let\protect\noexpand
578   \edef\x{\endgroup
579     \SOUL@word={%
580       \the\SOUL@word
581       {\hbox{ $#1$ }}}%
582   +   {\etex@unexpanded{\hbox{ $#1$ }}}%
583   }%
584 }%
585 \x
586 \SOUL@scan
587 }

```

\SOUL@addprotect

```

588 \SOUL@redefine\SOUL@addprotect#1#2{%
589   {%
590     \let\protect\noexpand
591     \edef\x{%
592       \global\SOUL@word={%
593         \the\SOUL@word
594         {\hbox{ #2 }}}%

```

```

595     }%
596   }%
597   \x
598 }%
599 \SOUL@scan
600 }#1#2{%
601   \begingroup
602     \let\protect\noexpand
603     \edef\x{\endgroup
604       \SOUL@word={%
605         \the\SOUL@word
606 !       {\hbox{#2}}}%
607 +       {\etex@unexpanded{\hbox{#2}}}}%
608     }%
609   }%
610   \x
611   \SOUL@scan
612 }

```

\SOUL@addtoken

```

613 + \SOUL@redefine\SOUL@addtoken#1{%
614 +   \edef\x{%
615 +     \SOUL@word={%
616 +       \the\SOUL@word
617 +       \noexpand#1%
618 +     }%
619 +   }%
620 +   \x
621 +   \SOUL@scan
622 + }#1{%
623 +   \edef\x{%
624 +     \SOUL@word={%
625 +       \the\SOUL@word
626 +       \etex@unexpanded{#1}%
627 +     }%
628 +   }%
629 +   \x
630 +   \SOUL@scan
631 + }%

632 \SOUL@AtEnd
633 </package>

```

## 3 Test

### 3.1 Catcode checks for loading

```

634 <*test1>
635 \catcode'\{=1 %
636 \catcode'\}=2 %
637 \catcode'\#=6 %
638 \catcode'\@=11 %
639 \expandafter\ifx\csname count@\endcsname\relax
640 \countdef\count@=255 %
641 \fi
642 \expandafter\ifx\csname @gobble\endcsname\relax
643 \long\def@gobble#1{%
644 \fi
645 \expandafter\ifx\csname @firstofone\endcsname\relax
646 \long\def@firstofone#1{#1}%
647 \fi

```

```

648 \expandafter\ifx\csname loop\endcsname\relax
649 \expandafter\@firstofone
650 \else
651 \expandafter\@gobble
652 \fi
653 {%
654 \def\loop#1\repeat{%
655 \def\body{#1}%
656 \iterate
657 }%
658 \def\iterate{%
659 \body
660 \let\next\iterate
661 \else
662 \let\next\relax
663 \fi
664 \next
665 }%
666 \let\repeat=\fi
667 }%
668 \def\RestoreCatcodes{}
669 \count@=0 %
670 \loop
671 \edef\RestoreCatcodes{%
672 \RestoreCatcodes
673 \catcode\the\count@=\the\catcode\count@\relax
674 }%
675 \ifnum\count@<255 %
676 \advance\count@ 1 %
677 \repeat
678
679 \def\RangeCatcodeInvalid#1#2{%
680 \count@=#1\relax
681 \loop
682 \catcode\count@=15 %
683 \ifnum\count@<#2\relax
684 \advance\count@ 1 %
685 \repeat
686 }
687 \expandafter\ifx\csname LoadCommand\endcsname\relax
688 \def\LoadCommand{\input soulutf8.sty\relax}%
689 \fi
690 \def\Test{%
691 \RangeCatcodeInvalid{0}{47}%
692 \RangeCatcodeInvalid{58}{64}%
693 \RangeCatcodeInvalid{91}{96}%
694 \RangeCatcodeInvalid{123}{255}%
695 \catcode'\@=12 %
696 \catcode'\=0 %
697 \catcode'\{=1 %
698 \catcode'\}=2 %
699 \catcode'\#=6 %
700 \catcode'\[=12 %
701 \catcode'\]=12 %
702 \catcode'\%=14 %
703 \catcode'\ =10 %
704 \catcode13=5 %
705 \LoadCommand
706 \RestoreCatcodes
707 }
708 \Test
709 \csname @@end\endcsname

```

```

710 \end
711 </test1>

```

### 3.2 L<sup>A</sup>T<sub>E</sub>X tests

```

712 <*test2 | test3 | test4 | test5>
713 <noetex> \let \unexpanded \UNDEFINED
714 \NeedsTeXFormat{LaTeX2e}
715 \documentclass{article}
716 \usepackage[T1]{fontenc}
717 \usepackage{lmodern}
718 \usepackage{textcomp}
719 \usepackage[ngerman]{babel}
720 \expandafter\def\csname ver@hypdestopt.sty\endcsname{}
721 \usepackage[unicode]{hyperref}
722 \usepackage{bookmark}
723 \usepackage{color}
724 \usepackage{soul}[2003/11/17]
725 \makeatletter
726 \newcommand*{\@ifDefined}[1]{%
727   \@ifundefined{#1}{%
728     \latexerror{%
729       \expandafter\noexpand\csname#1\endcsname undefined%
730     }\@ehc
731   }%
732 }
733 \newcommand*{\SaveOrg}[1]{%
734   \@ifdefinable{ORG@SOUL@#1}{%
735     \@ifDefined{SOUL@#1}{%
736       \expandafter\let\csname ORG@SOUL@#1\expandafter\endcsname
737         \csname SOUL@#1\endcsname
738     }%
739   }%
740 }
741 \newcommand*{\RestoreOrg}[1]{%
742   \@ifDefined{ORG@SOUL@#1}{%
743     \@ifDefined{SOUL@#1}{%
744       \expandafter\let\csname SOUL@#1\expandafter\endcsname
745         \csname ORG@SOUL@#1\endcsname
746     }%
747   }%
748 }
749 \makeatother
750 \SaveOrg{eval}
751 \SaveOrg{splittoken}
752 \SaveOrg{flushcomma}
753 \SaveOrg{flushapo}
754 \SaveOrg{grave}
755 \SaveOrg{addgroup}
756 \SaveOrg{addmath}
757 \SaveOrg{addprotect}
758 \SaveOrg{addtoken}
759 \usepackage{soulutf8}[2007/09/09]

```

Input encoding utf8.

```

760 <*utf8>
761 \usepackage[utf8]{inputenc}
762 \DeclareUnicodeCharacter{00A0}{\nobreakspace}
763 </utf8>

```

Input encoding utf8x. Package ucs has a nasty bug, that it redefines \show.

```

764 <*utf8x>
765 \let\origshow\show
766 \usepackage[utf8x]{inputenc}

```



```

767 \AtBeginDocument{%
768   \let\show\origshow
769 }
770 </utf8x>

```

### 3.2.1 Driver definitions

```

771 \makeatletter

```

\an The definition for \an is taken from the documentation of package soul.

```

772 \DeclareRobustCommand*\an{%
773   \def\Soul@preamble{$\sim$P}%
774   \def\Soul@everyspace##1{##1\texttt{\char'\linebreak[2]}}%
775   \def\Soul@postamble{$\sim$E}%
776   \def\Soul@everyhyphen{$\sim$}\linebreak[1]}%
777   \def\Soul@everyexhyphen##1{##1$\sim$}%
778   \def\Soul@everysyllable{$\sim$S}%
779   \def\Soul@everytoken{\the\Soul@token$\sim$T}%
780   \def\Soul@everylowerthan{$\sim$L}%
781   \Soul@
782 }

```

\sy The definition for \sy is taken from the documentation of package soul.

```

783 \DeclareRobustCommand*\sy{%
784   \Soul@setup
785   \def\Soul@preamble{%
786     \lefthyphenmin=\z@
787     \righthyphenmin=\z@
788   }%
789   \def\Soul@everyspace##1{##1\space}%
790   \def\Soul@everysyllable{\the\Soul@syllable}%
791   \def\Soul@everyhyphen{%
792     \discretionary{%
793       \Soul@setkern\Soul@hyphkern
794       \Soul@sethyphenchar
795     }{}%
796     \hbox{\kern1pt$\cdot$}%
797   }%
798   \def\Soul@everyexhyphen##1{%
799     \Soul@setkern\Soul@hyphkern
800     \hbox{##1}%
801     \discretionary{}{}%
802     \Soul@setkern\Soul@charkern
803   }%
804   \def\Soul@
805 }
806 \Soul@
807 }

```

\soulH

```

808 \DeclareRobustCommand*\soulH{%
809   \def\Soul@preamble{%
810     \gdef\SoulH{}%
811     \soulHadd{}%
812   }%
813   \def\Soul@everyspace##1{%
814     \soulHadd{Sp}%
815   }%
816   \def\Soul@postamble{%
817     \soulHadd{}}%
818   \def\Soul@everyhyphen{%
819     \soulHadd{Hy}%
820

```

```

821 }%
822 \def\SOUL@everyexhyphen##1{%
823   \soulHadd{Exhy}%
824 }%
825 \def\SOUL@everysyllable{%
826   \soulHadd{Sy}%
827 }%
828 \def\SOUL@everytoken{%
829   \soulHadd{T}%
830 }%
831 \def\SOUL@everylowerthan{%
832   \soulHadd{<}%
833 }%
834 \SOUL@
835 }
836 \newcommand*{\soulHadd}[1]{%
837   #1%
838   \expandafter\gdef\expandafter\soulHstring\expandafter{%
839     \soulHstring
840     #1%
841   }%
842 }

```

### 3.2.2 Test macros

```

843 \usepackage{qstest}
844 \IncludeTests{*}
845 \LogTests{log}{*}{*}

846 \newsavebox\boxA
847 \newsavebox\boxB
848 \newsavebox\boxC

\TestDriver

849 \newcommand*{\TestDriver}[4]{%
850   \subsection{Driver #1}%
851   \@PackageInfo{soulutf8-test}{* Driver #1}%
852   \expandafter\let\expandafter\testdriver\csname #1\endcsname
853   \def\teststringA{#3}%
854   \def\teststringB{#4}%
855   \begin{qstest}{string-#2-driver-#1}{string,#2,driver,#1}%
856     \@PackageInfo{soulutf8-test}{* Version: soulutf8}%
857     \global\let\soulHstring\@empty
858     \setbox0=\hbox{\expandafter\testdriver\expandafter{\teststringA}}%
859     \let\HstringA\soulHstring
860     \SetTestVBox{\boxA}{\teststringA}%
861     %
862     \@PackageInfo{soulutf8-test}{* Version: soul + patch}%
863     \global\let\soulHstring\@empty
864     \RestoreOrg{eval}%
865     \setbox2=\hbox{\expandafter\testdriver\expandafter{\teststringB}}%
866     \let\HstringB\soulHstring
867     \SetTestVBox{\boxB}{\teststringB}%
868     %
869     \@PackageInfo{soulutf8-test}{* Version: original soul}%
870     \global\let\soulHstring\@empty
871     \RestoreOrg{splittoken}%
872     \RestoreOrg{flushcomma}%
873     \RestoreOrg{flushapo}%
874     \RestoreOrg{grave}%
875     \RestoreOrg{addgroup}%
876     \RestoreOrg{addmath}%
877     \RestoreOrg{addprotect}%

```

```

878 \RestoreOrg{addtoken}%
879 \setbox4=\hbox{\expandafter\testdriver\expandafter{\teststringB}}%
880 \let\HstringC\soulHstring
881 \SetTestVBox{\boxC}{\teststringB}%
882 %
883 \TestInfo{0}{soulutf8}%
884 \TestInfo{2}{soul + patch}%
885 \TestInfo{4}{original soul}%
886 \TestInfoVBox
887 \showboxdepth=\maxdimen
888 \showboxbreadth=\maxdimen
889 \tracingonline=@ne
890 \Expect*{\HstringA}*{\HstringB}%
891 \Expect*{\HstringA}*{\HstringC}%
892 \Expect*{\the\wd0}*{\the\wd2}%
893 \ifdim\wd0=\wd2 %
894 \else
895 \showbox0 %
896 \showbox2 %
897 \fi
898 \Expect*{\the\ht0}*{\the\ht2}%
899 \Expect*{\the\dp0}*{\the\dp2}%
900 \Expect*{\the\wd\boxB}*{\the\wd\boxA}%
901 \Expect*{\the\wd\boxC}*{\the\wd\boxA}%
902 \Expect*{\the\ht\boxB}*{\the\ht\boxA}%
903 \ifdim\ht\boxB=\ht\boxA
904 \else
905 \showbox\boxA
906 \showbox\boxB
907 \fi
908 \Expect*{\the\ht\boxC}*{\the\ht\boxA}%
909 \Expect*{\the\dp\boxB}*{\the\dp\boxA}%
910 \Expect*{\the\dp\boxC}*{\the\dp\boxA}%
911 \end{qstest}%
912 }

```

\SetTestVBox

```

913 \newcommand*{\SetTestVBox}[2]{%
914 \setbox#1=\vbox{%
915 \hsize=0pt\relax
916 \hfuzz=100mm\relax
917 \expandafter\testdriver\expandafter{#2}%
918 }%
919 }

```

\TestInfo

```

920 \newcommand*{\TestInfo}[2]{%
921 \par
922 \noindent
923 \copy#1\relax
924 \hfill
925 \begin{group}
926 \small
927 \ifdim\wd0=\wd2\relax
928 \ifdim\wd0=\wd4\relax
929 \else
930 \ifnum#1=2 %
931 \raisebox{.5\baselineskip}[0pt][0pt]{%
932 \llap{$\}$}%
933 \rlap{width = \the\wd#1\relax\space$\}$}%
934 \phantom{width = 999.99999pt}%
935 \qqquad

```

```

936         }%
937     \else
938         \ifnum#1=4 %
939             \rlap{width = \the\wd#1}%
940             \phantom{width = 999.99999pt}%
941             \qqquad
942         \fi
943     \fi
944 \fi
945 \else
946     \begingroup
947     \bfseries
948     \rlap{width = \the\wd#1}%
949     \phantom{width = 999.99999pt}%
950 \endgroup
951 \qqquad
952 \fi
953 \rlap{(#2)}%
954 \phantom{(original soul)}%
955 \endgroup
956 \par
957 }

```

\TestInfoVBox

```

958 \newcommand*{\TestInfoVBox}{%
959     \par
960     \noindent
961     \mbox{\vrule\relax\space\copy\boxA}%
962     \ifdim\ht\boxA=\ht\boxB
963     \else
964         \hfill
965         \begingroup
966         \small
967         \rlap{(soulutf8)}%
968         \phantom{(soulutf8)}%
969     \endgroup
970     \par
971     \noindent
972     \mbox{\vrule\relax\space\copy\boxB}%
973     \hfill
974     \begingroup
975     \small
976     \rlap{(soul)}%
977     \phantom{(soulutf8)}%
978     \endgroup
979 \fi
980 \par
981 }

```

\Test

```

982 \makeatletter
983 \newcommand*{\Test}[3]{%
984     \clearpage
985     \begingroup
986     \def\linebreak{\textbackslash linebreak }%
987     \def\{\textbackslash\textbackslash}%
988     \def\soulomit##1{%
989         \textbackslash soulomit\textbraceleft##1\textbraceright
990     }%
991     \def\mbox##1{%
992         \textbackslash mbox\textbraceleft##1\textbraceright
993     }%

```

```

994 \def\abc{\textbackslash abc }%
995 \def\textttt##1{%
996 \textbackslash texttt\textbraceleft##1\textbraceright
997 }%
998 \def\c##1{%
999 \textbackslash c\textbraceleft##1\textbraceright
1000 }%
1001 <utf8x>
1002 \count@=128 %
1003 \loop
1004 \ifnum\count@<256 %
1005 \lccode'\~=\count@
1006 \lowercase{%
1007 \def~{\noexpand~}%
1008 }%
1009 \advance\count@\@ne
1010 \repeat
1011 </utf8x>
1012 \csname protected@edef\endcsname\x{\endgroup
1013 \noexpand\section{String #1: #2}%
1014 }%
1015 \x
1016 \TestDriver{so}{#1}{#2}{#3}%
1017 \TestDriver{caps}{#1}{#2}{#3}%
1018 \TestDriver{ul}{#1}{#2}{#3}%
1019 \TestDriver{st}{#1}{#2}{#3}%
1020 \TestDriver{hl}{#1}{#2}{#3}%
1021 \TestDriver{an}{#1}{#2}{#3}%
1022 \TestDriver{sy}{#1}{#2}{#3}%
1023 \TestDriver{soulH}{#1}{#2}{#3}%
1024 }
1025 \makeatother

```

### 3.2.3 Testing

```

1026 \begin{document}
1027 \Test A{}{}%
1028 \Test B{Hello World}{Hello World}%
1029 \Test C{%
1030 Umlauts: ^^c3^^84^^c3^^96^^c3^^9c^^c3^^a4^^c3^^b6^^c3^^bc^^c3^^9f%
1031 }{%
1032 Umlauts: \"A\"O\"U\"a\"o\"u\"ss
1033 }%
1034 \Test D{Euro: ^^e2^^82^^ac}{Euro: \texteuro}%
1035 \Test E{Stra^^c3^^9fe}{Stra\ss e}%
1036 \Test F{R^^c3^^b6mer}{R\"omer}%
1037 \Test G{A^^e2^^80^^93B^^e2^^80^^94C}{A--B---C}%
1038 \Test H{X^^c2^^a0Y}{X~Y}%
1039 \Test I{A^^c5^^a4}{A\v T}%
1040 \Test J{A,B,,C,,,D,,,E}{A,B,,C,,,D,,,E}%
1041 \Test K{A'B'C''D'''E}{A'B'C''D'''E}%
1042 \Test L{A'B'C'C'D''E}{A'B'C'C'D''E}%
1043 \Test M{A$x$B}{A$x$B}%
1044 \Test N{A\mbox{abc}B}{A\mbox{abc}B}%
1045 \Test O{, ,TA''}{, ,TA''}%
1046 \Test P{{!'}Hola{?'}}{{!'}Hola{?'}}%
1047 \Test Q{re-sent\slash x}{re-sent\slash x}%
1048 \Test R{new\\line}{new\\line}%
1049 \Test S{foo\linebreak bar}{foo\linebreak bar}%
1050 \Test T{Virchow{sche}}{Virchow{sche}}%
1051 \Test U{A\soulomit{foo}B}{A\soulomit{foo}B}%
1052 \Test V{A\texttt{xyz}B}{A\texttt{xyz}B}%
1053 \Test W{ffi}{ffi}%

```

```

1054 \Test X{f{}f{}i}{f{}f{}i}%
1055 \Test Y{f\mbox{}f\mbox{}i}{f\mbox{}f\mbox{}i}%
1056 \Test Z{c{"a"}{c{"a"}}}%
1057 <*test2 | test3>
1058 \let\abcx\UNDEFINED
1059 \def\abc{%
1060     \begingroup
1061         \def\abcx{x}%
1062         \abcx
1063     \endgroup
1064 }%
1065 \Test{AA}{[{x\abc x}]{[{xxx}]}}%
1066 </test2 | test3>
1067 \end{document}
1068 </test2 | test3 | test4 | test5>

```

## 4 Installation

### 4.1 Download

**Package.** This package is available on CTAN<sup>1</sup>:

[CTAN:macros/latex/contrib/oberdiek/soulutf8.dtx](#) The source file.

[CTAN:macros/latex/contrib/oberdiek/soulutf8.pdf](#) Documentation.

**Bundle.** All the packages of the bundle ‘oberdiek’ are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

[CTAN:install/macros/latex/contrib/oberdiek.tds.zip](#)

*TDS* refers to the standard “A Directory Structure for  $\TeX$  Files” ([CTAN:tds/tds.pdf](#)). Directories with `texmf` in their name are usually organized this way.

### 4.2 Bundle installation

**Unpacking.** Unpack the `oberdiek.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip oberdiek.tds.zip -d ~/texmf
```

**Script installation.** Check the directory `TDS:scripts/oberdiek/` for scripts that need further installation steps. Package `attachfile2` comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

```

chmod +x scripts/oberdiek/pdfatfi.pl
cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/

```

### 4.3 Package installation

**Unpacking.** The `.dtx` file is a self-extracting docstrip archive. The files are extracted by running the `.dtx` through plain- $\TeX$ :

```
tex soulutf8.dtx
```

---

<sup>1</sup><http://ftp.ctan.org/tex-archive/>

**TDS.** Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

```
soulutf8.sty      → tex/generic/oberdiek/soulutf8.sty
soulutf8.pdf      → doc/latex/oberdiek/soulutf8.pdf
test/soulutf8-test1.tex → doc/latex/oberdiek/test/soulutf8-test1.tex
test/soulutf8-test2.tex → doc/latex/oberdiek/test/soulutf8-test2.tex
test/soulutf8-test3.tex → doc/latex/oberdiek/test/soulutf8-test3.tex
test/soulutf8-test4.tex → doc/latex/oberdiek/test/soulutf8-test4.tex
test/soulutf8-test5.tex → doc/latex/oberdiek/test/soulutf8-test5.tex
soulutf8.dtx      → source/latex/oberdiek/soulutf8.dtx
```

If you have a `docstrip.cfg` that configures and enables `docstrip`'s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

## 4.4 Refresh file name databases

If your  $\text{\TeX}$  distribution (te $\text{\TeX}$ , mi $\text{\TeX}$ , ...) relies on file name databases, you must refresh these. For example, te $\text{\TeX}$  users run `texhash` or `mktextlsr`.

## 4.5 Some details for the interested

**Attached source.** The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is `pdftk`, e.g. unpack the file into the current directory:

```
pdftk soulutf8.pdf unpack_files output .
```

**Unpacking with  $\text{\LaTeX}$ .** The `.dtx` chooses its action depending on the format:

**plain- $\text{\TeX}$ :** Run `docstrip` and extract the files.

**$\text{\LaTeX}$ :** Generate the documentation.

If you insist on using  $\text{\LaTeX}$  for `docstrip` (really, `docstrip` does not need  $\text{\LaTeX}$ ), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{soulutf8.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

**Generating the documentation.** You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with pdf $\text{\LaTeX}$ :

```
pdflatex soulutf8.dtx
makeindex -s gind.ist soulutf8.idx
pdflatex soulutf8.dtx
makeindex -s gind.ist soulutf8.idx
pdflatex soulutf8.dtx
```

## 5 References

- [1] Melchior Franz: *The soul package*; 2003/11/17;  
CTAN:macros/latex/contrib/soul/.
- [2] Dominique P. G. Unruh: *ucs.sty – Unicode Support*; 2004/10/17;  
CTAN:macros/latex/contrib/unicode/.
- [3] Frank Mittelbach, Chris Rowley: *Providing some UTF-8 support via inputenc*;  
2006/03/30;  
CTAN:macros/latex/base/utf8inc.dtx.

## 6 History

[2007/09/09 v1.0]

- First version.

## 7 Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in *roman* refer to the code lines where the entry is used.

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