

How to create an i-mode site



Version 1.1 – 15-04-2002





Table of Contents

Table of Contents	3
Introduction.....	5
Audience	5
Layout of this document	5
Revision history	5
What is i-mode?.....	6
Considerations	7
Screen size	7
Fonts	7
Color support	7
Memory	8
Navigational possibilities	8
Images	8
HTTP.....	9
User-Agent HTTP header	11
Tag Reference	12
DOCTYPE declaration	12
Comment tag	13
Entities	13
A Tag	14
BASE Tag	16
BLINK Tag.....	17
BLOCKQUOTE Tag	17
BODY Tag	17
BR Tag.....	18
CENTER Tag.....	18
DIR Tag.....	19
DIV Tag.....	19
DL, DT, DD Tag.....	19
FONT Tag.....	20
FORM Tag.....	21
H1 - H6 Tags.....	21
HEAD Tag.....	22
HR Tag.....	22
HTML Tag	23
IMG Tag.....	23
INPUT Tag	24
LI Tag	26
MARQUEE Tag.....	27
MENU Tag.....	28
META Tag.....	29



OL Tag.....	29
OPTION Tag.....	30
P Tag.....	31
PLAINTEXT Tag.....	31
PRE Tag	31
SELECT Tag.....	32
TEXTAREA Tag.....	32
TITLE Tag	33
UL Tag	33
Tips & Tricks.....	35
Appendix 1: Color palette	39
Appendix 2: Emoji icons	41



Introduction

This document describes the steps necessary to build your own i-mode website. Building an i-mode site is easy. Just create a website that uses Compact HTML (cHTML) and publish your site on the internet. This document helps you develop your own i-mode site by presenting the topics you should be aware of when developing for a mobile device and contains a cHTML tag reference.

Audience

The audience for this document is anyone who wants to build an i-mode site. It is assumed this person has a basic understanding of HTML and the HTTP protocol and other internet related technologies.

Layout of this document

First some considerations are mentioned when developing an i-mode site. Next, the cHTML tag reference is presented. The document concludes with a few appendices.

Revision history

Below is the revision history of this document:

Version	Date	Author	Comments
1.0	03-04-2002	JvV	Initial release
.1	11-04-2002	JvV	Added revision history; added Tips & Tricks; i-mode branded; added chapter about character entities; fixed typos

i-mode and the i-mode logo are registered trademarks of NTT DoCoMo, Inc. in Japan and other countries.



What is i-mode?

From a mobile phone used only for talking to a mobile phone you can actually use, i-mode has changed the fundamentals of mobile phone use. With an i-mode phone, you can get information from i-mode sites and Internet sites that are i-mode compatible, and you can exchange i-mode mail. Simple operation, inexpensive charges and no longer only in Japan, but also in Europe. KPN Mobile has started with i-mode in Germany (E-Plus), The Netherlands and Belgium (Base) in the first half of 2002.

Every country has an i-mode portal which lists sites of official content providers. However, you can also create an i-mode site without becoming an official KPN partner. Any site on the internet, written in cHTML can be viewed on an i-mode handset.

The cHTML specification has been submitted to the World Wide Web Consortium (W3C) and can be found at <http://www.w3.org/TR/1998/NOTE-compactHTML-19980209>.



Considerations

Developing an i-mode site is easy. However, it is not the same as developing a site for the World-Wide Web. When creating an i-mode website, you might want to take the following into account:

An i-mode handset has

- A small screen
- Limited colors
- Limited memory
- Limited navigational options

Screen size

Below is a table with minimal and typical handset screen sizes:

Display	Minimal (pixels)	Typical (pixels)
Display area	120 x 128	120 x 160
Welcome, Goodbye and screensaver size ¹	< 120 x 128	120 x 130
Idle screen size (includes network information)	< 120 x 128	120 x 110

Fonts

Most handsets have only one single 6 x 12 pixels proportional font. This results in 10 (double-byte) to 20 (single-byte) characters on 7 to 9 lines. Hence bold, italic and headings can not be used on an average handset. The character set available in the handset is Windows codepage 1252.

An i-mode handset has a set of emoji characters, which are small icons (12 x 12 pixels) that can be used to enhance your i-mode site, without using a lot of additional bandwidth. A complete list of all emoji icons is presented in Appendix 2: Emoji icons.

Color support

One of the key differences with older mobile phones is of course the support of color screens. Current i-mode handsets support 256 colors, but future handsets might support more (4096). A complete list of all supported colors can be found in Appendix 1: Color palette.

¹ Screen saver and idle screen sizes are smaller, because of status indicators (battery status, e-mail and SMS notifications and network status), and labels for softkeys.



Memory

i-mode handsets have only a limited amount of memory. This implies that pages should be no bigger than 10 kB maximum (including HTML and all images). This also applies to ringtones. Preferably you should limit yourself to 5 kB total and 2 kB images to keep your site responsive and data traffic (and costs for a user) to a minimum.

Navigational possibilities

As an i-mode handset only has a small screen and only a few options to provide user input, you should carefully plan how you want a user to navigate through your i-mode site. Some quick wins are:

- Use accesskeys to speed up the following of a link
- Limit the number of menu items in one screen
- If for example you would like to input the name of a city, have a user only type in the first few characters and present a pulldown box with all cities whose name starts with those letters.

Images

The first i-mode handsets support standard GIF and WBMP images. It does not support JPEG images.

Supported image formats are:

- GIF87
- Interlaced GIF89a
- Animated GIF
- Transparent GIF
- Wireless Bitmap (WBMP)



HTTP

The handset communicates with the i-mode gateway with the HyperText Transfer Protocol (HTTP/1.1). The i-mode gateway communicates with the internet with a HTTP/1.0 / HTTP/1.1 protocol. An upgrade to a complete HTTP/1.1 implementation is scheduled. The only supported scheme is http, no https (secure http). The only supported methods are GET and POST. For a detailed description of the HTTP protocol refer to RFC 2068, available at <http://www.faqs.org/rfcs/rfc1738.html>

A basic HTTP request has the following layout:

```
METHOD url HTTP/version2  
Header1: Value12  
Header2: Value22  
2  
Request body
```

For example:

```
GET /index.jsp HTTP/1.12  
Host: i-mode.contentprovider.com2  
Accept: text/html, text/plain2  
2
```

Supported HTTP request headers are:

Header name	Description
Authorization	BASIC authentication
Host	Virtual host header
If-Modified-Since	For cache control
User-Agent	Name of handset
Accept ³	text/html, text/plain, image/gif, application/octet-stream (for MIDI ringtones) are understood; text/vnd.wap.wml, image/vnd.wap.wbmp for WAP content
Content-Type	application/x-www-form-urlencoded for POST requests

A basic HTTP response has the following format:

```
HTTP/version STATUSCODE MESSAGE2
```

² ² represents the carriage return / line-feed combination (ASCII codes 10 and 12).

³ Different software versions for the NEC N21i send different Accept HTTP header: especially the application/octet-stream and text/plain content types were added in recent software versions.



Header1: Value1
 Header2: Value2
 Body content

For example:

```
HTTP/1.1 200 OK
Date: Thu, 11 Apr 2002 12:13:28 GMT
Server: Apache/1.3.22 (Unix)
Connection: close
Content-Type: text/html
Content-Length: 94
<html>
<head>
<title>Hello, World</title>
</head>
<body>
Hello, World
</body>
</html>
```

For a list of complete status codes consult the HTTP/1.1 specification. The handset understands the following status codes:

Status code	Description
200	OK, normal response
301 and 302	Moved, use Location: HTTP header to indicate redirected URL. Note that this URL has to be a full URL.
304	Not Modified

Many other status codes, like 404 (Not Found) and 500 (Internal Server Error) will most of the time present an error page from the web server. You should optimize your error pages for i-mode.

Supported HTTP response headers are:

Header name	Description
Content-Length	Length of the response. Required for generated pages (e.g. CGI)
Content-Type	text/html, text/plain, image/gif, application/octet-stream



	(for MIDI ringtones) are understood; text/vnd.wap.wml, image/vnd.wap.wbmp for WAP content
Date	Date of response
Last-Modified	Last modification date
Location	Redirection URL for response statuses 301 and 302
WWW-Authenticate	For BASIC authentication

User-Agent HTTP header

A handset will send a User-Agent HTTP header indicating which mobile phone is accessing an i-mode website. This allows you to make maximum use of the possibilities of a handset by presenting the right content for this handset. The User-Agent header can be obtained through the HTTP_USER_AGENT CGI variable.

The User Agent string has the following structure:

portalmmm/1.0 <model>

Below is a table with User-Agent strings for current handsets:

Handset	Cache size (kB)	User Agent string
NEC N21i	10	portalmmm/1.0 n21i-10(c10)
Toshiba TS21i	10	portalmmm/1.0 TS21iC-NF+



Tag Reference

cHTML is a combination of tags from the HTML 1.0, 2.0 and 4.0 specifications with some "mobile" extensions. There are three different versions of cHTML (versions 1.0, 2.0 and 3.0). Below is a list of all supported tags for all handsets for cHTML versions 1.0 and 2.0. cHTML 3.0 is omitted from this list, as this specification adds support for Java in next generation handsets in Japan, which are not yet available in Europe.

Some (future) handsets might implement additional tags.

Tag names	
<!DOCTYPE>	<html>
<!-- -->	
<a>	<input>
<base>	
<blink>	<marquee>
<blockquote>	<menu>
<body>	<meta>
 	
<center>	<option>
<dir>	<p>
<div>	<plaintext>
<dl>, <dt>, <dd>	<pre>
	<select>
<form>	<textarea>
<h1> - <h6>	<title>
<head>	
<hr>	

Some of these tags have additional (i-mode) attributes which are listed below:

Tag name	Additional attribute name
a, input, textarea	accesskey
input type="text", textarea	istyle
a	cti

All tags and attributes are explained in more detail below

DOCTYPE declaration

The DOCTYPE declaration declares the type of HTML used.



Syntax:

```
<!DOCTYPE "-//W3C//DTD Compact HTML 1.0 Draft//EN">
```

Usage:

The DOCTYPE declaration should be at the start of every HTML document.

Comment tag

Comment tag

Syntax:

```
<!-- Your comments here -->
```

Usage:

Any comments that should not be rendered by the browser. Comments are not visible for the user. Do not use many comments in one page, as this will increase the size of the page.

Entities

Character entity references use symbolic names so that authors need not remember code positions. For example, the character entity reference `¨` refers to the lowercase "e" character topped with an umlaut; "`¨`" is easier to remember than `ë`.

If a "<" character is necessary you should use "`<`" (ASCII decimal 60) to avoid possible confusion with the beginning of a tag (start tag open delimiter). Similarly, use "`>`" (ASCII decimal 62) instead of ">" to avoid problems with older user agents that incorrectly perceive this as the end of a tag (tag close delimiter) when it appears in quoted attribute values.

Authors should use "`&`" (ASCII decimal 38) instead of "&" to avoid confusion with the beginning of a character reference (entity reference open delimiter). Authors should also use "`&`" in attribute values since character references are allowed within CDATA attribute values.

Some authors use the character entity reference "`"`" to encode instances of the double quote mark (") since that character may be used to delimit attribute values.

Entity	Character
<code>&#0;</code> - <code>&#127;</code>	Numeric references
<code>&amp;</code>	<code>&</code>
<code>&lt;</code>	<code><</code>
<code>&gt;</code>	<code>></code>



Entity	Character
®	®
©	©
"	"
 	(non-breakable space)

Handsets do implement other entity references as well. For a complete list refer to <http://www.w3.org/TR/html4/sgml/entities.html>.

Note:

Some handsets might not implement the **€** entity. Use **€** instead.

A Tag

The A tag presents a link to another page, for http: style anchors; presents a telephone number for tel: style anchors; and presents a mail form for mailto: anchors.

Attributes:

Attribute	Description
accesskey	0 1 2 3 4 5 6 7 8 9 * # - The shortcut key
cti	Since cHTML 2.0, indicates telephone number
href	URL to jump to (http:), telephone number to dial (tel:), or e-mail to send (mailto:)
name	Indicate URL marker

Usage:

For normal linking from one page to the other use the href attribute with a http: URL. For dialing a number use the tel: protocol, for sending mail use the mailto: protocol.

The cti attribute has been added in cHTML 2.0. It has precedence over the href attribute. It allows tone dialing with additional pauses and input after the call has started. This functionality can e.g. be used to communicate with Intelligent Voice Response (IVR) systems.

Using an emoji icon in front of a link with an accesskey is a convenient way to quickly navigate through an i-mode site. The appendix contains a list of all emoji characters.

Note:

- When the href attribute is empty (), the URL indicated by the base tag will be followed. If no base tag has been specified, the current page will be reloaded.



- When using accesskeys note that some handsets do not support # and *, only 0 to 9.
- The maximum size of a telephone number is 24 digits.
- Always use an international format for telephone numbers to support roaming, e.g. +31201234567.
- When using the cti attribute you should note the following:
 - In models that support this function, the cti attribute takes precedence over the href attribute. Models that do not support this tag will not understand the cti attribute and will therefore use the href attribute.
 - The telephone number is dialed and as soon as the receiving end picks up, the function will be paused.
 - After the "confirm" button has been pressed, tone input will begin.
 - The cti attribute has a maximum size of 128 bytes
 - The "tel:" prefix is not necessary in front of the telephone number.
 - Use the following characters in the cti attribute:

Digit	Description
0 – 9 * #	Will transmit this digit or tone
,	Wait for 1 second
/	Pause, wait for key input. Pause cannot be repeated
Other characters	Not used

Example:

The following example shows the use of a named anchor:

```
<html>
<head>
<title>A example</title>
</head>
<body>
<a href="#bottom">Goto bottom</a>
...
<a name="bottom">
Bottom of page
</body>
</html>
```

The following example shows the use of the accesskey attribute. The corresponding emoji icon is also shown.

```
&#59106; <a href="http://i-mode.contentprovider.com/index.jsp" accesskey="1">Home</a>
```

To send e-mail:



```
<a href="mailto:info@contentprovider.com?subject=This+is+a+subject&body=The+body">info@contentprovider.com</a>
```

To dial a number:

```
<a href="tel:+31201234567">020-1234567</a>
```

Use of cti attribute:

```
<a href="tel:+31201234567" cti="+31201234567/, ,12345#,678#">020-1234567</a>
```

This will result in the following:

- Will dial +31201234567.
- Will wait for key input once the receiving end picks up (user key input).
- After key input, will dial "12345#" after 2 seconds.
- Will dial "678#" after 1 second.

Handsets that do not support the cti attribute will only dial +31201234567.

BASE Tag

The BASE tag indicates a URL that is used as the base path for any relative URLs in the page.

Attributes:

Attribute	Description
href	Indicates the base URL

Usage:

The BASE tag is part of the HEAD of an HTML document.

Note:

- When the href attribute is empty in an A tag (), the URL indicated by the base tag will be followed. If no base tag has been specified, the current page will be reloaded.

Example:

```
<html>
<head>
<title>BASE example</title>
<base href="http://i-mode.contentprovider.com">
</head>
<body>
<!-- Image will be loaded relative from the BASE url -->

</body>
```




```
</html>
```

BLINK Tag

The text between the BLINK tags will be shown blinking.

Since:

cHTML 2.0

Example:

This text is `<blink>blinking</blink>`.

BLOCKQUOTE Tag

Text between BLOCKQUOTE tags will have a left and right indent of one full-width space.

Example:

```
<html>
<head>
<title>BLOCKQUOTE example</title>
</head>
<body>
Some text
<blockquote>This text is indented both left and
right</blockquote>
Some more text
</body>
</html>
```

BODY Tag

The BODY tag is the part of the HTML document that contains the content. An HTML document should always at least contain an HTML, HEAD and BODY element.

Attributes since cHTML 2.0:

Attribute	Description
bgcolor	The background color of the page
link	The link color of the page
text	The text color of the page

See Appendix 1: Color palette for colors in the i-mode palette.

Example:

```
<html>
<head>
```



```
<title>BODY example</title>
</head>
<body bgcolor="#000000" text="#ffffff">
Here is the body content
</body>
</html>
```

BR Tag

The BR (break) tag starts the text at the next line on the screen.

Attributes:

Attribute	Description
clear	left right all

Usage:

With the clear attribute, character string wraparound is canceled after the tag.

Example:

```
<html>
<head>
<title>BR example</title>
</head>
<body>
Small list:<br>
Item 1<br>
Item 2<br>
</body>
</html>
```

CENTER Tag

The text between the CENTER tags will be shown centered on the screen.

Example:

```
<html>
<head>
<title>CENTER example</title>
</head>
<body>
<center>company</center>
<p>
The services we provide are ...
</body>
</html>
```



DIR Tag

The DIR tag is used to create lists.

Syntax:

```
<dir>
<li>...</li>
...
</dir>
```

Example:

```
<html>
<head>
<title>DIR Example</title>
</head>
<body>
Cartoons
<dir>
<li>Cow & Chicken</li>
<li>Dexter</li>
<li>Tom & Jerry</li>
</dir>
</body>
</html>
```

DIV Tag

The DIV (Division) tag groups text and tags together.

Attributes:

Attribute	Description
align	left right all

Usage:

The align attribute indicates whether the text between the DIV tags should be left or right aligned or centered.

Example:

```
<div align="right">This text is right aligned</div>
```

DL, DT, DD Tag

These three tags are used for Definition Lists

Syntax:

```
<dl>
<dt>...</dt>
```



```
<dd>...</dd>
...
<dt>...</dt>
<dd>...</dd>
...
</dl>
```

Usage:

A Definition List starts with a DL tag, the Term to be defined is between DT tags and its definition between DD tags.

Example:

```
<html>
<head>
<title>DL DD DT Example</title>
</head>
<body>
List of National Parks:
<dl>
<dt>Hokkaido</dt>
<dd>Rishiri Rebun Sarobetsu</dd>
<dd>Shiretoko</dd>
<dd>Akan</dd>
<dd>Kushiro marsh</dd>
<dd>Daisetsuzan</dd>
<dd>Shikotsu Toya</dd>
<dt>Tohoku</dt>
<dd>Towada Hachiman</dd>
<dd>Rikuchu Kaigan</dd>
<dd>Bandai Asahi</dd>
</dl>
</body>
</html>
```

FONT Tag

The FONT tag changes the text color.

Since:

cHTML 2.0

Attributes:

Attribute	Description
color	Hexadecimal color code color name



Usage:

For the i-mode color palette see Appendix 1: Color palette. Use contrasting colors to be sure users can read your i-mode pages.

Example:

```
This text is <font color="#ff0000">red</font>
```

FORM Tag

The FORM tag is the parent for any fill-in form fields, like <INPUT> and <TEXTAREA>.

Attributes:

Attribute	Description
action	The URL to GET or POST to on submitting the form
method	GET POST

Usage:

As URLs on handsets cannot be any longer than approximately 200 characters, use the POST method for larger form inputs.

Example:

See examples for the SELECT and INPUT tags.

H1 - H6 Tags

The H1, H2, H3, H4, H5, H6 tags are header tags that will show the text between these tags in varying sizes, with H1 the biggest and H6 the smallest.

Attributes:

Attribute	Description
align	left center right

Usage:

The align attribute indicates whether the header should be aligned left or right, or centered.

Note:

- As most handsets have only one proportional font, the H1 to H6 tags have no effect on the font size.

Example:

```
<html>
<head>
<title>H1 - H6 example</title>
```



```
</head>
<body>
<h1 align="left">Left header</h1>
<h2 align="center">Centered header</h2>
<h3 align="right">Right header</h3>
...
</body>
</html>
```

HEAD Tag

The HEAD tag contains information about the HTML document.

Usage:

The HEAD tag should be the first child of the HTML root element. An HTML document should always at least contain an HTML, HEAD and BODY element.

Example:

```
<html>
<head>
<title>HEAD example</title>
</head>
<body>
...
</body>
</html>
```

HR Tag

Presents a Horizontal Ruler.

Attributes:

Attribute	Description
align	left right all
size	number of pixels, default 2
width	number of pixels or percentage, default entire screen width

Usage:

The HR tag presents a horizontal ruler with an alignment indicated by the align attribute, a size indicated by the size attribute and a width indicated by the width attribute.

Note:

- No 3D effects (shading) are available.



Example:

```
<html>
<head>
<title>HR example</title>
</head>
<body>
Some text
<hr align="left" size="2" width="50%">
Some text
<hr align="right" width="80">
Some text
</body>
</html>
```

HTML Tag

The root element of any HTML document. Required after the DOCTYPE definition.

Example:

```
<html>
<head>
<title>HTML example</title>
</head>
<body>
My first cHTML document.
</body>
</html>
```

IMG Tag

Loads an image from a URL.

Attributes:

Attribute	Description
align	left right all
alt	Alternative text
height	The height of the image in pixels
hspace	The width of the image in pixels
src	The URL of the image
vspace	The number of pixels to use as vertical spacing, default 0
width	The number of pixels to use as horizontal spacing, default 0

Usage:

The IMG tag loads an image in a supported format (GIF, WBMP) from a URL (src attribute). The align attribute indicates whether the image should be aligned left,



right or centered; the alt attribute indicates the alternative text to display if the image is not available; the width and height attributes denote the size of the image; the hspace and vspace attributes indicate the horizontal and vertical space respectively (in pixels) to reserve around the image.

Example:

```
<html>
<head>
<title>IMG example</title>
</head>
<body>

</body>
</html>
```

INPUT Tag

Various forms of input fields for use within a FORM.

Attributes:

Attribute	Description
accesskey	0 1 2 3 4 5 6 7 8 9 * # - The shortcut key
checked	If the value is selected for <input type="radio"> and <input type="checkbox">
istyle	1 2 3 4
maxlength	The maximum numbers of characters allowed to be input
name	The name of the input field
size	The size of the input field on the screen (in characters)
type	checkbox password radio submit text
value	The (initial, default) value for the input, for <input type="password">, <input type="submit"> and <input type="text">

Usage:

As with all input fields, INPUT tags should be contained within a FORM element.

For text inputs:

```
<input type="text" name="name" accesskey="accesskey"
istyle="istyle" maxlength="maxlength" size="size"
value="value">
```

Text input fields can have an istyle attribute that indicates the input mode for the field:



istyle	Description
1	Not used
2	Not used
3	Alphanumeric: Pressing the 2 repeatedly yields: a b c 2 ...
4	Numeric: Pressing the 2 repeatedly yields: 2222

For password fields:

```
<input type="password" name="name" accesskey="accesskey"
maxlength="maxlength" size="size" value="value">
```

The istyle attribute for password inputs is numeric (4) and cannot be changed, except for the NEC N21i. For this handset you should force the style to numeric.

For submit buttons:

```
<input type="submit" name="name" accesskey="accesskey"
value="value">
```

For reset buttons:

```
<input type="reset" name="name" accesskey="accesskey"
value="value">
```

For radio buttons:

```
<input type="radio" name="name" accesskey="accesskey"
value="value" [checked]>
```

For checkboxes:

```
<input type="checkbox" name="name" accesskey="accesskey"
value="value" [checked]>
```

Note:

- The maximum value of the size attribute is 14.
- The maximum value of the maxlength attribute is 256 for <input type="text"> and 14 for <input type="password"> and <input type="submit">.
- There can be no more than 40 radio buttons or checkboxes on one page.
- There can be no more than 30 submit buttons on one page.
- There can be no more than 30 <input type="text">, <input type="password"> and <textarea> tags combined on one page.
- There can be no more than 20 <input type="submit">, and other input tags combined on one page.



Example:

Text Input:

```
<input type="text" name="email" value="@imail.nl"
maxlength="50">
```

Tip: To limit the number of characters a user has to type in, fill in sensible default values.

Password Input:

```
<input type="password" name="pincode" maxlength="4"
size="4" istyle="4">
```

Tip: Limit password inputs to numeric only and indicate that a PIN code is required, rather than a password.

Radio Buttons:

```
Gender: <br>
<input type="radio" name="gender" value="M">Male<br>
<input type="radio" name="gender" value="F">Female<br>
```

LI Tag

Represents a List Item within an numbered (OL), unordered (UL) list, DIR or MENU list.

Syntax:

```
<ol>                                <dir>
<li>...</li>                        <li>...</li>
<li>...</li>                        <li>...</li>
...                                    ...
</ol>                                </dir>
```

or

or

```
<ul>                                <menu>
<li>...</li>                        <li>...</li>
<li>...</li>                        <li>...</li>
...                                    ...
</ul>                                </menu>
```

Attributes since cHTML 2.0:

Attribute	Description
type	1 a A, default 1
value	The number to start the list with, default 1



Usage:

The type and value attributes are only valid for Ordered Lists (OL tag). The type indicates whether numbers ("1"), lowercase letters ("a") or uppercase letters ("A") should be used. If letters are used, the value has to be "3" to start the list with "C" or "c".

Example:

```
<html>
<head>
<title>LI example</title>
</head>
<body>
Characters in Japanese fairy tales
<ol>
<li>Momotaro</li>
<li>Kintaro</li>
<li>Urashimataro</li>
<li>Issunboshi</li>
<li type="a">Orihime</li>
<li>Kaguyahime</li>
<li>Oyayubihime</li>
</ol>
</body>
</html>
```

MARQUEE Tag

Presents scrolling text.

Since:

cHTML 2.0

Attributes:

Attribute	Description
behavior	scroll slide alternate
direction	left right
loop	number of times

Usage:

The text between the MARQUEE tags will be scrolled loop number of times, in the direction specified by the direction attribute (left (default) meaning from right to left, right from left to right). Below is a table which specifies the behavior of the marquee:

Behavior	Description
----------	-------------



scroll	Default value: repeatedly move the character string across the screen in one direction.
slide	Stop the marquee when the last character appears on the screen.
alternate	Repeatedly change the direction of the move when the last character appears on the screen.

Note:

- The MARQUEE tag may not work properly if nested within other tags than the BODY tag.
- The maximum length of the text between the MARQUEE tag is 64 characters.
- Maximum four marquee tags can be used on one page
- When a MARQUEE tag is placed in a section of a page that falls outside the current display area, the tag remains inactive until the section comes into the display area.
- The scroll speed is fixed
- Only one line of text can be displayed

Example:

```
<html>
<head>
<title>MARQUEE example</title>
</head>
<body>
<marquee behavior="scroll" direction="left">
abcdefghijklmnop</marquee>
</body>
</html>
```

MENU Tag

The MENU tag is used to create a list.

Syntax:

```
<menu>
<li>...</li>
...
</menu>
```

Example:

```
<html>
<head>
<title>MENU example</title>
</head>
<body>
```



```
Services<br>
<menu>
<li>mobile banking</li>
<li>tour reservations</li>
<li>i-mode mail</li>
<li>other</li>
</menu>
</body>
</html>
```

META Tag

Contains META information about the document, like Content Type and character set information. Part of the HEAD of the HTML document.

Syntax:

```
<meta http-equiv="Content-Type"
content="text/html; charset=SHIFT_JIS">
```

Since:

cHTML 2.0

Attributes:

Attribute	Description
content	text/html; charset=SHIFT_JIS
http-equiv	Content-Type

Note:

- cHTML does not implement the http-equiv refresh method.

Example:

```
<html>
<head>
<title>META example</title>
<meta http-equiv="Content-Type"
content="text/html; charset=SHIFT_JIS">
</head>
<body>
...
</body>
</html>
```

OL Tag

Presents an numbered list. The items are aligned at the . (dot) after the number.



Syntax:

```

<ol>
<li>...</li>
<li>...</li>
...
</ol>

```

Attributes since cHTML 2.0:

Attribute	Description
start	Number to start the list with
type	1 a A

Usage:

The type indicates whether numbers ("1") (default), lowercase letters ("a") or uppercase letters ("A") should be used. The default value is "1". If letters are used, the value has to be "3" to start the list with "C" or "c".

Example:

See LI example.

OPTION Tag

Represents a single option within a <SELECT> in a <FORM>

Syntax:

```

<select>
<option value="..." [selected]>...</option>
<option value="..." [selected]>...</option>
...
</select>

```

Attributes:

Attribute	Description
value	The value of the item
selected	Whether the item is selected

Usage:

The value of the item is the value that will be transferred upon submitting the form.

Note:

- There can be no more than 31 options in a SELECT tag.
- The maximum length of the value attribute is 42 characters



Example:

See SELECT tag.

P Tag

Denotes a Paragraph.

Attributes:

Attribute	Description
align	left center right

Usage:

The align attribute indicates whether the text between the P tags should be left or right aligned or centered.

Example:

```
<p align="right">This text is right aligned</p>
```

PLAINTEXT Tag

Displays any HTML tags as-is.

Example:

```
<html>
<head>
<title>PLAINTEXT example</title>
</head>
<body>
<plaintext>
<b>bold</b> text
</plaintext>
</body>
</html>
```

PRE Tag

Presents the text between the PRE tag with all formatting (e.g. whitespace) preserved.

Example:

```
<html>
<head>
<title>PRE Example</title>
</head>
<body>
<pre>
  Things are
```



```
shown
as they are.
</pre>
</body>
</html>
```

SELECT Tag

Presents a (multiple) select box in a <FORM>.

Attributes:

Attribute	Description
multiple	Since cHTML 2.0; whether more than item from the select box can be selected
name	The name of the select box
size	The number of options to show in the pulldown

Usage:

A select box contains one or more option tags.

Note:

- There can be no more than 31 options in a SELECT tag.

Example:

```
<form method="get" action="form.jsp">
Your gender:<br>
<select name="gender">
<option value="m">Male</option>
<option value="f" selected>Female</option>
</select>
</form>
```

TEXTAREA Tag

Presents a multi-line input field in a <FORM>

Attributes:

Attribute	Description
accesskey	0 1 2 3 4 5 6 7 8 9 * #, Quick Focus key, see A tag
cols	Number of columns
istyle	1 2 3 4, input style, see A tag
name	Name of the textarea
rows	Number of rows



Note:

- No more than 512 characters can be input in a TEXTAREA.
- Maximum number of cols and rows depend on the screensize of the handset. As the NEC N21i shows all input fields in a new screen after selecting it, the rows and cols attributes are ignored.

Example:

```
<html>
<head>
<title>TEXTAREA example</title>
</head>
<body>
Tell us what you think<br>
<form method="post" action="feedback.jsp">
<textarea name="feedback" cols="14" rows="4">
please type your comment here
</textarea>
<input type="submit" value="send">
<input type="reset" value="reset">
</form>
</body>
</html>
```

TITLE Tag

Indicates the title of the HTML page, used as a name for a bookmark.

Usage:

The title tag is part of the HEAD of an HTML document. As bookmarks cannot be too long, choose an appropriate title for the HTML page.

Example:

```
<html>
<head>
<title>TITLE example</title>
</head>
<body>
My first cHTML document.
</body>
</html>
```

UL Tag

Denotes an unordered list.



Syntax:

```
<ul>
<li>...</li>
<li>...</li>
...
</ul>
```

Usage:

Use UL to create bulleted lists. Each bullet in the hierarchy is one full space wide.

Example:

```
<html>
<head>
<title>UL Example</title>
</head>
<body>
Mail functions<BR>
<ul>
<li>Compose mail</li>
<li>Read mail</li>
<li>Reply</li>
<li>Forward</li>
</ul>
</body>
</html>
```



Tips & Tricks

Below is a list of tips & tricks to make developing and using an i-mode site easier.

Use accesskeys for navigation

Use the accesskey attribute for the A, INPUT and TEXTAREA tags to speed up navigation. Associating an emoji icon indicating the key to be pressed is even better:

```
&#59106; <a href="somepage.jsp" accesskey="1">Link to  
page</a>  
  
<form method="post">  
&#59107; Message<br>  
<textarea name="message" accesskey="2">  
Type your message here  
</textarea>  
</form>
```

What is the code for the Euro symbol €?

€ The handset does not support €

See <http://www.w3.org/TR/html4/sgml/entities.html> for a complete list of all entities in HTML 4, and their corresponding numerical values if the handset does not support the named entity.

Sending mail

The following link can be used to send mail:

```
<a href="mailto:info@contentprovider.com?subject=This+is+a+  
subject&body=The+body">info@contentprovider.com</a>
```

Limiting input for users

You should limit the amount of information you request and only request it when absolutely necessary:

Only ask a nickname in a game if the user gets in the highscore list

Use sensible default values:

```
E-mail:<br>  
<input type="text" name="email" value="@imail.nl"  
size="50" maxlength="50">
```



is better than:

```
E-mail:<br>  
<input type="text" name="email" value="" size="50"  
maxlength="50">@imail.nl
```

This limits the input to only the nickname, but also enables the user to enter a completely different e-mail address.

If you need to input a name of e.g. a city, allow entry of only the first few characters and present a dropdown list of matching choices.

Bookmarks

Always add a (short) title to your i-mode pages, so users can bookmark a page.

Why do I get an HTTP error response 406 (Not Acceptable)?

An HTTP 406 error indicates that the handset sends a list of Content-Types it can handle in the HTTP request with an Accept header, but the webserver was unable to fulfill the request because the requested document does not have a supported Content-Type.

This might for example be the result of an ill-configured webserver that serves a ringtone with a not accepted Content-Type application/midi, or a JPEG image (which the handsets do not support at all) with Content-Type image/jpeg.

See HTTP for more details about the HTTP protocol.

Be ready for the future

If you want your i-mode site to be ready for the future and future specifications, you might want to make sure your site is compliant with XHTML Basic. Future handsets will implement this specification which is endorsed by the World Wide Web Consortium (W3C). You might not be able to be compliant with the strict version this specification (e.g. the tag and bgcolor, link and text attributes of the <body> tag are no longer allowed in XHTML Basic), but the transitional variant should almost always be possible.

The specification can be found at <http://www.w3.org/TR/xhtml1-basic>.

Note that the examples in the tag reference are not XHTML Basic compliant.

In short:

Your HTML document must contain <html>, <head> and <body> tags.



Use all lowercase tags:

```
<html>
```

instead of

```
<HTML>
```

Properly nest tags, overlapping is not allowed:

```
<b><i>italic</i> and bold</b>
```

instead of

```
<i><b>italic</i> and bold</b>
```

Quote attribute values:

```

```

instead of

```
<img src=logo.gif width=120 height=20>
```

Attribute value pairs cannot be minimized

```
<select multiple="multiple">  
...  
</select>
```

instead of

```
<select multiple>  
...  
</select>
```

Empty elements must be terminated:

```
<br />
```

instead of

```
<br>
```

and



```

```

instead of

```

```

Note the space before the terminating slash (/) for compatibility with older browsers.

All non-empty elements must be closed:

```
<p>Some text</p>
<p>Some more text</p>
```

instead of

```
Some text<p>
Some more text<p>
```

Make proper use of entity references:

```
<a href="index.jsp?param1=value1&param2=value2">
Link</a>
```

instead of

```
<a href="index.jsp?param1=value1&param2=value2">
Link</a>
```

Regularly check the generated HTML in your i-mode site with an HTML validator, like <http://validator.w3.org/>





Appendix 1: Color palette

Below is the 8 x 8 x 4 RGB color palette for i-mode with hexadecimal color codes. Emoji icons can also be given another than their default color.

Example

```
This text is <font color="#ff0000">red</font>
```

000000	000055	0000aa	0000ff	920000	920055	9200aa	9200ff
002400	002455	0024aa	0024ff	922400	922455	9224aa	9224ff
004900	004955	0049aa	0049ff	924900	924955	9249aa	9249ff
006d00	006d55	006daa	006dff	926d00	926d55	926daa	926dff
009200	009255	0092aa	0092ff	929200	929255	9292aa	9292ff
00b600	00b655	00b6aa	00b6ff	92b600	92b655	92b6aa	92b6ff
00db00	00db55	00dbaa	00dbff	92db00	92db55	92dbaa	92dbff
00ff00	00ff55	00ffaa	00ffff	92ff00	92ff55	92ffaa	92ffff
240000	240055	2400aa	2400ff	b60000	b60055	b600aa	b600ff
242400	242455	2424aa	2424ff	b62400	b62455	b624aa	b624ff
244900	244955	2449aa	2449ff	b64900	b64955	b649aa	b649ff
246d00	246d55	246daa	246dff	b66d00	b66d55	b66daa	b66dff
249200	249255	2492aa	2492ff	b69200	b69255	b692aa	b692ff
24b600	24b655	24b6aa	24b6ff	b6b600	b6b655	b6b6aa	b6b6ff
24db00	24db55	24dbaa	24dbff	b6db00	b6db55	b6dbaa	b6dbff
24ff00	24ff55	24ffaa	24ffff	b6ff00	b6ff55	b6ffaa	b6ffff
490000	490055	4900aa	4900ff	db0000	db0055	db00aa	db00ff
492400	492455	4924aa	4924ff	db2400	db2455	db24aa	db24ff
494900	494955	4949aa	4949ff	db4900	db4955	db49aa	db49ff
496d00	496d55	496daa	496dff	db6d00	db6d55	db6daa	db6dff
499200	499255	4992aa	4992ff	db9200	db9255	db92aa	db92ff
49b600	49b655	49b6aa	49b6ff	dbb600	dbb655	dbb6aa	dbb6ff
49db00	49db55	49dbaa	49dbff	dbdb00	dbdb55	dbdbaa	dbdbff
49ff00	49ff55	49ffaa	49ffff	dbff00	dbff55	dbffaa	dbffff
6d0000	6d0055	6d00aa	6d00ff	ff0000	ff0055	ff00aa	ff00ff
6d2400	6d2455	6d24aa	6d24ff	ff2400	ff2455	ff24aa	ff24ff
6d4900	6d4955	6d49aa	6d49ff	ff4900	ff4955	ff49aa	ff49ff
6d6d00	6d6d55	6d6daa	6d6dff	ff6d00	ff6d55	ff6daa	ff6dff
6d9200	6d9255	6d92aa	6d92ff	ff9200	ff9255	ff92aa	ff92ff
6db600	6db655	6db6aa	6db6ff	ffb600	ffb655	ffb6aa	ffb6ff
6ddb00	6ddb55	6ddbbaa	6ddbff	ffdb00	ffdb55	ffdbaa	ffdbff
6dff00	6dff55	6dffaa	6dffff	ffff00	ffff55	ffffaa	ffffff



A few colors also have a name which are presented in the list below.

Example

This text is `green`

Color name	Hexadecimal code
black	000000
green	008000
silver	c0c0c0
lime	00ff00
gray	808080
olive	808000
white	ffffff
yellow	ffff00
maroon	800000
navy	000080
red	ff0000
blue	0000ff
purple	800080
teal	008080
fuchsia	ff00ff
aqua	00ffff



Appendix 2: Emoji icons

Using emoji icons is easy: just look up the emoji you would like to use from the list below with standard 160 emojis and enter the following code in your HTML document:

`&#decimal;`

Please note that emoji's have a default color that might differ from your text color. Some handsets allow you to change the color of the emoji by embedding the emoji within a `` tag. Some handsets may provide additional emoji icons.

Emojis cannot be used in i-mode mail.

Example

```
&#59106;
```



















for the emoji icon for ☀

Nr	Decimal	Hex	Emoji	Description	Default color
1	58942	E63E	☀	Fine	Red
2	58943	E63F	☁	Cloudy	Blue
3	58944	E640	☂	Rain	Blue
4	58945	E641	☃	Snow	Blue
5	58946	E642	⚡	Thunder	Orange
6	58947	E643	🌀	Typhoon	Red
7	58948	E644	🌫	Fog	Blue
8	58949	E645	🌧	Drizzle	Blue
9	58950	E646	☔	Aries	Red





Nr	Decimal	Hex	Emoji	Description	Default color
10	58951	E647		Taurus	Orange
11	58952	E648		Gemini	Green
12	58953	E649		Cancer	Blue
13	58954	E64A		Leo	Red
14	58955	E64B		Virgo	Orange
15	58956	E64C		Libra	Green
16	58957	E64D		Scorpio	Blue
17	58958	E64E		Sagittarius	Red
18	58959	E64F		Capricorn	Orange
19	58960	E650		Aquarius	Green
20	58961	E651		Pisces	Blue
22	58963	E653		Baseball	Black
23	58964	E654		Golf	Blue
24	58965	E655		Tennis	Green
25	58966	E656		Soccer	Black
26	58967	E657		Ski	Blue
27	58968	E658		Basketball	Orange
28	58969	E659		Motor sports	Black





















Nr	Decimal	Hex	Emoji	Description	Default color
29	58970	E65A		Pager	Purple
30	58971	E65B		Train	Green
31	58972	E65C		Subway	Orange
32	58973	E65D		Bullet train	Blue
33	58974	E65E		Car (sedan)	Black
34	58975	E65F		Car (RV)	Green
35	58976	E660		Bus	Red
36	58977	E661		Ship	Blue
37	58978	E662		Airplane	Blue
38	58979	E663		House	Red
39	58980	E664		Building	Blue
40	58981	E665		Post office	Red
41	58982	E666		Hospital	Red
42	58983	E667		Bank	Purple
43	58984	E668		ATM	Red
44	58985	E669		Hotel	Green
45	58986	E66A		Convenience store	Blue
46	58987	E66B		Gas station	Purple





















Nr	Decimal	Hex	Emoji	Description	Default color
47	58988	E66C		Parking	Blue
48	58989	E66D		Traffic signal	Black
49	58990	E66E		Toilet	Black
50	58991	E66F		Restaurant	Black
51	58992	E670		Cafe	Green
52	58993	E671		Bar	Purple
53	58994	E672		Beer	Orange
54	58995	E673		Fast food	Orange
55	58996	E674		Boutique	Red
56	58997	E675		Hairdresser	Blue
57	58998	E676		Karaoke	Black
58	58999	E677		Movie	Black
59	59000	E678		Diagonally upward toward right	Black
59	59001	E679		Amusement park	Orange
60	59007	E67F		Smoking	Black
66	59008	E680		Non-smoking	Red
67	59009	E681		Camera	Black
68	59010	E682		Bag	Red



Nr	Decimal	Hex	Emoji	Description	Default color
69	59011	E683		Book	Orange
70	59012	E684		Ribbon	Red
71	59013	E685		Present	Red
72	59014	E686		Birthday	Red
73	59015	E687		Phone	Black
74	59016	E688		Mobile phone	Black
75	59017	E689		Memo	Orange
76	59018	E68A		TV	Blue
77	59019	E68B		Game	Black
78	59020	E68C		CD	Blue
79	59021	E68D		Heart	Red
80	59022	E68E		Spade	Black
81	59023	E68F		Diamond	Red
82	59024	E690		Club	Black
83	59025	E691		Eyes	Black
84	59026	E692		Ear	Orange
85	59027	E693		Hand (rock)	Orange
86	59028	E694		Hand (scissors)	Orange



Nr	Decimal	Hex	Emoji	Description	Default color
87	59029	E695		Hand (paper)	Orange
88	59030	E696		Diagonally downward toward right	Black
89	59031	E697		Diagonally upward toward left	Black
90	59032	E698		Foot	Orange
91	59033	E699		Shoe	Black
92	59034	E69A		Eyeglasses	Black
93	59035	E69B		Wheelchair	Blue
94	59036	E69C		New moon	Black
95	59037	E69D		Waning moon	Black
96	59038	E69E		Half moon	Black
97	59039	E69F		Crescent moon	Black
98	59040	E6A0		Full moon	Black
99	59041	E6A1		Dog	Orange
100	59042	E6A2		Cat	Orange
101	59043	E6A3		Resort	Blue
102	59044	E6A4		Christmas	Green
103	59045	E6A5		Diagonally downward toward left	Black
145	59086	E6CE		phone to	Black



Nr	Decimal	Hex	Emoji	Description	Default color
146	59087	E6CF		mail to	Black
147	59088	E6D0		fax to	Black
148	59089	E6D1		i-mode	Orange
149	59090	E6D2		i-mode (with a frame)	Orange
150	59091	E6D3		i-mode mail	Black
151	59092	E6D4		Provided by DoCoMo	Black
152	59093	E6D5		DoCoMo point	Black
153	59094	E6D6		Fee charging	Red
154	59095	E6D7		Free of charge	Red
155	59096	E6D8		ID	Red
156	59097	E6D9		Password	Red
157	59098	E6DA		Continuing	Red
159	59099	E6DB		Clear	Red
160	59100	E6DC		Search	Blue
161	59101	E6DD		NEW	Red
162	59102	E6DE		Location information	Red
163	59103	E6DF		Free dial	Black
164	59104	E6E0		Sharp dial	Black



Nr	Decimal	Hex	Emoji	Description	Default color
165	59105	E6E1	🅂	MopaQ	Black
166	59106	E6E2	🅃	1	Black
167	59107	E6E3	🅄	2	Black
168	59108	E6E4	🅅	3	Black
169	59109	E6E5	🅆	4	Black
170	59110	E6E6	🅇	5	Black
171	59111	E6E7	🅈	6	Black
172	59112	E6E8	🅉	7	Black
173	59113	E6E9	🅊	8	Black
174	59114	E6EA	🅋	9	Black
175	59115	E6EB	🅌	0	Black
176	59116	E6EC	🖤	Black heart	Red
177	59117	E6ED	💘	Fluttering heart	Red
178	59118	E6EE	💔	Heartbreak	Red
179	59119	E6EF	💞	Hearts	Red
180	59120	E6F0	😄	Happy face	Purple
181	59121	E6F1	😡	Angry face	Red
182	59122	E6F2	😞	Disappointed face	Blue



Nr	Decimal	Hex	Emoji	Description	Default color
183	59123	E6F3		Sad face	Green
184	59124	E6F4		Dizzy	Blue
185	59125	E6F5		Good (upward arrow)	Red
186	59126	E6F6		Cheerful	Red
187	59127	E6F7		Comfort (thermal spring)	Red
188	59128	E6F8		Cute	Purple
189	59129	E6F9		Kiss	Red
190	59130	E6FA		Shining (new)	Orange
191	59131	E6FB		Good idea	Orange
192	59132	E6FC		Angry	Black
193	59133	E6FD		Punch	Red
194	59134	E6FE		Bomb	Black
195	59135	E6FF		Mood	Red
196	59136	E700		Bad (downward arrow)	Blue
197	59137	E701		Sleepy (sleep)	Blue
198	59138	E702		Exclamation	Red
199	59139	E703		Exclamation & question	Purple
200	59140	E704		Exclamation × 2	Red



Nr	Decimal	Hex	Emoji	Description	Default color
201	59141	E705	𐤊𐤍	Bump (collision)	Red
202	59142	E706	𐤊𐤎	Sweat (dripping sweat)	Black
203	59143	E707	𐤊𐤏	Cold sweat	Black
204	59144	E708	𐤊𐤐	Dash (running dash)	Black
205	59145	E709	𐤊𐤑	- (macron 1)	Black
206	59146	E70A	𐤊𐤒	- (macron 2)	Black
207	59147	E70B	𐤊𐤓	Fixed	Red