

# Design Guidance

## Date and Time Input

Tuesday, 26 January 2010  
Version 3.0.0.0

*Prepared by*  
**Microsoft**

**Microsoft®**

## PREFACE

### Documents replaced by this document

Document Title	Version
Design Guidance – Date and Time Input	2.0.0.0
Design Guidance – Date and Time Input	1.0.0.0

### Documents to be read in conjunction with this document

Document Title	Version
Design Guidance – Time Display	3.0.0.0
Design Guidance – Date Display	3.0.0.0
Design Guidance – Accessibility Principles	1.0.0.0
Design Guidance – Accessibility Checklist	1.0.0.0

This document and/or software (“this Content”) has been created in partnership with the National Health Service (NHS) in England. Intellectual Property Rights to this Content are jointly owned by Microsoft and the NHS in England, although both Microsoft and the NHS are entitled to independently exercise their rights of ownership. Microsoft acknowledges the contribution of the NHS in England through their Common User Interface programme to this Content. Readers are referred to [www.cui.nhs.uk](http://www.cui.nhs.uk) for further information on the NHS CUI Programme.

All trademarks are the property of their respective companies. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

© Microsoft Corporation 2010. All rights reserved.

# TABLE OF CONTENTS

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
1.1	Customer Need .....	2
1.2	Scope .....	2
1.2.1	In Scope.....	2
1.2.2	Out of Scope.....	3
1.3	Key Principles .....	3
<b>2</b>	<b>Recommendations and Guidance .....</b>	<b>4</b>
2.1	Free Text Date Input .....	4
2.1.1	Guidance .....	5
2.1.2	Examples of Correct Usage.....	5
2.1.3	Examples of Incorrect Usage .....	6
2.1.4	Rationale.....	6
2.2	Calendar Date Input.....	6
2.2.1	Guidance .....	7
2.2.2	Examples of Correct Usage.....	8
2.2.3	Examples of Incorrect Usage .....	8
2.2.4	Rationale.....	8
2.3	Time Input .....	9
2.3.1	Guidance .....	10
2.3.2	Examples of Correct Usage.....	10
2.3.3	Examples of Incorrect Usage .....	11
2.3.4	Rationale.....	11
2.4	Spin Control Time Input .....	11
2.4.1	Guidance .....	11
2.4.2	Examples of Correct Usage.....	12
2.4.3	Examples of Incorrect Usage .....	12
2.4.4	Rationale.....	12
2.5	Time Duration Input .....	12
2.5.1	Guidance .....	13
2.5.2	Examples of Correct Usage.....	14
2.5.3	Examples of Incorrect Usage .....	14
2.5.4	Rationale.....	14
2.6	Disambiguation of Input .....	14
2.6.1	Guidance .....	15
2.6.2	Examples of Correct Usage.....	15
2.6.3	Examples of Incorrect Usage .....	15
2.6.4	Rationale.....	15
<b>3</b>	<b>Document Information .....</b>	<b>16</b>
3.1	Terms and Abbreviations .....	16

3.2	Nomenclature.....	16
3.2.1	Body Text.....	16
3.2.2	Cross References.....	16
3.3	References.....	16

# 1 INTRODUCTION

This document provides the design guidance for date and time input. It describes the area of focus, provides guidance and recommendations, and explains the rationale behind the guidance and recommendations.

This document is intended for use by anyone whose role includes screen design, or the implementation or assessment of clinical applications. This document can therefore be used as guidance for the specification of entering date and times through the user interface of a clinical application.

## Note

This document contains some examples explicitly derived from research in the UK. Whilst you should adhere to the underlying principles, disregard any country-specific detail if it is not appropriate for your locale. Ensure that your clinical application adheres to the requirements of the location where it will be used.

Table 1 describes the changes made since the previous version of this guidance (Baseline version 2.0.0.0 dated 05-Aug-2008):

Change	IDs	Change Description
Deleted		None
Modified	D+Tc-0007	Adding arithmetic shortcut operator for week(s)
		Adjusting illustration to show 'Approx' as an active control (Figure 10)
Added		Note relating to UK-specific examples (this section)
		Detail relating to default dates (section 1.2.2)
		Detail relating to durations shorter than a second (section 1.2.2)
		Principle relating to change between Greenwich Mean Time and British Summer Time(section 1.3)
		Note relating to inclusion of visual representations as illustration only (section 2)
	D+Tc-0046	Allow users to select whole value
	D+Tc-0041	Prevent use of time shortcuts within date input control
	D+Tc-0042	Provide users with an example of date
	D+Tc-0043	Provide indication that the 24-hour clock is in use
	D+Tc-0047	Enabling user to select entire value
	D+Tc-0044	Prevent use of date shortcuts within time input control
	D+Tc-0045	Provide users with an example of time
	D+Tc-0048	Provide indication of GMT/BST duration handling
	D+Tc-0049	Provide indication that system handles duration spans between GMT and BST
	Adding usage example to show years, months, weeks, days, hours and minutes (section 2.5.2)	

Table 1: Changes Since the Last Baseline Version

## 1.1 Customer Need

The entry of date and time information is a fundamental function within clinical and administrative processes. It is vital that healthcare workers correctly enter dates relating to patient demographics, clinical episodes and planned treatments, among others. Promoting patient safety is of primary importance and depends upon the removal of ambiguity during date and time entry. Therefore, it is vital that date and time input controls provide a clear mechanism for guiding users towards the entry of an accurate value, while also assisting the user to disambiguate entries when necessary. Examples of use include:

- Specific drug administration dates within a course of medication
- Identification of a patient using a date of birth
- Key appointment dates and times within a patient care plan

In almost all cases, errors in the entry of date and time information will have safety implications for patients.

Modern user interfaces offer the user a variety of mechanisms for entering dates and times. These range from constrained methods, such as drop-down lists providing a small set of allowable values, to more flexible calendar and spin controls, and highly flexible free-text entry fields. Each method exhibits strengths and weaknesses, and can be appropriate for specific purposes.

The objective of this document is to provide a consistent, safety-assured method of entering dates and times. A precondition for this is compliance with *Design Guidance – Date Display {R1}*, as the short format described in this document is used by the date input control. Likewise, a further precondition is compliance with *Design Guidance – Time Display {R2}*, as this format is used by the time input control. These standards must be used in all cases where the clinical application displays dates or times that affect patient treatment and identification.

## 1.2 Scope

### 1.2.1 In Scope

This document provides guidance and recommendations for the entry of the following forms of date and time input:

- Fully specified dates – A fully specified date comprises three elements: day of month, month and year
- Fully specified times – A fully specified time comprises hours and minutes and (optionally) seconds
- Partially specified dates (such as, year only, or month and year)
- Approximate dates and times (such as cases where the exact date or time is unknown)
- Arithmetic shortcuts (such as '+2d' to mean 'plus two days')
- Date and time durations

This document also provides guidance and recommendations for the following methods of date and time input:

- Input via free text fields
- Input via input controls (such as, a calendar picker for dates or a 'spin' control for times)

This document also provides guidance and recommendations for disambiguation of date entries.

## 1.2.2 Out of Scope

This section defines areas that are not covered in this guidance. Although there may be specific risks associated with these areas that are not addressed in this guidance, it is likely that the principles in this guidance will extend to the input of date and time in many of the areas listed below.

The following subject areas are not covered within this document:

- **Date and time display** – This document provides guidance for only the entry of date and time. Guidance on displaying dates is described in *Design Guidance – Date Display {R1}*. Guidance on displaying times is described in *Design Guidance – Time Display {R2}*
- **Default dates** – This guidance only relates to the input of data by a user and not to any default dates assumed by developers
- **Durations shorter than a second** – The shortest period of time described in this document is a second. Fractions of a second are not considered
- **Synchronisation** – Synchronising current time across clinical systems, applications, desktops and hospital clocks is not considered to be an issue in this guidance
- **Display styles** – Choice of display font size, background and foreground text colour will affect the readability, as it will with all other displayed text. This document does not address general rules for text display
- **Data storage** – The guidance relates only to the display layer of a software application, and does not prescribe the way in which time values should be stored. We assume that any clinical information technology (IT) system is capable of transforming the stored time format into the displayed time format without error

### Note

Listing an item as out of scope does not classify it as unimportant. Project time and resource constraints inevitably restrict what can be in scope for a particular release. It is possible that items out of scope for this release may be considered for a future release.

## 1.3 Key Principles

The following key principles reflect the critical areas of guidance discussed within this document:

- Enable dates and times to be entered in a range of formats and using a variety of input methods, including arithmetic shortcuts
- Support application scenarios where the user needs to enter approximate dates or times
- Provide the ability to enter either fully specified or partially specified dates
- Simplify the entry of times by standardising on the 24-hour clock
- Reduce the likelihood of errors by providing disambiguation of the input, where appropriate
- A system will be built using a calendar database that recognises the change between Greenwich Mean Time (GMT) and British Summer Time (BST) where appropriate

## 2 RECOMMENDATIONS AND GUIDANCE

### Important

The visual representations used within this document to display the guidance are illustrative only. They are simplified in order to support understanding of the guidance points. Stylistic choices, such as colours, fonts or icons are not part of the guidance and unless otherwise specified are not mandatory requirements for compliance with the guidance in this document.

### 2.1 Free Text Date Input

This section provides guidance for the entry of dates, including fully specified dates, partially specified dates, and dates which have been entered using arithmetic shortcuts. The entry of partially specified dates will not be appropriate for every situation. Therefore, the designers of the clinical application will need to decide what types of dates are allowed for a given situation, based on the specific clinical context.

The basic date input control, as illustrated in Figure 1, comprises:

- A free text input area
- A calendar control
- An icon to access the calendar control
- A default input dependent on the context in which the control is used
- A facility to disambiguate the date entered (see section 2.6)

The control should appear with a short and descriptive label wherever it is used.


Date:  

Figure 1: Example of the Recommended Date Input Control for Clinical Applications (Free Text)

The date input control should provide instructions on how the control is used, for example, via the use of tooltips, as illustrated in Figure 2. The choice of control and the instructional text will depend on the clinical context in which the control is used.


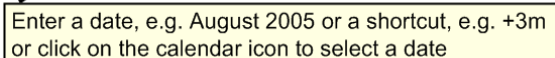
Date:     


Figure 2: Example of Instructions for Entry of Dates for Clinical Applications

The date input control can be used to enter fully specified dates, partially specified dates, and arithmetic shortcuts, as illustrated in Figure 3.




Date:      Date:      Date:  

Figure 3: Examples of Different Date Entries

The use of arithmetic shortcuts allows the user to enter dates that are calculated relative to the existing value. For example, '+3m' for three months later, or '-2d' for two days earlier.

The free text date input control must allow the individual date elements to be edited. For example, the user must be able to edit each element in the date 05-May-2006, as illustrated in Figure 4.


Date:  

Figure 4: Example of Individual Date Element Editing



## 2.1.1 Guidance

ID	Guideline	Status
D+Tc-0001	Adopt the guidance provided in <i>Design Guidance – Date Display {R1}</i> for the format of any dates displayed within the date input control	Mandatory
D+Tc-0002	Allow for both free text input of dates and the input of dates using a calendar control	Mandatory
D+Tc-0003	Allow the date elements to be individually edited (day, month and year)	Mandatory
D+Tc-0004	Include the calendar icon within the boundary of the date input field	Mandatory
D+Tc-0005	Provide disambiguation of any free text date input	Mandatory
D+Tc-0006	Provide instructions on how to use the control, for example, via the use of tooltips. The instructions must contain details of the different date types that can be entered	Mandatory
D+Tc-0046	Within the date input control, allow users to select the entire value to facilitate rapid editing or entry of arithmetic shortcuts relating to date (only)	Mandatory
D+Tc-0007	Allow users to enter arithmetic shortcuts, such as, '+3m' for three months later or '-2d' for two days earlier. The relevant operators are: <ul style="list-style-type: none"> <li>▪ '+' for later dates (this is optional, as whole numbers should be treated as positive by default)</li> <li>▪ '-' for earlier dates</li> <li>▪ 'd' for days</li> <li>▪ 'w' for weeks</li> <li>▪ 'm' for months</li> <li>▪ 'y' for years</li> </ul>	Mandatory
D+Tc-0041	Within the date input control, do not allow users to input arithmetic shortcuts relating to time	Mandatory
D+Tc-0008	Allow the input of 'Unknown' (or similar) to specify dates not known to the user	Mandatory
D+Tc-0009	Display a default input within the free text date input control	Mandatory
D+Tc-0042	When displaying a default input within the free text input box, provide the user with an example of date with either a non-specific value (such as the input mask) or a date appropriate to the clinical context (for example, 'today's date')	Recommended

Table 2: Guidance – Free Text Date Input

## 2.1.2 Examples of Correct Usage




Usage	Format	Example	Comments
✓	dd-MMM-yyyy	Date: <input type="text" value="05-May-2006"/> 	Display the date format using the guidance provided in <i>Design Guidance – Date Display {R1}</i>
✓	Free text area and calendar icon	Date: <input type="text" value="05-May-2006"/> 	Display the calendar icon within the boundary of the free text area
✓	Editing of date elements	Date: <input type="text" value="05-May-2006"/> 	Allow the individual date elements to be edited

Table 3: Correct Examples of Date Using Free Text Input

## 2.1.3 Examples of Incorrect Usage


Usage	Format	Example	Comments
✘	Location of the calendar icon	Date: <input type="text" value="10-Apr-2006"/> 	The calendar icon is displayed in the wrong place; it must be included within the boundary of the input field
✘	Inclusion of calendar icon	Date: <input type="text" value="10-Apr-2006"/>	The calendar icon is omitted and it must be included

Table 4: Incorrect Examples of Date Using Free Text Input

## 2.1.4 Rationale

The rationale behind providing access to instructional text is to enable the user to see examples of the different date types that can be entered and thereby rapidly familiarise themselves with the range of functionality that the control supports.

Displaying a default input within the free text input area of the field provides the user with a further example for the entry of dates. The default should either be a non-specific value, such as the input mask, or be set to a date appropriate to the clinical context. For example, 'today's date' may be used for a date input field to record the date of an examination.

When the focus is placed within a date field, the entire value should be selected to facilitate rapid editing or entry of arithmetic shortcuts. However, this should not preclude the editing of individual date elements either via mouse selection or keyboard input.

## 2.2 Calendar Date Input

This section provides guidance for the input of fully specified dates and partially specified dates using the calendar control. The calendar control, illustrated in Figure 5, is opened by clicking on the calendar icon illustrated in Figure 1.

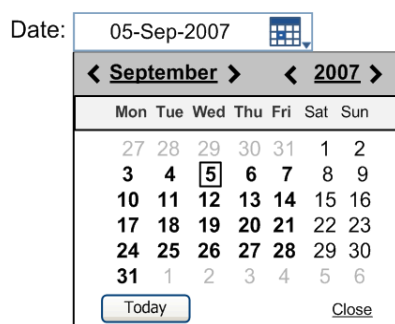


Figure 5: Example of the Recommended Date Input Control for Clinical Applications (Calendar Control)

Fully specified dates can be entered via the calendar control by selecting the appropriate date from the calendar, as illustrated in Figure 6. Once a date has been selected, the date is displayed in the free text area of the control.

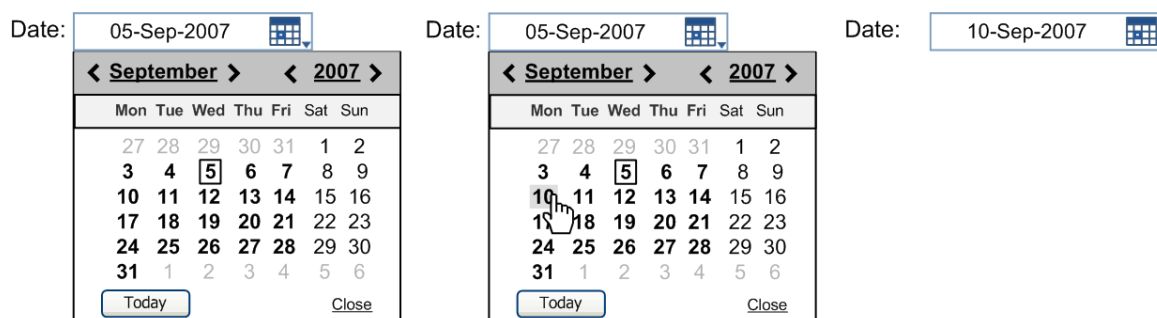


Figure 6: Example of Entering Fully Specified Dates Using the Calendar Control for Clinical Applications

A partially specified date can be entered using the calendar control by clicking either the month or the year, as illustrated in Figure 7. When entering a partially specified date, the corresponding value is displayed in the free text area of the control.

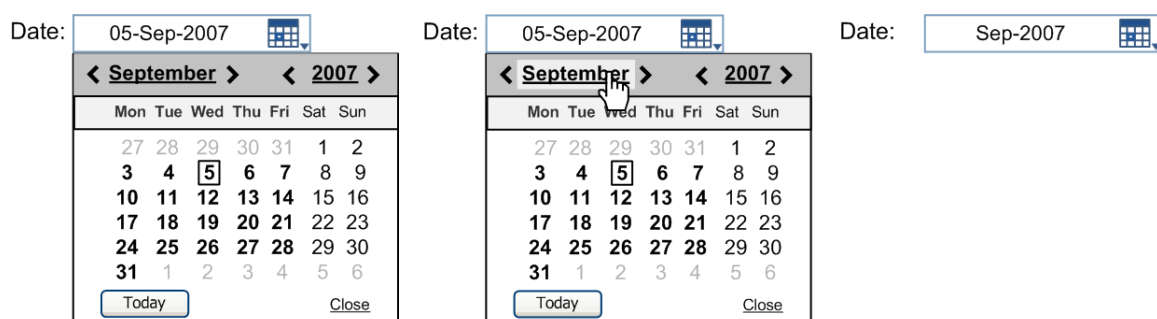


Figure 7: Example of Entering Partially Specified Dates Using the Calendar Control for Clinical Applications

## 2.2.1 Guidance

ID	Guideline	Status
D+Tc-0010	Provide access to the calendar control via a calendar icon	Mandatory
D+Tc-0011	Provide the ability to select a month independently, and a year independently. Signify the interactivity of these elements by suitable styling, for example as buttons or links, and ensure that they have descriptive tooltips	Mandatory
D+Tc-0012	Provide a button to allow the user to enter today's date	Mandatory
D+Tc-0013	Provide a link or button to close the control	Mandatory
D+Tc-0014	Provide a visual indication of the current date	Mandatory
D+Tc-0015	Include the days of the week within the calendar view	Mandatory
D+Tc-0016	Provide access to relevant instructional text (for example, via tooltips) on the clickable elements in the calendar header	Mandatory
D+Tc-0017	Allow the calendar to be closed either when the user clicks away from the calendar or clicks on the calendar icon	Mandatory
D+Tc-0018	Display the appropriate value in the free text field following selection of the date	Mandatory
D+Tc-0019	Ensure that the control can be operated effectively via the keyboard (for example, using arrow keys)	Mandatory

Table 5: Guidance – Calendar Date Input

## 2.2.2 Examples of Correct Usage


Usage	Format	Example	Comments
✓	Present complete calendar information within the calendar control	Date: <input type="text" value="05-Sep-2007"/>  	The following elements appear in the control: <ul style="list-style-type: none"> <li>Month</li> <li>Year</li> <li>Days of the week</li> <li>Dates</li> </ul>

Table 6: Correct Examples of Date Using Calendar Input

## 2.2.3 Examples of Incorrect Usage



Usage	Format	Example	Comments
✗	Navigation by month only	End time: <input type="text" value="Fri 16/12/2005"/>  	In this example, navigation can only be carried out by month. The calendar must provide the ability to independently navigate both forwards and backwards in months and years

Table 7: Incorrect Examples of Date Using Calendar Input

## 2.2.4 Rationale

The rationale for this guidance is based on an extensive analysis of existing calendar controls, from which many of the 'best practice' features have been derived, such as:

- Scrolling month selection
- Day of week labelling
- A short cut for selecting today's date
- Display of the current month in title case and the year displayed in the form YYYY
- A visual indication of the current date

In addition, the design of this calendar control also allows the user to enter both fully and partially specified dates, and to independently manipulate both months and years. Clicking on a 'forward' or 'backward' icon will move the calendar either forward or backward by the appropriate amount (that is, one month or one year). This allows much greater flexibility than forcing the user to navigate on a month by month basis (see Table 7). In addition, the calendar control is specifically designed to indicate to the user the full range of input available. This includes styling to expose the interactivity of the header elements (which allow entry of partially specified dates) and also the behaviour of the forward and backward icons.

## 2.3 Time Input

This section provides guidance for the input of fully specified time, and time entered using an arithmetic shortcut. In addition, it describes how the entry of a time can be marked as approximate (for example, in cases where the exact time is unknown). Evidently, the entry of an approximate time will not be appropriate for every situation, as this will depend on the specific clinical context.

The basic time input control, as illustrated in Figure 8, comprises (from left to right):

- An input area
- A default input dependent on the context in which the control is used
- A 'spin' control
- A tick box to indicate if the time is approximate (where supported by the specific clinical application)

The control should appear with a short and descriptive label wherever it is used.

Time:    Approx

Figure 8: Example of the Recommended Time Input Control for Clinical Applications

The time input control should provide instructions on how the control is used, for example, via the use of tooltips, as illustrated in Figure 9. The choice of control and the instructional text will depend on the clinical context in which the control is used.

Time:    Approx  
 Enter a time, e.g. 02:05 or a shortcut, e.g. +3h

Figure 9: Example of Instructions for Entry of Time for Clinical Applications

The time input control can be used to enter fully specified times, approximate times and arithmetic shortcuts, as illustrated in Figure 10. In addition, the 'seconds' element of time can be entered if required. The inclusion of seconds is at the discretion of the clinical application.

Time:    Approx    Time:    Approx    Time:    Approx

Figure 10: Examples of Different Time Entries

The use of arithmetic shortcuts allows the user to enter times that are calculated relative to an existing value. For example, '+3h' for three hours later, or '-2m' for two minutes earlier. In addition, the control must allow for the entry of 'Unknown', as illustrated in Figure 11.

Time:    Approx

Figure 11: Example of the Entry of an Unknown Time

The time input control must allow for individual editing of the time elements entered into the control. For example, the user will be able to edit each element in the time 23:35 or 23:35:42, as illustrated in Figure 12.

Time:    Approx

Figure 12: Example of Time Element Editing

## 2.3.1 Guidance

ID	Guideline	Status
D+Tc-0020	Adopt the guidance provided in <i>Design Guidance – Time Display {R2}</i> for the format of any times displayed within the time input control	Mandatory
D+Tc-0021	Use the 24-hour clock only (rather than the 12-hour clock)	Mandatory
D+Tc-0043	Provide indication to the user that the 24-hour clock is in use	Mandatory
D+Tc-0022	Use an 'Approx' check box to allow the user to indicate an approximate time	Mandatory
D+Tc-0023	Allow the time elements to be individually edited (hours, minutes and seconds)	Mandatory
D+Tc-0024	Provide access to instructions on how to use the control, for example, via the use of tooltips. The instructions must contain details of the different time types that can be entered	Mandatory
D+Tc-0047	Within the time input control, allow users to select the entire value to facilitate rapid editing or entry of arithmetic shortcuts relating to time (only)	Mandatory
D+Tc-0025	Allow users to enter arithmetic shortcuts such as '+3h' for three hours later and '-2m' for two minutes earlier. The relevant operators are: <ul style="list-style-type: none"> <li>▪ '+' for later times (this is optional, as whole numbers should be treated as positive by default)</li> <li>▪ '-' for earlier times</li> <li>▪ 'h' for hours</li> <li>▪ 'm' for minutes</li> <li>▪ 's' for seconds</li> </ul>	Mandatory
D+Tc-0044	Within the time input control do not allow users to input arithmetic shortcuts relating to date	Mandatory
D+Tc-0026	Allow the entry of 'Unknown' (or similar) to specify times not known to the user	Mandatory
D+Tc-0027	Display a default input within the time input control	Mandatory
D+Tc-0045	When displaying a default input within the free text input box, provide the user with an example of time with either a non-specific value (such as the input mask) or a time appropriate to the clinical context	Recommended

Table 8: Guidance – Time Input

## 2.3.2 Examples of Correct Usage

Usage	Format	Example	Comments
✓	Time input field, 'Approx' check box	Time: <input type="text" value="18:00"/> <input type="checkbox"/> Approx	Correct layout
✓	Time input field, 'Approx' check box	Time: <input type="text" value="00:00"/> <input checked="" type="checkbox"/> Approx Time: <input type="text" value="03:36"/> <input checked="" type="checkbox"/> Approx	Use of the 'Approx' check box

Table 9: Correct Examples of Time Input

### 2.3.3 Examples of Incorrect Usage

Usage	Format	Example	Comments
✘	Time input field, 'Approx' check box	<input type="text"/> <input type="checkbox"/> Approx	No default time is displayed
✘	Time input field, 'Approx' check box	time: <input type="text" value="15:11"/> <input type="checkbox"/> approx	Approx label requires a capital A
✘	Incorrect position for spin control	Time: <input type="text" value="23:35"/> <input type="checkbox"/> Approx	The spin control is displayed in the wrong place; it should be within the input field

Table 10: Incorrect Examples of Time Input

### 2.3.4 Rationale

The rationale behind providing access to instructional text is to enable the user to see examples of the different time types that can be entered and thereby rapidly familiarise themselves with the range of functionality that the control supports.

Likewise, displaying a default within the input area provides the user with a further example for time entry. The default should either be a non-specific value, such as the input mask, or be set to a time appropriate to the clinical context. When the focus is placed within a time field, the entire value should be selected to facilitate rapid editing or entry of arithmetic shortcuts. However, this should not preclude the editing of individual time elements either via mouse selection or keyboard input.

## 2.4 Spin Control Time Input

This section provides guidance for the input of time using a spin control.

Times can be entered using a spin control, as illustrated in Figure 13 and Figure 14. If the focus of the control is on the whole value (hours and minutes), or no time unit is selected, the time will increase/decrease by the least significant time unit when the user clicks the relevant 'up' and 'down' spin control buttons, as illustrated in Figure 13.



Figure 13: Examples of Spin Control

If an individual element of the time is selected, the increase/decrease will be applied to that specific time element. For example, if minutes are in the focus, the change will be applied to that element, as illustrated in Figure 14.

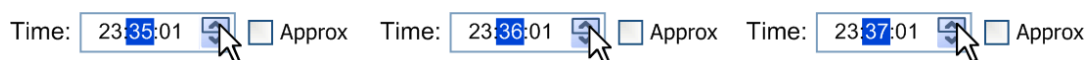


Figure 14: Examples of Individual Time Element Input

### 2.4.1 Guidance

ID	Guideline	Status
D+Tc-0028	Increase/decrease the whole time by the least significant time unit if the entire value is selected or if no unit is selected	Mandatory
D+Tc-0029	Provide the ability to spin individual time units when selected	Mandatory

Table 11: Guidance – Spin Control Time Input

## 2.4.2 Examples of Correct Usage




Usage	Format	Example	Comments
✓	Spin increments	Time: 23:35:01  <input type="checkbox"/> Approx	Increment on the time element which has the focus
		Time: 23:36:01  <input type="checkbox"/> Approx	
		Time: 23:37:01  <input type="checkbox"/> Approx	

Table 12: Correct Examples of Time Input Using the Spin Control

## 2.4.3 Examples of Incorrect Usage





Usage	Format	Example	Comments
✗	Incorrect position for spin control	Time: 23:35  <input type="checkbox"/> Approx	The spin control is displayed in the wrong place; it should be within the input field
✗	Spin increments	Time: 02:35:01  <input type="checkbox"/> Approx	Incorrect time element being incremented (hours); the element with focus should be incremented
		Time: 03:35:01  <input type="checkbox"/> Approx	
		Time: 04:35:01  <input type="checkbox"/> Approx	

Table 13: Incorrect Examples of Time Input Using the Spin Control

## 2.4.4 Rationale

The rationale for this guidance is based on an extensive analysis of relevant Windows user experience guidelines and existing time input controls. This analysis found the spin control to be preferable to alternatives such as using drop-down lists for each time element. The design of the spin control allows the user to easily adjust a time value, either forward or backward, by the appropriate amount (that is, by the hour or by the minute). As such, it is ideally suited to time input, as it allows users to make small, incremental changes to numeric values without moving their hands from the mouse.

## 2.5 Time Duration Input

This section presents guidance for the input of time durations.

The basic duration input control is illustrated in Figure 15. The control should appear with a short and descriptive label wherever it is used. The duration input control should provide instructions on how the control is used, for example, via the use of tooltips.

Duration:

Figure 15: Example of the Duration Input Control

Time units can be entered into the control either singly or in combination, as illustrated in Figure 16. The units supported are as follows:

- Years (for example, 'y')
- Months (for example, 'm')
- Weeks (for example, 'w')
- Days (for example, 'd')
- Hours (for example, 'hr')



- Minutes (for example, 'min')
- Seconds (for example, 'sec')

Duration:       Duration:       Duration:

Figure 16: Example of Duration Elements

The duration control can be used independently or combined with date and time controls, as illustrated in Figure 17. In this example, the duration is calculated from the start time and end time. However, in another scenario, it may be appropriate to calculate the end time from the start time and duration. The precise behaviour of such combined controls is at the discretion of the clinical application, as the required interaction between them will depend on the specific clinical context.

Start time    Approx      Duration

End time    Approx

Figure 17: Example of Duration Combined with Time Controls

## 2.5.1 Guidance

ID	Guideline	Status
D+Tc-0030	Adopt the guidance provided in <i>Design Guidance – Time Display {R2}</i> for the format of any times displayed within the duration input control	Mandatory
D+Tc-0031	Provide access to instructions on how to use the control, for example, via the use of tooltips. The instructions must contain details of the different units that can be entered	Mandatory
D+Tc-0032	Allow entry of time duration units either singly or in combination	Mandatory
D+Tc-0033	Allow editing of the individual elements of a duration	Mandatory
D+Tc-0034	Ensure that the following minimal set of duration unit abbreviations is supported: <b>y</b> for years, <b>m</b> for months, <b>w</b> for weeks, <b>d</b> for days, <b>hr</b> for hours, <b>min</b> for minutes and <b>sec</b> for seconds	Mandatory
D+Tc-0035	Allow the set of duration unit abbreviations to be extended appropriately, for example, 'hrs' as well as 'hr'. Ensure that any additions are unique within the entire set	Recommended
D+Tc-0036	Allow the user to optionally enter white space within the duration input, for example, '3 hr 5 min' as well as '3hr 5min'	Recommended
D+Tc-0037	Provide the facility for a user to disambiguate input which could be interpreted in more than one way (see section 2.6), for example, 'm' (which could represent months or minutes)	Recommended
D+Tc-0048	Where a time duration spans the change between GMT and BST, show a pop-up to inform the user that the system will automatically handle the data within the appropriate time zone	Recommended
D+Tc-0049	Where a user adjusts time manually resulting in a time duration spanning a change between GMT and BST, show a pop-up to inform that user that the system will automatically adjust the data according to the appropriate time zone	Recommended

Table 14: Guidance – Entering Time Durations

## 2.5.2 Examples of Correct Usage

Usage	Format	Example	Comments
✓	Nuuu	Duration: <input type="text" value="4sec"/> Duration: <input type="text" value="5min"/> Duration: <input type="text" value="3hr"/>	Single digit input, that is, the user does not need to enter 05min
✓	NNuuu	Duration: <input type="text" value="20sec"/> Duration: <input type="text" value="30min"/> Duration: <input type="text" value="14hr"/>	Double digit input, where applicable
✓	Nuuu NNuuu	Duration: <input type="text" value="4hr 30min"/>	Hours and minutes
✓	Nu NNuuu NNuuu	Duration: <input type="text" value="2d 4hr 30min"/> Duration: <input type="text" value="18d 14hr 30min"/>	Days, hours and minutes
✓	Nu Nu Nu Nu NNuuu NNuuu	Duration: <input type="text" value="1y 6m 2w 2d 4hr 30min"/>	Years, months, weeks, days, hours and minutes

Table 15: Correct Examples of Using the Duration Control

## 2.5.3 Examples of Incorrect Usage

Usage	Format	Example	Comments
✗	Nu Nu Nu Nu NNu	Duration: <input type="text" value="3m 2d 4hr 30m"/>	Non-unique units (confusion between months and minutes)
✗	Nu Nu Nu Nu	Duration: <input type="text" value="3m 2d 4x 30y"/>	Unknown units

Table 16: Incorrect Examples of Using the Duration Control

## 2.5.4 Rationale

The rationale behind this guidance is to provide a simple and memorable notation that allows the user to express a wide variety of time durations in an unambiguous, clear manner. Whilst the use of a relatively constrained format for the display of durations helps to reduce confusion and interpretation errors, allowing a flexible variety of formats for the input of durations improves the overall usability of the control.

## 2.6 Disambiguation of Input

This section provides guidance for the disambiguation of input, using date as an example.

Disambiguation occurs once the user has entered a date into the date input control. At this point, the user will be prompted to disambiguate an ambiguous date via an information message, as illustrated in Figure 18. The user is prompted with options from which to select, including the option to enter a different date.

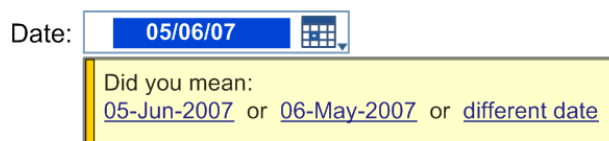


Figure 18: Example of Disambiguating an Ambiguous Date

## 2.6.1 Guidance

ID	Guideline	Status
D+Tc-0038	Provide the facility for a user to disambiguate a date entered via the date control	Mandatory
D+Tc-0039	Display a message dialog box with appropriate instructional text if the data is ambiguous or incomplete	Mandatory
D+Tc-0040	Display a maximum of two suggestions based on the data entered, plus an option to re-enter the value in the input field. Selection of a suggested value enters that value into the control	Recommended

Table 17: Guidance – Disambiguation of Date Input

## 2.6.2 Examples of Correct Usage

Usage	Format	Example	Comments
✓	Meaningful message Option 1 or different date	Did you mean <a href="#">03-May-2006</a> or <a href="#">different date</a>	One date option plus different date
✓	Meaningful message Option 1 or Option 2 or different date	Did you mean: <a href="#">03-May-2006</a> or <a href="#">05-Mar-2006</a> or <a href="#">different date</a>	Two date options plus different date

Table 18: Correct Examples of Date Disambiguation

## 2.6.3 Examples of Incorrect Usage

Usage	Format	Example	Comments
✗	Non-descriptive message, no guidance	Date entered is incorrect.	The message does not explain what has been entered incorrectly. It also does not present options or guide the user to the next step
✗	Meaningful message Option 1 or Option 2 or Option 3 or different time	Did you mean: <a href="#">30-Mar-2006</a> or <a href="#">25-Aug-2006</a> or <a href="#">25-Mar-2011</a> or <a href="#">different date</a>	This example presents too many options. Up to two options only, plus a different date, should be displayed

Table 19: Incorrect Examples of Date Disambiguation

## 2.6.4 Rationale

The rationale behind this guidance is to provide a method by which the most common types of ambiguous date can be identified and disambiguated at the point of entry. Most cases of disambiguation will concern ambiguous date formats (such as dates where the day and month value could be interchanged and still produce a valid date). These cases should be addressed by the control itself using the instructional text in the message box. However, there will be other cases where the input may be subject to validation rules that are external to the control and related to the particular context of use. In such cases, the clinical application may apply its own procedures for data validation and error handling, which could give rise to warning messages such as:

- “The Finish date is before the Start date. Please enter a date after the Start date.”
- “The date of birth is in the future. Please enter the correct date of birth.”

In most cases, it would be logical to apply the internal disambiguation first and then subsequently apply any external validation rules. However, the content of such rules and their precise usage is at the discretion of the clinical application as this will depend on the specific context of use.

## 3 DOCUMENT INFORMATION

### 3.1 Terms and Abbreviations

Abbreviation	Definition
BST	British Summer Time
GMT	Greenwich Mean Time
IT	Information Technology

Table 20: Terms and Abbreviations

### 3.2 Nomenclature

This section shows how to interpret the different styles used in this document to denote various types of information.

#### 3.2.1 Body Text

Text	Style
Code	Monospace
Script	
Other markup languages	
Interface dialog names	<b>Bold</b>
Field names	
Controls	
Folder names	Title Case
File names	

Table 21: Body Text Styles

#### 3.2.2 Cross References

Reference	Style
Current document – sections	Section number only
Current document – figures/tables	Caption number only
Other project documents	<i>Italics</i> and possibly a footnote
Publicly available documents	<i>Italics</i> with a footnote
External Web-based content	<i>Italics</i> and a <a href="#">hyperlinked footnote</a>

Table 22: Cross Reference Styles

### 3.3 References

Reference	Document	Version
R1.	Design Guidance – Date Display	3.0.0.0
R2.	Design Guidance – Time Display	3.0.0.0

Table 23: References