

Working with Date and Time Picker (DTP) Controls

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Introduction

A date and time picker (DTP) control is used to simplify the input of date or time information for the user. A DTP control appears and behaves similarly to a spin control for the input of times and optionally as either a spin control or selection box for the input of dates. In the latter case, a month calendar appears instead of the typical list box when the user clicks on the button displaying the down arrow.

Date and Time Formats

By default, the date and time information is displayed according to the date and time formats defined for the current regional settings. Because Windows provides two alternative date formats, one long and one short (both of which may be changed by the user), and because the short date format may not contain century information, one of three `STYLE` flags determines which of the standard date formats should be used. These (mutually exclusive) formats are:

- "Short date (s)", implying that the standard short date format for the current regional settings should be used.
- "Century date (c)", implying that the standard short date format for the current regional settings should be used, but extended to provide century information if this is not already the case. Note that in many cases, the short date format already includes century information, in which case this style does not change the appearance of the date.
- "Long date (d)", implying that the standard long date format for the current regional settings should be used

In addition, the "Time (t)" style flag is provided in order to indicate that the control should display time (instead of date) information.

If these standard formats are not sufficient, they can be overridden by providing a custom format string using the `EDIT-MASK` attribute. Note, however, that the format string specifiers do not correspond to those used for edit masks elsewhere within Natural. The following table lists the available specifiers and their meanings:

Specifier	Description
d	The one- or two-digit day.
dd	The two-digit day. Single-digit day values are preceded by a zero.
ddd	The three-character weekday abbreviation.
dddd	The full weekday name.
h	The one- or two-digit hour in 12-hour format.
hh	The two-digit hour in 12-hour format. Single-digit values are preceded by a zero.
H	The one- or two-digit hour in 24-hour format.
HH	The two-digit hour in 24-hour format. Single-digit values are preceded by a zero.
m	The one- or two-digit minute.
mm	The two-digit minute. Single-digit values are preceded by a zero.
s	The one- or two-digit second.
ss	The two-digit second. Single-digit values are preceded by a zero.
M	The one- or two-digit month number.
MM	The two-digit month number. Single-digit values are preceded by a zero.
MMM	The three-character month abbreviation.
MMMM	The full month name.
t	The one-letter AM/PM abbreviation (that is, AM is displayed as "A").
tt	The two-letter AM/PM abbreviation (that is, AM is displayed as "AM").
yy	The last two digits of the year (that is, 2005 would be displayed as "05").
yyyy	The full year (that is, 2005 would be displayed as "2005").

In addition, any characters in quotes are displayed exactly as specified. To specify the quote character itself within a quoted string, two consecutive single quote characters should be used. Spaces and punctuation marks (such as the comma) do not need to be quoted.

For example, in order to display the string "John's birthday is Friday, December 31, 1969", the DTP control's EDIT-MASK attribute would be set to "John' 's birthday is' dddd, MMMM d, yyyy".

Inputting Dates and Times

The DTP control provides several ways of modifying the specified information:

- By the user, by entering numerical information (day numbers, etc.) directly.
- By the user, by incrementing or decrementing the selected field (e.g. day number, month name) via the + or - keys, respectively.

- By the user, if the DTP control has either the "Time (t)" or "Up-down (u)" style, by selecting the required field and incrementing or decrementing the value via the up-down ("spin") control.
- By the user, if the DTP control is using a month calendar, by pressing the down arrow to open the month calendar and navigating to the required date. Unlike the above method, this method updates all date fields simultaneously.
- Programmatically, by updating the TIME attribute with the required date or time.

For example, to set the date or time in a DTP control to the current date or time, use the following assignments:

```
#DTP-1.TIME := *DATX
```

or

```
#DTP-1.TIME := *TIMX
```

respectively, where #DTP-1 is assumed to be the handle of the DTP control.

Note that the DTP control stores both date and time information, even though it only allows editing of the date or time component, depending on the control's style.

If the DTP control's date or time is modified by the user, a CHANGE event is raised for the control (if not suppressed). This does not happen if the DTP control is modified programmatically.

Null Values

If the "Allow 'no value' (n)" style is specified for the DTP control, the control displays a check box. If this check box is unchecked, the interpretation is that there is no date or time associated with the control. The application can test for this state by querying the control's CHECKED attribute. It can also revert the control to the "no value" state by setting the CHECKED attribute back to UNCHECKED. Note that it is, however, not possible to explicitly set the CHECKED attribute to CHECKED, as this is done implicitly whenever a date or time is applied to the control. Furthermore, the CHECKED attribute may not be set at all for DTP controls without the "Allow 'no value' (n)" style.

Calendar Colors and Font

The colors and font used by the month calendar (if any) associated with the DTP control may be changed by use of the SET-AUX-COLOR and SET-AUX-FONT actions, respectively.