

Cal4D Component - Language Reference

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Technical Note 07-10

Abstract

This is part two of a two part Technical Note that will provide information regarding the Cal4D Component written by Dave Batton. The component package allows a 4D Developer to add a full-featured Calendar into any 4D 2004 database. Part one discussed the installation and the basic use of the component. Part two will provide the language reference for the public methods within the component.

Introduction

In order to fulfill most of our daily activities, we all use some type of organizing system. It can simply be an organizer in ones wallet, some "stickies" or Post-it notes that get placed on a desk at work, or even a secretary that provides verbal reminders. Because our days are so busy and hectic we rely on these things to help us get through our daily activities. Fortunately, the 4D community can now ease the pain of their busy customers by providing a calendar within 4D applications.

The Cal4D Component supplied with this Technical Note is exclusive to the 4D 2004 product line. The code was originally written in 4D version 6.8. This updated version is now packaged as a component, supports multiple calendars, and takes advantage of 4D 2004 features.

How to use this Technical Note

This technical note is accompanied with a sample database which contains the source code. The source code can be modified, re-compiled, and repackaged as a new component. The methods referenced in this Technical Note are the public and protected methods.

The component supports multiple calendars. Basically, each calendar is a group of related events. To the end user, a group of related events is simply known as a calendar. Within the component code, these calendars are referred to as groups so the developer will not be confused with the term calendar as it is used to refer to the calendar window.

Naming Conventions

The component methods use these method name prefixes:

Cal4D_ : General component routines.
Cal4D_Cal_ : Routines for modifying the calendar display.
Cal4D_Group_ : Routines for working with event groups.
Cal4D_Event_ : Routines for working with individual events.

Notes on the Software

The component code contains two bug fixes when compared to the code that was released with part one of this Technical Note. Note that both part one and part two now contain the corrected code (i.e. part one was repackaged with the fixes).

Methods

This section documents all public and protected methods from the Cal4D component. Note that each method appears on a separate page. The documentation for each method includes parameter lists and returns types (where appropriate) and a description of the command. Example usage is included where appropriate.

Cal4D_Alert (code{; error number})

Parameters:

- \$1 : Text : The message code
- \$2 : Longint : The error number (optional)

Return Value: None

This routine is called when the calendar needs to display an alert.

This is a public method so the developer can use a custom Alert dialog, or the alert message can be localized.

Developer errors (such as passing the wrong number of parameters) are not coded.

Cal4D_Cal_Calendar

Parameters: None

Return Value: None

Opens the Calendar window in a new process. If the calendar is already open, it is brought to the front.

Cal4D_Cal_CallbackMethods (update method name; event callback name)

Parameters:

\$1 : Text : A method name

\$2 : Text: A method name

Return Value: None

Allows the developer to set a callback method that will be called when the events are redrawn (update method name) and when a calendar object receives an event (event callback name).

The update callback method will be passed these parameters:

\$1 : Date : The first visible date

\$2 : Date : The last visible date

The update callback method should call `Cal4D_Event_Display` to add events to the calendar.

The event callback method will be passed these parameters:

\$1 : Longint : The 4D form event

\$2 : Longint : The associated event ID or 'No current record'

\$3 : Date : The event start date

\$4 : Date : The event end date

The event form method will be one of these 4D constants:

On Selection Change

On Double Clicked

On Drop

If the event happens on a date box (not an event), the event ID will be equal to 4D's 'No current record' constant.

Only a date box can receive the On Drop event.

Pass an empty string for either callback you don't want to use or to turn off an existing callback.

Cal4D_Cal_Color (object name{; RGB color}) --> Number

Parameters:

\$1 : Text : A calendar object name
\$2 : Longint : An RGB color value

Returns:

\$0 : Longint : An RGB color value

Allows the developer to set and get the color for a calendar object.

The following object names are available:

this_month - background color for all day of the current month
other_month - background color for weekend days
today - the background color for today
selected_day - the background color for the selected day
grid - the grid lines

Set the grid color to green:

```
Cal4D_Cal_Color ("grid";0x0000FF00)
```

Get the current month's background color:

```
$color:=Cal4D_Cal_Color ("this_month")
```

Cal4D_Cal_DisplayDayOfWeek ({display?}) --> Boolean

Parameters:

\$1 : Boolean : True to display the day of the week (optional)
If no parameter is passed, it will default to False.

Returns:

\$0 : Boolean : True if the day of the week are set to display.

Allows the developer to get and set the Day of the Week label option.

Cal4D_Cal_DisplayedDate ({date}) --> Date

Parameters:

\$1 : Date : The date to display on the calendar (optional)

Return Value: None

\$0 : Date : Returns the first day of the displayed month and year.

Allows the user to set and get the month and year displayed by the calendar. Any date can be passed to this routine, but it will always return the first day of the displayed month and year.

Call Cal4D_Cal_SelectedDate after calling this to highlight the date (if desired).

Cal4D_Cal_DisplayMonthYear ({display?}) --> Boolean

Parameters:

\$1 : Boolean : True to display the month and year (optional)

If no parameter is passed, it will default to False.

Returns:

\$0 : Boolean : True if the month and year are set to display

Allows the developer to get and set the Month and Year label option.

Cal4D_Cal_DisplayNavButtons ({display?}) --> Boolean

Parameters:

\$1 : Boolean : True to display the navigation buttons.
If no parameter is passed, it will default to False.

Returns:

\$0 : Boolean : True if the navigation buttons are displayed.

Allows the developer to get and set the navigation buttons option.

Cal4D_Cal_FormMethod

Parameters: None

Return Value: None

The calendar form method. This method must be called from any form which inherits the Cal4D_Cal_Objects form.

The following form events must be enabled:

- On Load
- On Unload
- On Activate
- On Outside Call
- On Clicked
- On Double Clicked
- On Timer
- On Resize

Cal4D_Cal_Redraw

Parameters: None

Return Value: None

Call this to get the calendar to redraw. This redraws both the boxes and events.

Cal4D_Cal_RedrawOtherClients

Parameters: None

Return Value: None

Sets an indicator that other client workstations will check to see if they need to update their calendar. This method must be called from a server process (a process with a name that doesn't start with the \$ character). If displayed from a local process it will display an error message.

Cal4D_Cal_SelectedDate ({date}) --> Date

Parameters:

\$1 : Date : The date to set as selected (optional)

Returns:

\$0 : Date : The currently selected date

The method allows the developer to set and get the currently selected date.
The method also highlights the currently selected date.

Call Cal4D_Cal_Redraw afterwards to view the change.

Cal4D_Cal_SetPosition (left; top; right; bottom)

Parameters:

- \$1 : Longint : Left
- \$2 : Longint : Top
- \$3 : Longint : Right
- \$4 : Longint : Bottom

Return Value: None

The method allows the developer to specify the position of the calendar on the form.

See also [Cal4D_Cal_SetPositionByObject](#).

Cal4D_Cal_SetPositionByObject (rectangle form object name)

Parameters:

\$1 : Text : Rectangle object name

Return Value: None

The method allows the developer to use a rectangle form object as the placeholder for the inherited calendar. If the 4D object is set to grow or move when the window is resized, the calendar will be resized with the form object.

Cal4D_Cal_SetVisible (Boolean)

Parameters:

\$1 : Boolean : True make the calendar visible

Return Value: None

Shows and hides the calendar when inherited by another form.

Cal4D_Confirm (message)

Parameters:

\$1 : Text : The message to display

Return Value: None

A replacement for 4D's CONFIRM command. The confirm messages used within the Cal4D code are given labels that are then looked up in the case statement within the method. This method is public which makes it easier to localize.

Sets the OK variable to 1 if the user clicks the Accept button.

Cal4D_Event_Color (event ID{; color}) --> Number

Parameters:

- \$1 : Longint : The event ID
- \$2 : Longint : The new color (optional)

Returns:

- \$0 : Longint : The event's color

Allows the developer to get and set an event's color. Use 4D RGB color values.

Set the color to -1 to use the group color.

Cal4D_Event_Create (title; start date; start time; end date; end time{; group ID}) --> Number

Parameters:

\$1 : Text : The event title

\$2 : Date : The start date

\$3 : Time : The start time

\$4 : Date : The end date

\$5 : Time : The end time

\$6 : Longint : Group ID (optional)

Returns:

\$0 : Longint : The new event record ID

Use this routine to create a new event record

This example will create an Appointment event:

```
$eventTitle="This is a test"
```

```
$startDate=Current date
```

```
$startTime=Current time
```

```
$endDate=$startDate
```

```
$endTime=$startTime+36001 ` hour later.
```

```
$eventID=Cal4D_Event_Create ($eventTitle;$startDate;$startTime;$endDate;$endTime)
```

Cal4D_Event_Delete ({event ID})

Parameters:

\$1 : Longint : An event ID (optional)

Return Value: None

Deletes the record associated with the currently selected event, and redraws the calendar. If no event ID is passed to this event, the selected event (if any) will be deleted.

To delete all of the events for a single group, use the Cal4D_Group_DeleteEvents method.

Cal4D_Event_Display (event ID;title; start date; start time; {end date{; endtime{; group ID}}}) --> Number

Parameters:

\$1 : Longint : The event ID
\$2 : Text : The event title
\$3 : Date : The start date
\$4 : Time : The start Time
\$5 : Date : The end date (optional)
\$6 : Time : The end time (optional)
\$7 : Longint : Group ID (optional)

Returns:

\$0 : Longint: The event ID

This method adds an event to the calendar without saving it as a record. If the event isn't displayed on the current month, it is ignored. Used for displaying events that are stored in another table. The parameters match the Cal4D_Event_Create parameters, except an additional parameter is required at the beginning.

Cal4D_Event_Edit (event ID)

Parameters:

\$1 : Longint : The event ID number

Return Value: None

The method displays the specified event record for editing. Pass a record ID of -3 (4D's New record constant value) to display a blank form for creating a new event. If it is a subscription, a view only version is displayed.

Cal4D_Event_Notes (event ID{; notes}) --> Text

Parameters:

\$1 : Longint : An event ID

\$2 : Text : New event notes (optional)

Returns:

\$0 : Text : The event description

Gets and sets the event notes. If you pass new notes, the old ones are replaced.

Cal4D_Event_Trigger --> Number

Parameters: None

Returns:

\$0 : Longint : The error number

After installing the Cal4D component and tables, add this call to the [Cal4D_Event] table like this:

```
$0:=Cal4D_Event_Trigger
```

Enable the [Cal4D_Event] table's On Saving New Record Event, On Saving an Existing Record Event, and On Deleting a Record Event checkboxes.

Cal4D_Event_View (event ID)

Parameters:

\$1 : Longint : The event ID number

Return Value: None

Displays the specified event record in a read-only mode form.

Cal4D_Group_Color (group ID{; color}) --> Number

Parameters:

\$1 : Longint : The group ID
\$2 : Longint : The new color (optional)

Returns:

\$0 : Longint : The calendar's color

Allows the developer to get and set a group's color.

Cal4D_Group_Create (group name{; color{; others can view?{; others can modify?}}}) --> Number

Parameters:

- \$1 : Text : The group name
- \$2 : Longint : The group color (optional)
- \$3 : Boolean : Let others view events? (optional)
- \$4 : Boolean : Let others modify events? (optional)

Returns:

- \$0 : Longint : The new group's ID

This method allows the developer to create a new group.

If a group with the name already exists then the ID is returned but the group is left unchanged.

The "others can modify?" parameter is ignored if "others can view?" is not True.

Cal4D_Group_CreateShared (group name{; color{; others can modify?}})
--> Number

Parameters:

\$1 : Text : The group name

\$2 : Longint : The group color (optional)

\$3 : Boolean : Let others modify events? (optional)

Returns:

\$0 : Longint : The new group's ID

Allows the developer to create a shared group.

This group has no owner. It is set to "others can view" by default.

If a group with the name already exists then the ID is returned but the group is left unchanged.

You can get this group ID by passing a blank user name to Cal4D_Group_ID.

Cal4D_Group_Delete (group ID)

Parameters:

\$1 : Longint : The group ID

Return Value: None

The method deletes the calendar group, and any events related to the group. A transaction is used if the method is not already in a transaction, so that if anything can't be deleted, nothing is deleted.

Cal4D_Group_DeleteEvents (group ID)

Parameters:

\$1 : Longint : The calendar ID

Return Value: None

Deletes all of the events for the specified calendar group. If not all of the events can be deleted, the 4D Error variable is set and none of the records are deleted.

Cal4D_Group_Edit (group ID)

Parameters:

\$1 : Longint : A group record ID

Returns:

\$0:= Longint : The group record ID

Displays a dialog allowing the user to edit the group information.

A additional options are available if the group is a subscription (was created from a URL).

Cal4D_Group_ID (group name{; user name}) --> Number

Parameters:

\$1 : Text : The group name

\$2 : Text : The user name (optional)

Returns:

\$0 : Longint : The group ID

Returns the ID for the group with the specified name and (optionally) of the specified user.

Cal4D_Group_Import ({path}) --> Number

Parameters:

\$1 : Text : The full path to the calendar file (optional)

Returns:

\$0 : Longint : The new group ID

Imports the selected calendar file. A new group is created for the imported events, and the group ID number is returned.

If an empty path string is passed, an Open File dialog is presented to allow the user to select the calendar file.

Cal4D_Group_ManageDialog

Parameters: None

Return Value: None

Displays the Cal4D_Group_ManageDialog form. This form allows to create, edit, and delete groups. In addition, it allows to subscribe and import ical calendars.

Cal4D_Group_Trigger --> Number

Parameters: None

Returns:

\$0 : Longint : The error number

After installing the Cal4D component and tables, add this call to the [Cal4D_Group] table like this:

```
$0:=Cal4D_Group_Trigger
```

Enable the [Cal4D_Group_Trigger] table's On Saving New Record Event, On Saving an Existing Record Event, and On deleting a record event checkboxes.

Cal4D_iCal_GetErrorMessage (error number) --> Text

Parameters:

\$1 : Longint : An error number

Returns:

\$0 : Text : The error description

Returns an error message based on an error number.

This method is Public so that the messages can be localized.

Cal4D_Info (what) --> Text

Parameters:

\$1 : Text : Info desired

Returns:

\$0 : Text : The info

Returns general information about the component.

Responds to these selectors:

- `version` : The version number as a string (might include beta info)
- `numeric_version` : The version number as a number
- `max_events` : The maximum number of text events that can be displayed at one time
- `max_banners` : The maximum number of banners that can be displayed at one time
- `max_pictures` : The maximum number of pictures that can be displayed at one time

If any other selector is passed, "unexpected request" will be returned.

The "version" selector returns the version number as human readable text. It might look like "Version 2.0.3 beta 7 release 4".

The "numeric_version" selector returns the version number as a number for comparisons. For example, version 2.0 would be "200" and version 2.0.1 would be returned as "201". No beta version information is returned with this selector.

Cal4D_Quit

Parameters: None

Return Value: None

Call to close any open calendar windows and quit any background processes.

Cal4D_RequestDate (message{;default date{; OK button{; Cancel button}}})
--> Date

Parameters:

\$1 : Text : The message to display
\$2 : Date : The default date value (optional)
\$3 : Text : OK button label (optional)
\$4 : Text : Cancel button label (optional)

Returns:

\$0 : Date : The entered date

Displays a dialog so the user can enter a date. Sets the OK button to 1 if the user clicks the Accept button.

```
$date:=Cal4D_RequestDate("Event date:")  
If (OK=1)  
  [Event]EventDate:=$date  
End if
```

Cal4D_Startup ({user name})

Parameters:

\$1 : Text : The user name (optional)

Returns: None

Call at Startup to launch the calendar's background process. A user name can optionally be passed if the 4D password system isn't being used.

Conclusion

With the Cal4D component 4D Developers can add a calendar to any 4D database. This Technical Note provided a language reference for the component. Part one of this Technical Note provided the user reference.

Technical Support and License

Please note that the 4DCal Component is provided "open source" and also includes a License Agreement ("EULA.txt"). 4D, Inc. will not provide Technical Support for problems encountered when using this component. Please feel free to modify the source code as needed.