



Xojo Calendar and Time Chooser For Xojo Desktop API 1.0

User Documentation
v3.0.5



INTELLIGENT VISIBILITY

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I. Project Information

Development Model:	Open Source
Version Control Repository:	GitHub
Repository Type:	Public
Link to Repository:	https://github.com/mikecotrone/CalendarTimeChooser
Xojo Project File Format:	"Xojo Project (xojo_project)"
License:	BSD-3 Clause
Affiliation:	This project is authored and maintained by Intelligent Visibility, Inc.
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Code Contributors:	Mike Cotrone, Norman Palardy, Axel Schneider, Jim McKay
Doc Contributors	Mike Cotrone, Gavin Smith
Last Doc Update:	December, 2019

II. Document Version History

Version 1.0.1	May 5, 2014	Initial documentation
Version 1.0.2	May 5, 2014	Added more content and images to most sections
Version 1.0.3	May 6, 2014	Added section "IV"
Version 1.0.4	May 6, 2014	Added section "XII" and updated a few images
Version 1.0.5	May 6, 2014	Added section "VIII" and image
Version 1.0.6	May 12, 2014	Added Gavin Smith's recommendations (Thanks Gavin!)
Version 1.0.9	August 25, 2014	Added gradient fill and color wheel chooser Fixed the lack of native feel on the clock time chooser
Version 2.0.2	November 14, 2014	Fixed Bugs Improved documentation Added Custom Event Structure Diagram in Appendix Added two new Feature sections: <ul style="list-style-type: none">- How Do I Set a Custom Date When The Calendar Starts?- How Do I Set the Calendars Starting Year and Ending Year?
Version 2.0.4	January 29, 2015	Changed page 14 to reflect the new parameters created in order to allow programmatic setting of the calendar date, starting year, and ending year.
Version 3.0.1	September 29, 2015	Refactored code base for readability and reflected this in this documentation version
Version 3.0.2	November 25, 2015	Added a "setCustomTime" method to choose a custom time for the clock on start up
Version 3.0.3	February 20, 2016	Fixed time selector highlight aesthetic bug Added few feature to draw optional calendar separator lines
Version 3.0.5	December 17, 2019	Reflect the usability changes from Norman Palary's refactoring of this project

III. Project Purpose (Please Read)

The purpose of this project was to create a professional “Calendar and Time Chooser” control for my Xojo™ [Desktop](#) applications. I was pleasantly surprised to see the volume of participation on this topic on the Xojo™ forums.

Special Thanks to Jim McKay who made significant contributions to the code base specifically around the clock face hands and OOP restructuring. This interest and contribution help has driven me to expand this project several times.

What this Project IS:

This project is a multi-featured Calendar and Time Chooser control tool for [XOJO DESKTOP API 1.0](#). The following features are available to you:

General Options:

- Show “Calendar Chooser Only”, “Show Time Chooser Only”, “Show Both Choosers”
- Change background color of this tool

Clock Options:

- 12 hour or 24 hour time formats
- Multiple clock faces to choose from
- Change color of clock hands

Calendar Options:

- Change “Week Start Day”
- Include/Exclude next/previous months on calendar
- Localizations: English, Afrikaans, Dutch, French, German, Italian, Polish, Spanish, Swedish
- Allow multiple date selections
- Recurring event behavior

What this Project IS NOT:

I feel that communicating what this project is and is not is key setting the expectations.

- This project is not a clock nor a countdown timer
- It is not calendar software i.e. Outlook or Thunderbird
- This project does not employ [SQLite](#) or any other databases for data storage
- This project isn’t designed to be “parted” out as the options will dictate how the tool operates (more detail later in this document)

IV. Quick Start Setup

Download Project, Copy folders, and Enable GDI

1. Download the project at <https://github.com/IntelligentVisibility/CalendarTimeChooser> by clicking the "Download ZIP" button on the bottom right hand side of the page
2. Open "CalendarTimeChooser.xojo_project" with the Xojo IDE
3. Copy all Folders that begin with "1 – 5" AND the one "Images" folder to your destination project (Note: You probably do not want the "Demo Window" folder for your destination project)

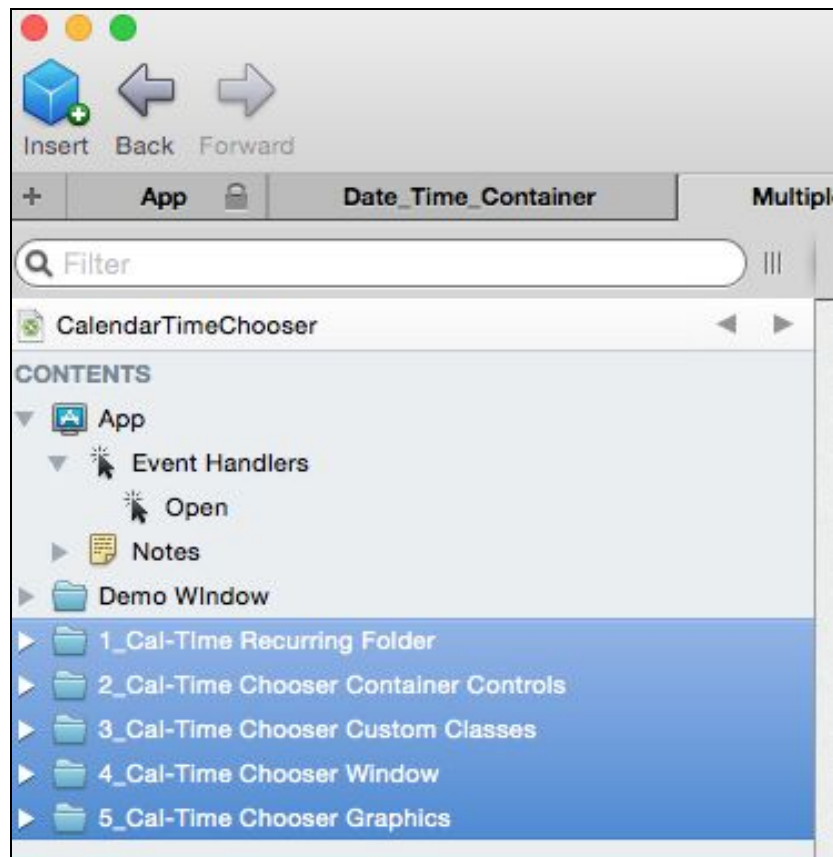


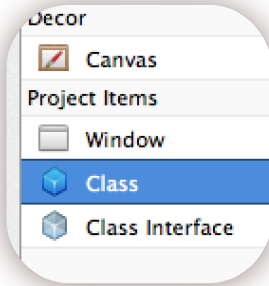
Figure 1. Depicts the six (6) folders that comprise the "Calendar and Time Chooser" project

4. Enable "GDI Plus" in your destination project (for example: copy "app.UseGDIPlus=True" to your destination project app.open event)

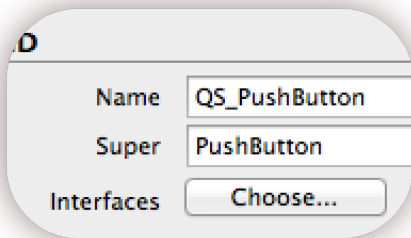
[Create instantiation of Options and DateTimeWindow](#)

There are many ways to accomplish this step, but for this quick start example I will use “PushButton” control that will be responsible for instantiating the “DateTimeWindow” and its options.

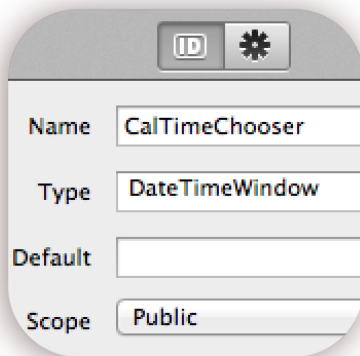
5. From the Xojo IDE drag a new “Class” to your project



6. Name your new class “QS_PushButton”
7. Change it's super class to “PushButton”

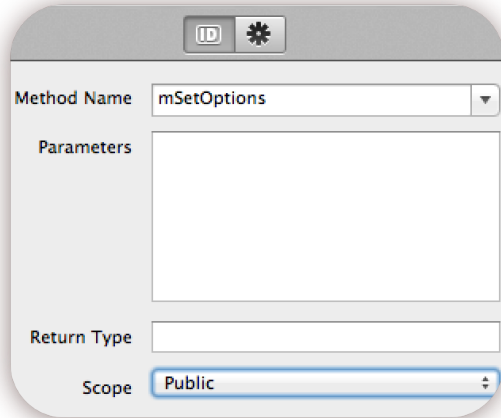


8. Add a new “Property” to the “QS_PushButton” and name it “CalTimeChooser”



9. Change the “CalTimeChooser” property type to: DateTimeWindow

10. Add a method named "mSetOptions" to the "QS_PushButton"



11. Add the following Code to the "mSetOptions" Method based on how you want this tool to behave in your project. (Detailed explanation of each option can be found on page 9)

// Chooser Type:

CalTimeChooser.VisiblePickers = Date_Time_Container.PickerElements_CalendarAndClock

// Chooser Time Format

CalTimeChooser.TimeMode = 12

// Chooser Clock Face Type

CalTimeChooser.ClockFaceType = Date_Time_Container.ClockFaceType_Chrome

// Chooser Clock Hands Type

CalTimeChooser.UseGraphicalClockHands=True

// Chooser Calendar Column Lines

CalTimeChooser.drawColSeperatorLines = True

// Chooser Week Start

CalTimeChooser.WeekStartsOnMonday = False

// Chooser Calendar to include previous/next days on calendar

CalTimeChooser.IncludePrevNextMonthDays = True

// Calendar Localization

CalTimeChooser.LocalizationInt = 0 // 0-English (See page 12 for definitions)

// Allow User to Select Multiple Calendar Days

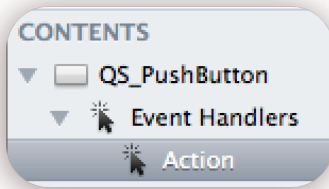
CalTimeChooser.AllowMultipleCalendarSelections = False

// Calendar Start Year:: This date integer is your calendar's start date

CalTimeChooser.StartYear = 1975

CalTimeChooser.EndYear = 2052

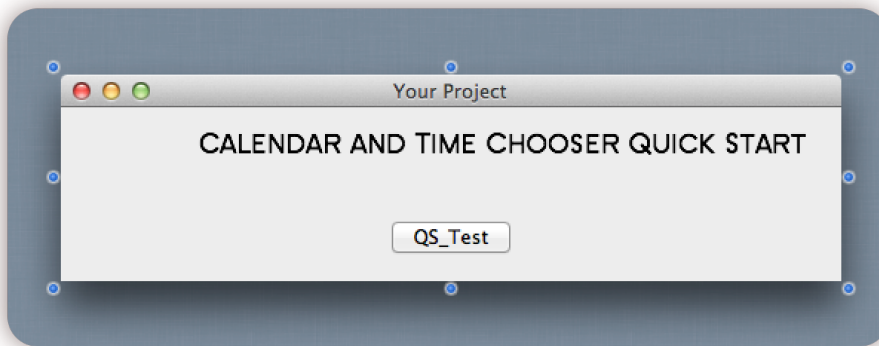
12. Add the "Action" event to the "QS_PushButton"



13. In the "Action" event add the following code:

```
CalTimeChooser = New DateTimeWindow  
mSetOptions
```

14. Drag your newly-created custom "PushButton" control "QS_PushButton" onto a Window in your destination project



Quick start is now complete! Run your project in the IDE to see your project.

V. Project Option Definitions

This section provides details for the “Calendar and Time” options that are available to change the behavior of this tool.

General Options

Calendar and Time Chooser Layout Option (Enumeration)	
Description:	This option allows you to set which chooser is visible. Choose <u>one</u> option
Choice #1	CalTimeChooser.VisiblePickers=Date_Time_Container.PickerElements. CalendarAndClock
Choice #2	CalTimeChooser.VisiblePickers=Date_Time_Container.PickerElements. CalendarOnly
Choice #3	CalTimeChooser.VisiblePickers=Date_Time_Container.PickerElements. ClockOnly

Clock / Time Options

Time Format (Integer)	
Description	This option allows you to set which time format you would like. Choose <u>one</u> time format
Option 1	CalTimeChooser.TimeMode = 12
Option 2	CalTimeChooser.TimeMode = 24

Clock Face Type (Enumeration)

Description	This option allows you to set which clock face is displayed graphically Choose <u>one</u> option
Option 1	CalTimeChooser.ClockFaceType = Date_Time_Container.ClockFaceType.Chrome
Option 2	CalTimeChooser.ClockFaceType = Date_Time_Container.ClockFaceType.Antique
Option 3	CalTimeChooser.ClockFaceType = Date_Time_Container.ClockFaceType.GoogleStyle
Option 4	CalTimeChooser.ClockFaceType = Date_Time_Container.ClockFaceType.Dynamic_12hr
Option 5	CalTimeChooser.ClockFaceType = Date_Time_Container.ClockFaceType.Modern
Option 6	CalTimeChooser.ClockFaceType = Date_Time_Container.ClockFaceType.Roman
Option 7	CalTimeChooser.ClockFaceType = Date_Time_Container.ClockFaceType.Standard

Choose Clock Hand Type (Boolean)

Description	This option allows you to choose between the graphical clock hands or plain lines. Choose <u>True</u> or <u>False</u>
Option	CalTimeChooser.UseGraphicalClockHands = <u>True</u>

Choose Clock Hand Color (Color)

Description	This option allows you to the color of the minute and hour clock hands (second hand is always red)
Option	CalTimeChooser.ClockHandColor = <u>RGB(120,20,200)</u>

Calendar Options

Week Begins on Monday (Boolean)

Description	If False the week begins on Sunday If True the week begins on Monday
Option 1	CalTimeChooser.WeekStartsOnMonday = False
Option 2	CalTimeChooser.WeekStartsOnMonday = True

Include / Exclude Previous/Next Months on Calendar View (Boolean)

Description	This option enables or disables displaying the next and previous month days on the calendar.
Option 1	CalTimeChooser.IncludePrevNextMonthDays = True
Option 2	CalTimeChooser.IncludePrevNextMonthDays = False

Localization (Integer)

Description	Choose the localization Integer that you desire.
English	CalTimeChooser.LocalizationInt = 0
French	CalTimeChooser.LocalizationInt = 1
Swedish	CalTimeChooser.LocalizationInt = 2
Italian	CalTimeChooser.LocalizationInt = 3
Spanish	CalTimeChooser.LocalizationInt = 4
Dutch	CalTimeChooser.LocalizationInt = 5
German	CalTimeChooser.LocalizationInt = 6
Afrikaans	CalTimeChooser.LocalizationInt = 7
Polish	CalTimeChooser.LocalizationInt = 8

Portuguese	CalTimeChooser.LocalizationInt = 9
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Allow Multiple Calendar Date Selections (Boolean)

Description	If True then “Single” selection allowed only If False then “Multiple” selection allowed
Option 1	CalTimeChooser.AllowMultipleCalendarSelections = True
Option 2	CalTimeChooser.AllowMultipleCalendarSelections = False

Calendar Start Year (Integer)

Description	Enter the “Start” year integer that you would like the calendar to allow user selection.
Option	CalTimeChooser.StartYear = 1975

Calendar End Year (Integer)

Description	Enter the “End” year integer that you would like the calendar to allow user selection.
Option	CalTimeChooser.EndYear = 2175

Calendar Column Separator Line (Boolean)

Description	Draw a separator line in between each day of the week column
Option	CalTimeChooser.drawColSeperatorLines = True / False

VI. How Do I Set a Custom Date When The Calendar Starts?

You are able to preset a custom date for the calendar to open and select upon opening. This modification is made in a method that has a commented format example.

The default behavior is that the calendar will show open and start showing today's date.

If you would like to change this default behavior please follow the steps in the Xojo IDE left navigation panel to make the changes.

- I. Select on the folder named "3_Cal-Time Chooser Custom Classes"
- II. Expand Calendar
- III. Then Expand Calendar's Methods
- IV. Select the SetCustomCalendarStartDate method (this method is yellow)

The SetCustomCalendarStartDate method has three (3) optional parameters you may pass in. The following describes these three optional parameters.

OPTIONAL Parameters for: SetCustomCalendarStartDate()	
InPassedDate as Date	This is the Xojo date class that you wish to have the calendar use as the starting date
InPassedStartYear as Integer	This is the integer value of the STARTING year that you would like the calendar to use
InPassedEndYear as Integer	This is the integer value of the ENDING year that you would like the calendar to use

Example: Set date, starting year, and ending year

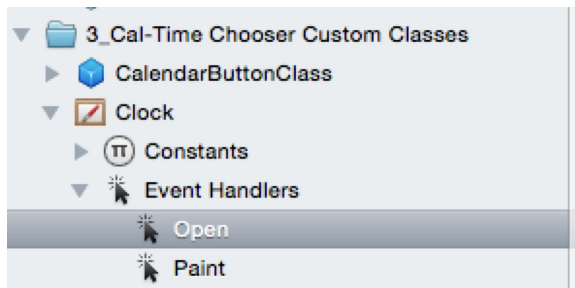
```
Dim sqlDateFromDB as New Date
Dim sqlStartYear as Integer = 1980
Dim sqlEndYear as Integer = 2020
```

```
SetCustomCalendarStartDate( sqlDateFromDB, sqlStartYear, sqlEndYear )
```

VII. How Do I Set a Custom Time on Start up?

The default behavior for the time clock is to use the current time

If you would like to change this default behavior please following these steps in the Xojo IDE left navigation panel to make then changes.



1. Select on the folder named "3_Cal-Time Chooser Custom Classes"
2. Expand Clock
3. Then Expand Clock's Event Handlers
4. Select the Open Event

The Clock's Open Event uses the "SetCustomTime()" method to set the default behavior of using the current time for the clock's starting time. This can be easily adjusted by passing a set of parameters into the "SetCustomTime()" method. See figure 1.2 below.

Figure 1.2

```
// ----- SET THESE VALUES IF YOU WOULD LIKE A CUSTOM TIME ON START
// ----- 24 HOUR OR 12 HOUR SUPPORTED

// DEFAULT: USE THE CURRENT TIME
SetCustomTime()

// EXAMPLE: SET 24 HOUR TIME TO 22:30
' SetCustomTime(22,30)

// EXAMPLE: SET 12 HOUR TIME TO 6:40 AM'
' SetCustomTime(6,40, "am")
```

Usage: SetCustomTime(inHour as Integer, inMinutes as Integer, inAMPM as String)

InHour = 12 or 24 hour digits

InMinutes = any integer representing minutes

InAMPM = If 12 hour is desired then pass either "am" or "pm" (it is not case sensitive)

VIII. How Do I Set the Starting Year and Ending Year?

The default behavior is that the calendar will show starting year of "1905" and an ending year of "2061".

If you would like to change this default behavior please following these steps in the Xojo IDE left navigation panel to make then changes.

1. Select on the folder named "3_Cal-Time Chooser Custom Classes"
2. Expand Calendar
3. Then Expand Calendar's Methods
4. Select the SetCustomCalendarStartDate method (this method is yellow)

Now that you have this method that we will modify please take note on the following example that is provided to you (commented out) in the SetCustomCalendarStartDate method.

1. Uncomment the following code block in the SetCustomCalendarStartDate

```
CurrentDate.Month = 5  
CurrentDate.Day = 6  
CurrentDate.Year = 2042
```

2. Make the appropriate integer value changes you desire.
3. Save you project and run it to see your new calendar starting date

Please Note: All three values in this example are the data type of "INTEGER".

IX. How Do I Get the User Selected Results?

There are three custom event definitions, which will provide you the user selection results.

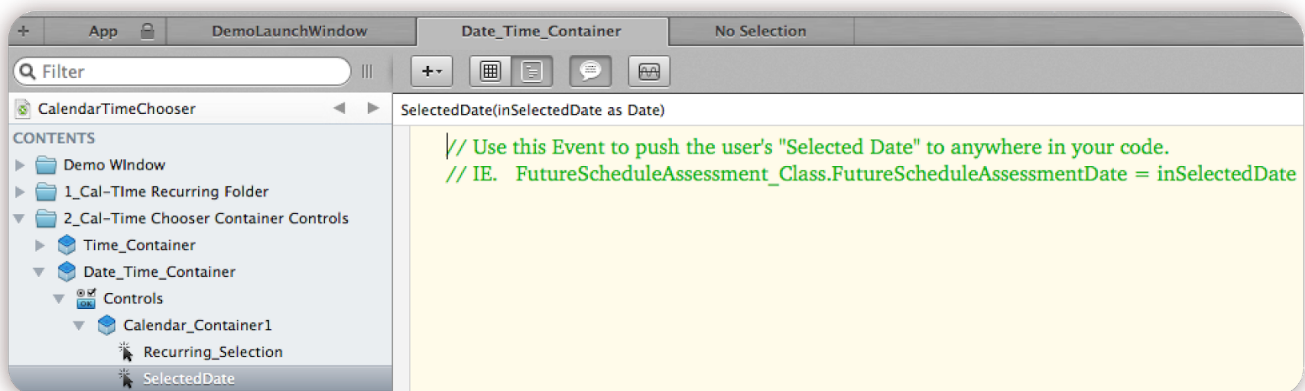
** Please see Appendix for a visual representation of these Custom Events

1. Calendar: [Selected Date\(s\)](#)
2. Calendar: [Selected Recurring Type](#)
3. Clock/Time: [Selected Time](#)

The following describes these events:

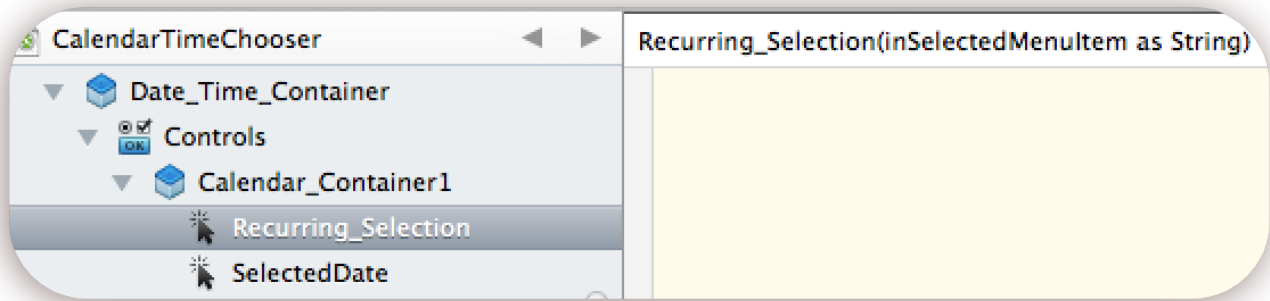
Calendar Date(s) Selection

Description	This event will contain the user's selected date or dates which you may use in your application
Event Name	SelectedDate
Name Space	Date_Time_Container.Calendar_Container1
Parameter Type	Date



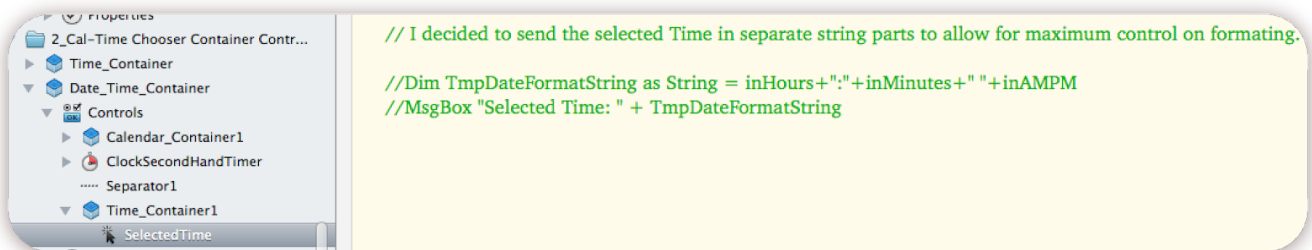
Calendar Recurring Selection Type

Description:	This event will contain the user's recurring choice
Event Name:	Recurring_Selection
Namespace:	Date_Time_Container.Calendar_Container1
Parameter Type:	String

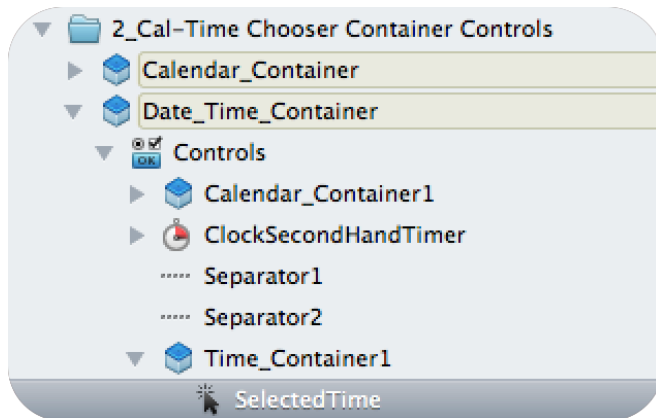


User Time Selection

Description:	This event will contain the user's time selection
Event Name:	SelectedTime
NameSpace:	Date_Time_Container.Time_Container1
Parameter Type:	Strings



X. How Do I Use the “SelectedTime” Custom Event?



SelectedTime Parameters

The “SelectedTime” event expects two (2) mandatory parameters with one (1) optional parameter. The goal was to provide as much flexibility to the coder by separating each time field. This allows the coder to choose exactly how they want to reassemble the time, instead of being forced into an unwanted format representation.

The following parameters as follows:

- inHours as String (mandatory)
- inMinutes as String (mandatory)
- inAMPM as String (optional and for 12 hour format only)

Example Code

Here is an example code that could be implemented in the “SelectedTime” event:

```
// 12 Hour Time Format
Dim TmpDateFormatString as String = inHours+":"+inMinutes+" "+inAMPM
// Now I can do something with TmpDateFormatString
```

OR

```
// 24 Hour Time Format
Dim TmpDateFormatString as String = inHours+":"+inMinutes
// Now I can do something with TmpDateFormatString
```

XI How Do I Close This Chooser Now That It's Open?

I purposely left it to you, the coder, on how to handle dismissing or closing the chooser when finished. I knew that some coders would like to have a “Cancel” and “Close” button, while others may only want to enable the Keydown event for the “Escape key” or “Enter key”. Either way, this is the reason that this is not built in by default.

The following is an example that accomplishes adding a “Close” button to this project along with resizing the proper window and containers

1. Resizing the DateTimeWindow

We will first need to resize the “DateTimeWindow” height to 286 in order to make room for our controls to fit.

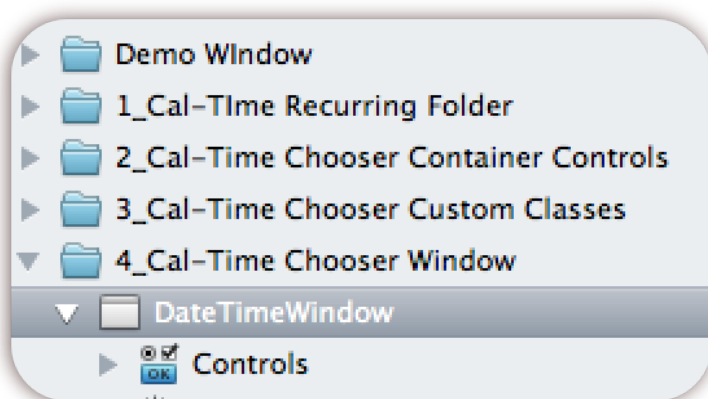


Figure 7.1

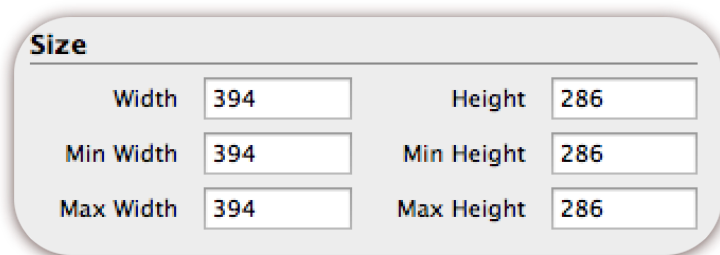


Figure 7.2

First change the height of the “DateTimeWindow” from 252 to 286 as shown above in Figure 7.2

2. Resizing the Date_Time_Container

Next we will need to resize the “Date_Time_Container” height from 252 to 286.

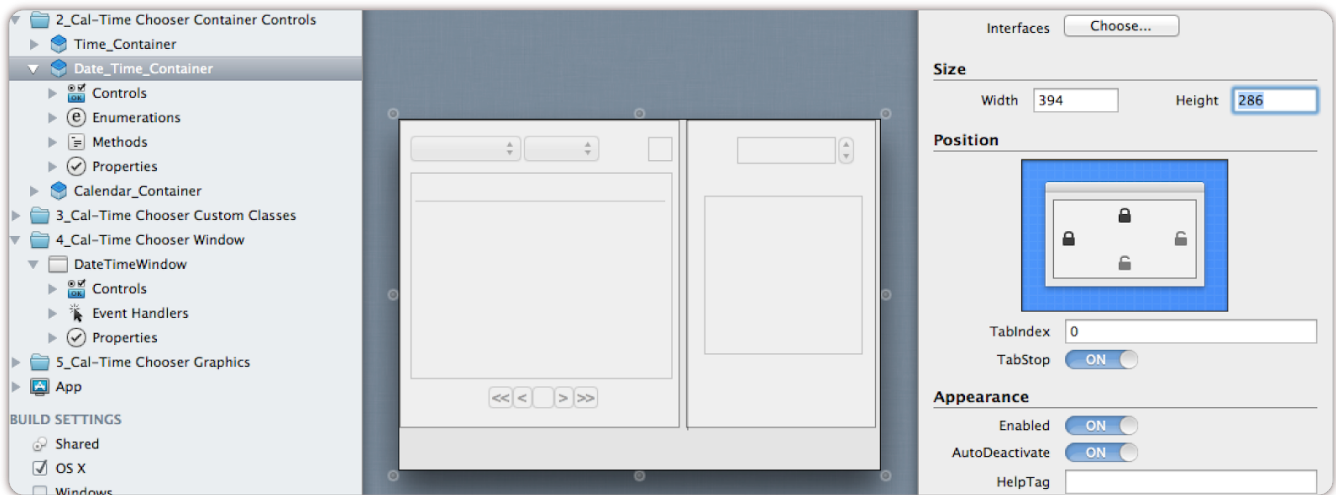


Figure 7.3

3. Change Setup Methods

When you select one of the following options “CalendarAndClock, ClockOnly, or CalendarOnly” during your implementation either one of the three below methods are launched. We must adjust their “Window.Height” line from 252 to 286

Change: [mSetupForBothPickers](#)

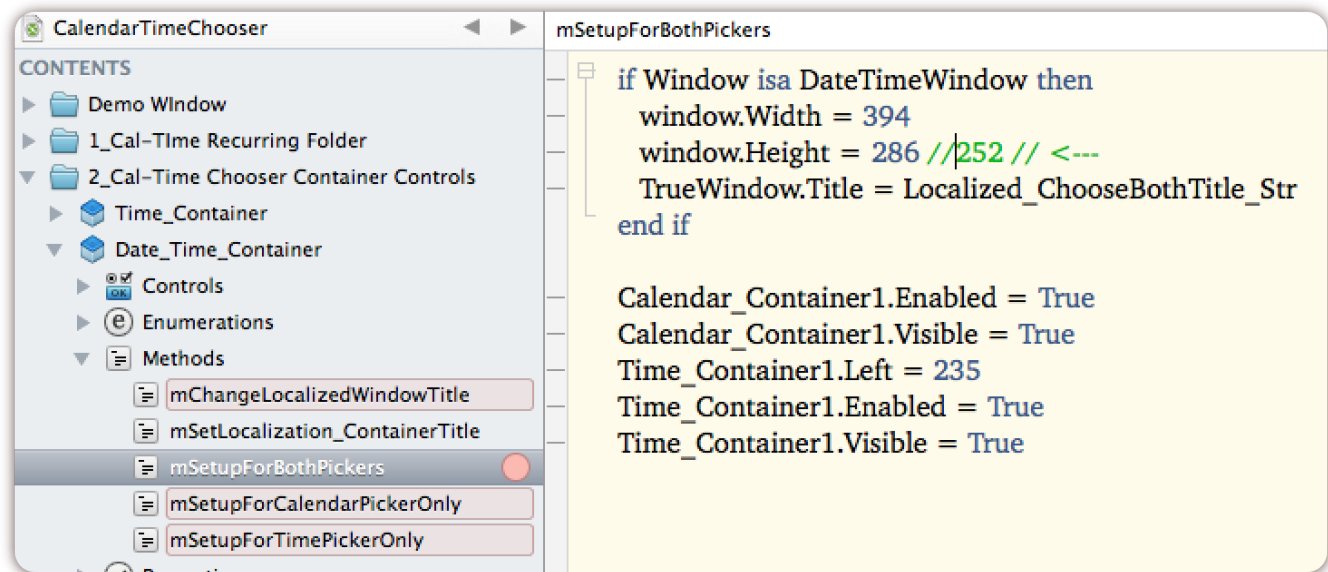


Figure 7.4

Change: [mSetupForCalendarPickerOnly](#)

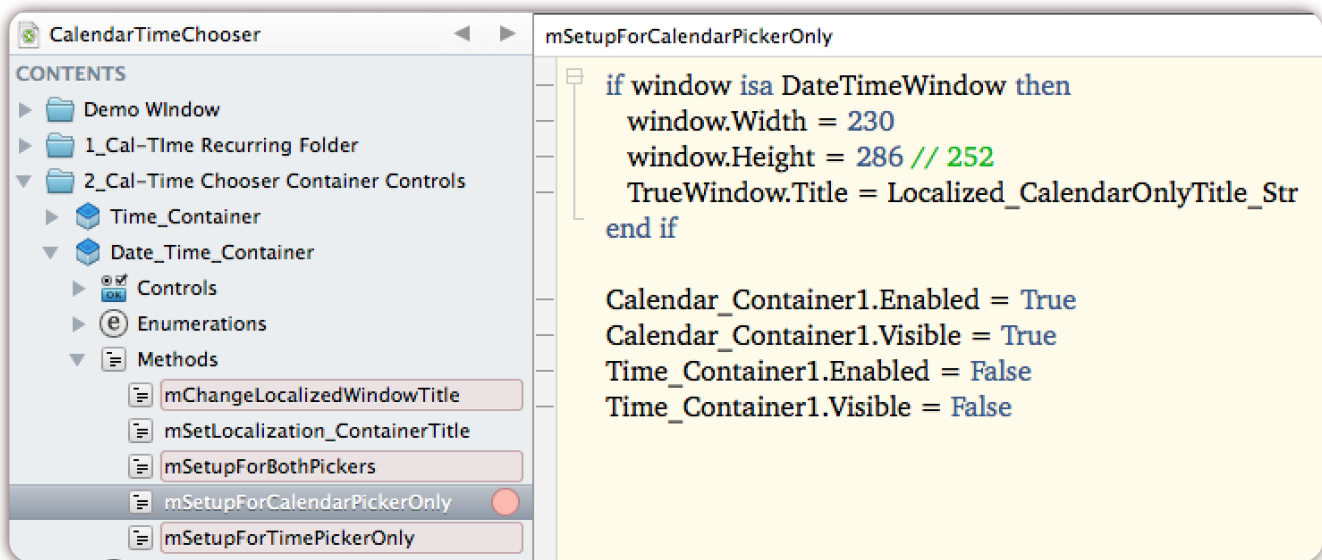


Figure 7.5

Change: [mSetupForTimePickerOnly](#)

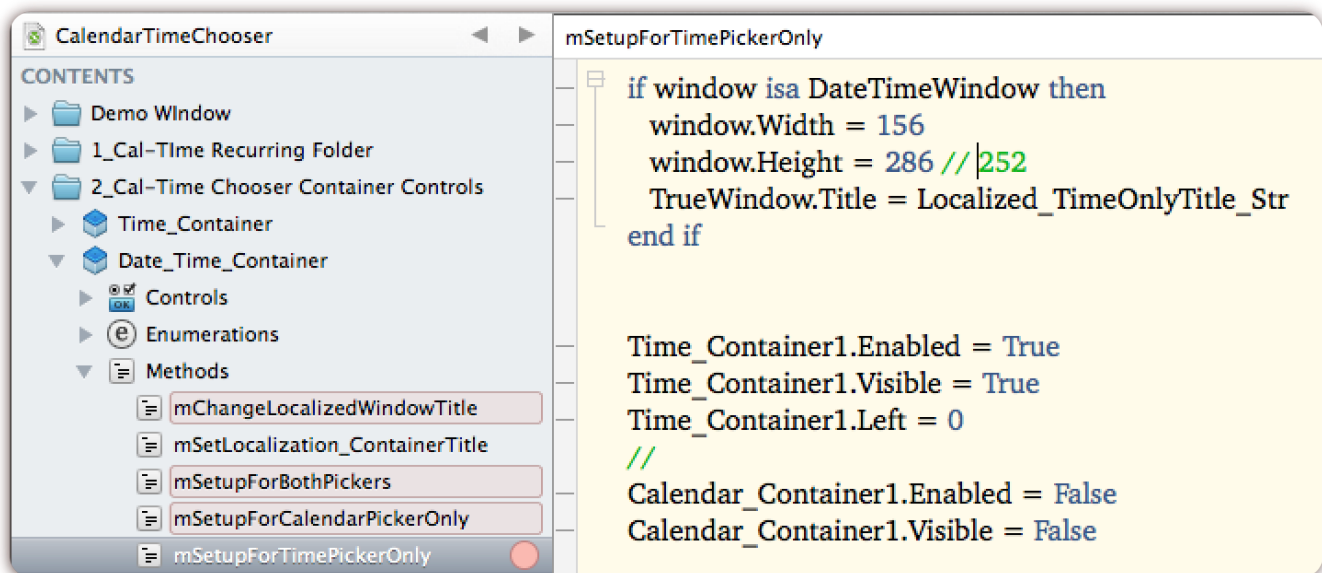


Figure 7.6

4. Add a new PushButton

In the Xojo IDE we will need to drag a new PushButton onto the project so we can turn it into the “Close” button for the Calendar/Time chooser tool. After all we need to close this after the user is finished right? ☺

1. In the Xojo IDE prepare to drag the “PushButton” control onto your project
2. Place the “PushButton” control onto the “Date_Time_Container” control (Looking on page 18 you see that this container is the Parent and a great place for this control)
3. Change the name of your new “PushButton” to “FinishedButton” and change its text to “Finished”
4. Add the “Action” event to the “FinishedButton”
5. To “Close” the control add the “Self.Close” code to the action event (see figure 7.7 below)

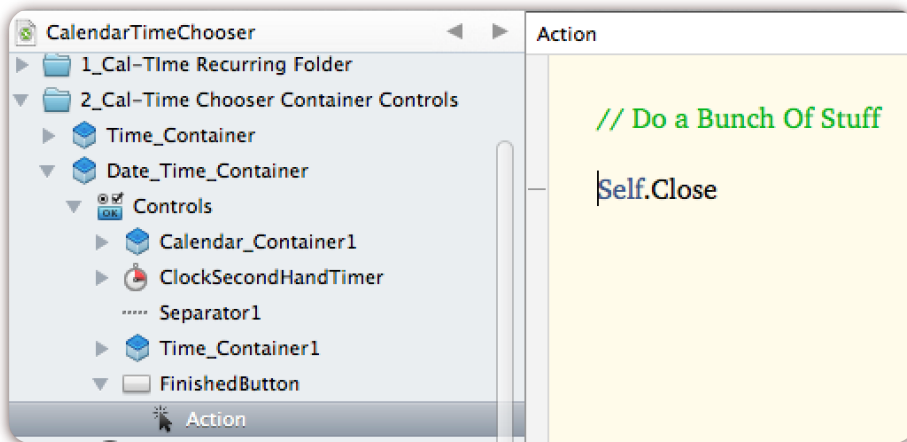
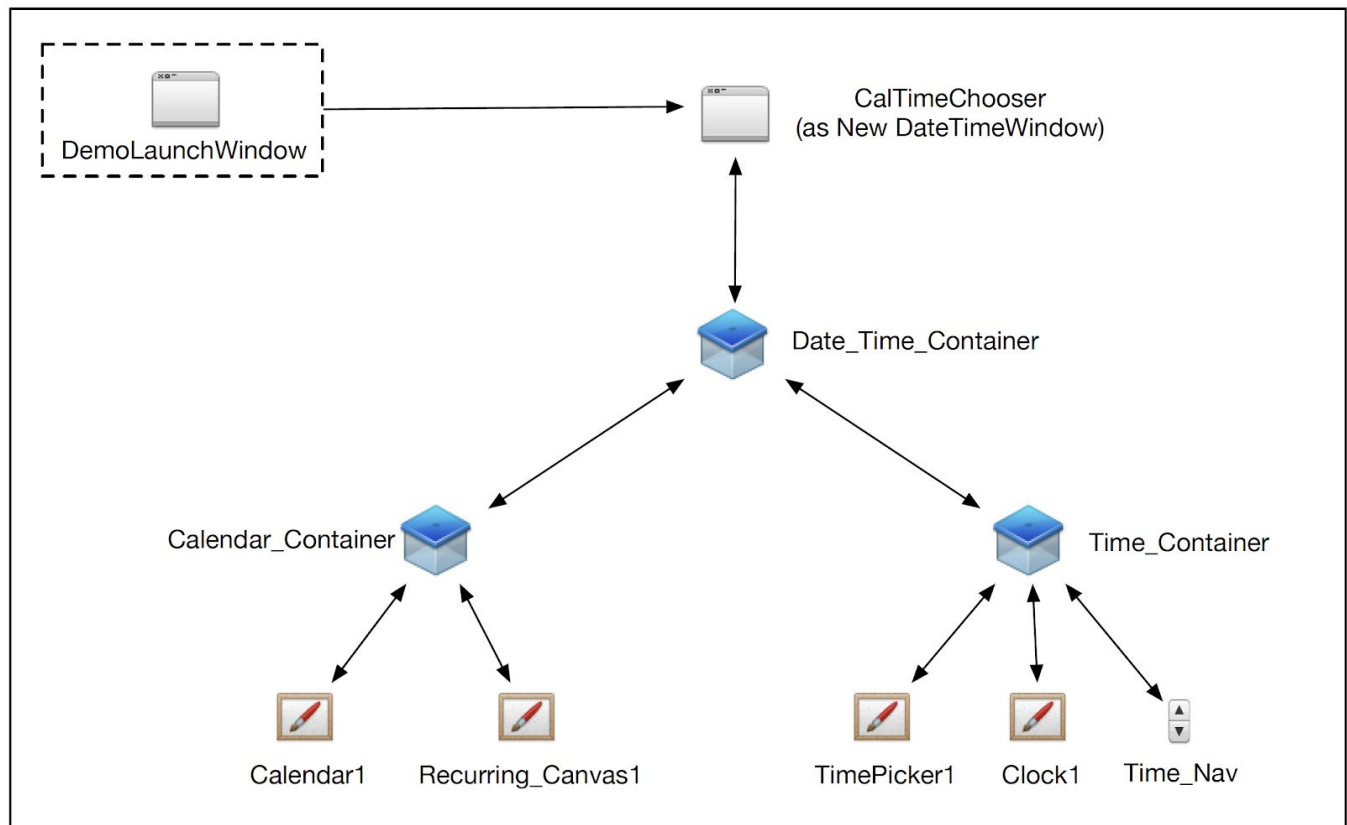


Figure 7.7

You are now finished Congrats!!

XII. Appendix: OOP Structure:

The following illustration is a depiction of the object-oriented relationships between the windows, containers, and canvas classes.



XIII. Custom Event Definition Structure:

