

CalendarView

Developer Manual

GemsFX • com.dlsc.gemsfx • JavaFX Custom Controls



CalendarView renders a full month with optional week numbers and selected dates.

CalendarView displays a YearMonth as a six-row calendar grid with configurable header navigation, week numbers, date filtering, custom date cells and single, multiple or range selection.

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1. Introduction

CalendarView is the standalone month view used by **CalendarPicker** and **DateRangeView**. It is a focus-traversable Control whose skin builds a header, weekday row, date-cell grid and optional Today footer.

1.1 Key features

- Shows a configurable YearMonth and marks today.
- Header can show or hide month, year, arrows, dropdowns and a year spinner.
- Selection model supports SINGLE_DATE, MULTIPLE_DATES and DATE_RANGE.
- Optional week-number column and configurable week-number width.
- Application-supplied DateCell factory and date filter.
- Embedded YearMonthView and YearView for direct month / year selection.

1.2 Maven dependency

```
<dependency>
  <groupId>com.dlsc.gemsfx</groupId>
  <artifactId>gemsfx</artifactId>
  <version>4.4.1</version>
</dependency>
```

CalendarView is in package com.dlsc.gemsfx.

2. Getting started

```
CalendarView view = new CalendarView();
view.setYearMonth(YearMonth.now());
view.setShowTodayButton(true);
view.getSelectionModel().setSelectionMode(CalendarView.SelectionModel.SelectionMode.DATE_RANGE);
view.getSelectionModel().select(LocalDate.now());
```

A complete CalendarView setup.



A CalendarView with week numbers and selected dates.

Note. The constructor sets `setMaxSize(Region.USE_PREF_SIZE, Region.USE_PREF_SIZE)`, so place it in a wrapper if it should grow beyond its preferred size.

3. Anatomy

The skin uses two grid panes so weekday names and date cells stay aligned. It switches the stack pane front node between the normal date view, the month selection view and the year selection view.



The parts of a CalendarView.

Part	Style class	Description
Root	calendar-view	Control with accessible role <code>DATE_PICKER</code> and localized role description 'calendar'.
Header	header	Month/year labels, arrow buttons and optional year spinner.
Weekday row	weekday-grid-pane, weekday-name	Localized day names starting with the locale's first day of week.
Body grid	body-grid-pane	Six rows of <code>DateCell</code> nodes.
Date cell	date-cell	Default cell text is day-of-month; created by <code>cellFactory</code> .
Week number	week-number-label	Visible only when <code>showWeekNumbers</code> is true.
Footer	footer, today-button	Visible only when <code>showTodayButton</code> is true.
Selection overlays	selected, range-start, range-end, range-date	Style classes updated from <code>SelectionModel</code> .

4. Control API

4.1 Displayed month and calendar data

Property	Type	Default	Description
yearMonth	ObjectProperty<YearMonth>	YearMonth.now()	The month displayed by the control.
today	ObjectProperty<LocalDate>	LocalDate.now()	Date treated as today; setToday rejects null.
weekendDays	ObservableSet<DayOfWeek>	empty set	Days styled as weekend-day when present.
earliestDate	ObjectProperty<LocalDate>	null	Lower selectable bound; also constrains inner YearMonthView / YearView.
latestDate	ObjectProperty<LocalDate>	null	Upper selectable bound.
dateFilter	ObjectProperty<Callback<LocalDate, Boolean>>	null	Disables cells for which the callback returns false.

4.2 Header and visibility

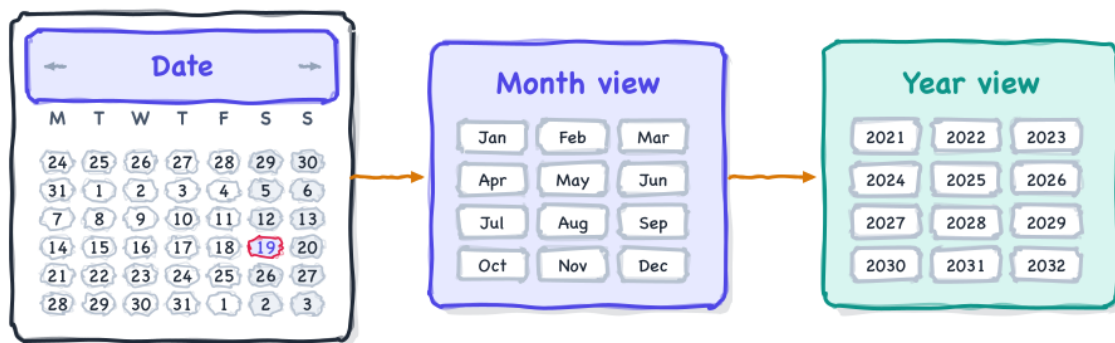
Property	Type	Default	Description
showMonth	BooleanProperty	true	Shows the month label and related month controls. Styleable.
showYear	BooleanProperty	true	Shows the year label. Styleable.
showMonthArrows	BooleanProperty	true	Shows previous / next month arrows. Styleable.
showToday	BooleanProperty	true	Marks today with the today style class. Styleable.
showTodayButton	BooleanProperty	false	Shows the footer button. Styleable.
todayText	StringProperty	"Today"	Text of the Today button from ResourceBundleManager.
headerLayout	ObjectProperty<HeaderLayout>	CENTER	CENTER, LEFT or RIGHT; not styleable.

4.3 Selection and cells

Property	Type	Default	Description
selectionModel	ObjectProperty<SelectionModel>	new SelectionModel()	Tracks selected dates.
cellFactory	ObjectProperty<Callback<CalendarView, DateCell>>	view -> new DateCell()	Creates cells for the body grid.
showWeekNumbers	BooleanProperty	false	Adds the week number column. Styleable.

Property	Type	Default	Description
weekNumberColumnWidth	DoubleProperty	16	Width of the week-number column. Styleable.
showDaysOfPreviousOrNextMonth	BooleanProperty	true	Shows padding days around the month. Styleable.
markSelectedDaysOfPreviousOrNextMonth	BooleanProperty	true	Keeps adjacent-month selected days styled. Styleable.

5. Header modes and embedded pickers



click labels when monthSelectionViewEnabled / yearSelectionViewEnabled are true

CalendarView can switch from dates to month or year selection.

Property	Type	Default	Description
monthDisplayMode	ObjectProperty<MonthDisplayMode>	TEXT_ONLY	TEXT_ONLY or TEXT_AND_DROPDOWN. Styleable.
yearDisplayMode	ObjectProperty<YearDisplayMode>	TEXT_ONLY	TEXT_ONLY, TEXT_AND_SPINNER or TEXT_AND_DROPDOWN. Styleable.
monthSelectionViewEnabled	BooleanProperty	true	Allows clicking month label / dropdown to show YearMonthView. Styleable.
yearSelectionViewEnabled	BooleanProperty	true	Allows clicking year label / dropdown to show YearView. Styleable.
disablePreviousMonthButton	BooleanProperty	false	Disables previous month arrow. Styleable.
disableNextMonthButton	BooleanProperty	false	Disables next month arrow. Styleable.
disablePreviousYearButton	BooleanProperty	false	Disables previous year spinner arrow. Styleable.
disableNextYearButton	BooleanProperty	false	Disables next year spinner arrow. Styleable.
disableMonthDropdownButton	BooleanProperty	false	Disables month dropdown arrow. Styleable.
disableYearDropdownButton	BooleanProperty	false	Disables year dropdown arrow. Styleable.

6. Selection model



The three selection modes style date cells differently.

Mode	State used	Click behaviour
SINGLE_DATE	selectedDate	Click selects one date.
MULTIPLE_DATES	selectedDates	Click toggles an individual date.
DATE_RANGE	selectedDate + selectedEndDate	First click sets start; second click sets end; if end is before start, dates are swapped; clicking after a complete range clears first.

```
CalendarView.SelectionModel model = view.getSelectionModel();
model.setSelectionMode(CalendarView.SelectionModel.SelectionMode.MULTIPLE_DATES);
model.select(LocalDate.now());
model.select(LocalDate.now().plusDays(2));
```

7. Styling

The stylesheet is `calendar-view.css`. It also recognizes root marker classes such as `popover` and `show-grid-lines`, although these are not pseudo classes.

7.1 Style classes and pseudo classes

Selector	Meaning
<code>.calendar-view</code>	Root.
<code>.container</code>	VBox containing header, weekday grid, body grid and footer.
<code>.header</code>	Header row; pseudo classes <code>:left</code> , <code>:center</code> and <code>:right</code> reflect <code>headerLayout</code> .
<code>.date-label</code> , <code>.month-label</code> , <code>.year-label</code>	Month and year labels.
<code>.arrow-button</code> , <code>.previous-month-button</code> , <code>.next-month-button</code>	Month navigation.

Selector	Meaning
.year-spinner	Shown for TEXT_AND_SPINNER.
.weekday-grid-pane, .body-grid-pane	The two grid panes.
.date-cell	Cells; receive previous-month, next-month, weekend-day, today, selected, range-start, range-end, range-date.
.today-button	Footer button.

7.2 Styleable CSS properties

CSS property	Type	Default
-fx-year-display-mode	YearDisplayMode	TEXT_ONLY
-fx-month-display-mode	MonthDisplayMode	TEXT_ONLY
-fx-show-today	boolean	true
-fx-show-week-numbers	boolean	false
-fx-disable-previous-month-button	boolean	false
-fx-disable-next-month-button	boolean	false
-fx-disable-next-year-button	boolean	false
-fx-disable-previous-year-button	boolean	false
-fx-disable-month-dropdown-button	boolean	false
-fx-disable-year-dropdown-button	boolean	false
-fx-month-selection-view-enabled	boolean	true
-fx-year-selection-view-enabled	boolean	true
-fx-show-month	boolean	true
-fx-show-year	boolean	true
-fx-show-today-button	boolean	false
-fx-show-month-arrows	boolean	true
-fx-mark-selected-days-of-previous-or-next-month	boolean	true
-fx-show-days-of-previous-or-next-month	boolean	true
-fx-week-number-column-width	size	16


```
.calendar-view {
    -fx-show-week-numbers: true;
    -fx-month-display-mode: text-and-dropdown;
    -fx-year-display-mode: text-and-spinner;
}

.calendar-view > .stack-pane > .container > .body-grid-pane > .date-cell.range-date {
    -fx-background: derive(-fx-accent, +80%);
}
```

8. Localization

CalendarView uses ResourceBundleManager with bundle type CALENDAR_VIEW.

Key	English default
button.today	Today
accessible.role-description	calendar

9. Accessibility

CalendarView sets AccessibleRole.DATE_PICKER with localized role description calendar. It requests focus on mouse or touch press and is focus traversable by default.

10. Recipes

10.1 Week-number calendar

```
view.setShowWeekNumbers(true);
view.setWeekNumberColumnWidth(22);
```

10.2 Business-day picker

```
view.getWeekendDays().setAll(DayOfWeek.SATURDAY, DayOfWeek.SUNDAY);
view.setDateFilter(date -> !view.getWeekendDays().contains(date.getDayOfWeek()));
```

10.3 Custom cells

```
view.setCellFactory(calendar -> new CalendarView.DateCell() {
    @Override public void updateItem(LocalDate date, boolean empty) {
        super.updateItem(date, empty);
        if (date != null && busyDates.contains(date)) {
            getStyleClass().add("busy");
        }
    }
});
```

10.4 Jump to today

```
view.setToday(LocalDate.now());  
view.setShowTodayButton(true);
```

10.5 Checklist

- 1 Choose the selection mode before processing selected properties.
- 2 Use earliestDate/latestDate for hard bounds.
- 3 Use dateFilter for dynamic business rules.
- 4 Keep custom DateCell implementations small and update style classes when the item changes.

11. See also

- Demo application: `com.dlsc.gemsfx.demo.CalendarViewApp` (run with `mvn javafx:run -f gemsfx-demo/pom.xml -Dmain.class=com.dlsc.gemsfx.demo.CalendarViewApp`)
- Related controls: `CalendarPicker`, `DateRangeView`, `YearMonthPicker`, `YearView`.
- API documentation: <https://dlsc-software-consulting-gmbh.github.io/GemsFX/api/>