Migrating to v4

Bootstrap 4 is a major rewrite of the entire project. The most notable changes are summarized below, followed by more specific changes to relevant components.

Stable changes

Moving from Beta 3 to our stable v4.0 release, there are no breaking changes, but there are some minor changes.

Printing

- Fixed broken print utilities. Previously, using a `.d-none-print` class would unexpectedly cause any other `.d-*` class. Now, they match our other display utilities and only apply to that media (`display: none`).
- Expanded available print display utilities to match other utilities. Beta 3 and other alpha releases only included `.d-print-block`, `.d-print-inline`, and `.d-print-inline-block`. Now, we've added `.d-print-none` and `.d-print-flex`.
- Fixed print preview rendering across browsers with new print styles that specify `@page` rules.

Beta 3 changes

Beta Beta 3 was the bulk of our breaking changes across the beta phases, but we still have a few that needed to be addressed in the Beta 3 release. These changes apply if you're updating to Beta 3 from Beta 2 or any older version of Bootstrap.

Miscellaneous

- Removed the unused `transition-enabled` variable. We standardized transitioning everything, so it was just extra code.
- Fixed a package.js issue causing our files other than our Sass to be included in our dist files. If you relied on them and were running our Gulps via the `npm install --ignore-scripts` option, you should adjust your workflow.

Forms

- Rewrote both custom and default checkboxes and radios. Now, both have matching HTML structure (`label > input + span`) with sibling `.form-check-input` and `.form-check-label` classes. Custom controls use `.custom-control` and `.custom-control-input` in addition, based on the input's state, sharing support for the `:hover`, `:active`, `:focus`, `:disabled`, and `:checked` states, and better supporting our form validation.
- Fixed a bug in Safari that prevented the CSS for managing multiple `.custom-file` inputs on custom form checkboxes and radios. Alongside this, we've removed `.custom-control-indicator` element from the markup (no longer needed for our CSS). Customizing the background gradient shown regularly applied on focus and active states has been moved to changed just one. Now, we have `.custom-control-label::before` for the 'off' state and `.custom-control-label::before` for the 'on' state.

  To make a custom check state, add `.custom-control-inline`.
- Updated selectors for input/textarea sizing classes (`.form-control-lg` and `.form-control-sm`). For `type` and textarea, we use the `.form-control` as the default and `.form-control-lg` and `.form-control-sm` as variants.
- Fixed a bug in Safari where the `:hover` state of a slightly impressive `.input-group-text`. The way `.input-group-text` styles `:hover` and `:focus` states, it can be used on `.btn` elements with ease.
- Custom file inputs received a change to their `.custom-file-label`. Same rounded. It's no longer a nested Sass map and now only powers one thing—the `.custom-file-label` that sits to the right of the newly placed element generated from our Sass. The `.custom-file` text now comes from the `.custom-file-label` variable.

Input groups

- Input group addons are now specific to their placement relative to an input. We've dropped `.input-group-addon` and `.input-group-btn` in favor of `.input-group-prepend` and `.input-group-append`, respectively. Within these, you'll find `.input-group-text` by default, or any of our Bootstrap button classes. Adding a `.input-group-text` in front of our CSS, Within an `.input-group-text`, we've added support for our checkbox and radio options that we've long had in `.input-group-text`.
- Validation styles are now supported on any multiple inputs (though you can only validate one input per group).
- Sizing classes must be on the parent, `.input-group` and the individual form elements.

Beta 2 changes

Within Beta, we aim to have no breaking changes. However, things don't always go as planned. Below are the breaking changes to bear in mind when moving from Beta 1 to Beta 2.

Breaking

- Removed global `margin` variable and its usage in `.alert`. We use a new certain function to pulls a `.5rem` based on the `$spacer` value, so the variable is unnecessary.
- Removed `.pagination` function in `_mixins.scss` to avoid breaking conflicts with the CSS native `.pagination` filter.
- Removed `.text-hide` mixin in `_mixins.scss`. Use `.sr-only` and `.sr-only-focusable` instead, modifying our color schemes used elsewhere.
- Responsive tables now generate classes for each grid breakpoint. This breaks from Beta 1 that the `.table-responsive` can be applied to tables less. `.table-responsive-sm`, `.table-responsive-md`, `.table-responsive-lg`, `.table-responsive-xl`, `.table-responsive` needed.
- Dropped Bower support as the package manager has been deprecated for alternatives (e.g. Yarn or npm). See bower/bower#2349 for details.
- Bumping gulp-sass (Libsass 3.4.1) to fighter, but you've unlocked a bunch of new features. Libsass 3.4.1 supports functions in the sass. Bootstrap supports plus a few some security fixes.
- Dropped `.table-inverse` from `.table` in favor of `.table-dark`. Along with the rest of the class, it now displays of the `.table` table (rather than actually underpin a `.table`), with its associated dark-to-horizontal-fold layouts.
- Changed the `.carousel` to flow a from slide that included the `.slide` property to a function that returns a value, allowing you to use 3d and CSS properly. For example, instead of `.carousel.slide.slide-left` use `.carousel.slide.carousel-left`.

Highlights

- Introduced new `.carousel` classes usage on models. The lower `.slide` library passes through events with `.carousel` classes, ready for custom click handling (meaning it possible to just listen on the `.menu` classes, for any class), and then counterparts to the `.slide` events. `.slide.bs.carousel` and `.slide.bs.carousel`.

Summary

Here are the big-picture items you'd want to be aware of when moving from v3 to v4.

Browser support

- Dropped IE8, IE9, and iOS 6 support. v4 is now only IE10+ and iOS 7+. For sites needing either of those, use v3.
- Added offer support for Android v4.4 Lollipop's Browser and WebView. Earlier versions of the Android Browser and WebView are not officially supported.

Global changes

- **Pixelbox is enabled by default.** In general this means a move away from floats and more across our components.
- Switched from `px` units to `rem` units throughout.
- Switched from `px` units to `em` units throughout CSS. Although pixels are still used for media queries and grid between as device widths are not affected by type size.
- Moved from pixel based to `em`-based grids.
- Rewrote grid system to use CSS flexible-box layout instead of floats. Retained the old grid system with a new `.row-flex` class to opt into flexbox. Flexbox is not supported in IE9 or older versions of IE.
- Replaced the separate optional theme with configurable options for SCSS variables (e.g. `$enable-rounded`, `$enable-shadows`, etc).
- Built system overhauled to use a series of turn-angle instead of Grunt. See `package.json` for all scripts, or our prepare-release for a complete overview of our new workflow.
- Non-responsive usage of Bootstrap is no longer supported.
- Dropped the entire Customizer in favor of more resources-always documentation and customizer builds.
- Added dozens of new utility classes for common CSS property value pairs and marginal/padding spacing affinity.

Grid system

- **Moved to flexbox.**
- Added support for flexbox in the grid mixins and predefined classes.
- Added support for flexbox in the grid variables and grid-generation classes.
- **Updated grid classes name and a new grid tier.**
- Added a new `.col-xl` tier below `.col` for more granular control. We now have `.col-lg`, `.col-md`, and `.col-sm`. This also means every `.col-*` class has been updated to include a new tier, `.col-xl`, and `.col-xl-*` classes.
  - `.col` classes have been modified to not require the info to know accurately expected that they start applying classes at `.col-xl` and on a per-col basis. Instead of `.col-xl-*`, it's now `.col`. All other grid tiers require the info (e.g., `.col-lg-*`) to start applying classes.
- Dropped `.col-xs-*` classes in favor of `.col-*`.
  - Grid gutters now have their own `.no-gutter` class, which specifically gutter widths and width.
  - Upgraded grid mixins to utilize a `$grid-breakpoints` group mixin and a `$grid-tier` function and `$grid-infix` for individual breakpoints.
  - Changed grid gutters name to `$grid-gutter-width`, and added the ability to accept the new grid tier and infix objects into an overrity double by `.xl` tier.
  - Added `$grid-columns` variable, which is now handed-in-lieu these `$grid-breakpoints` and `$grid-gutter-width` variables instead of a handful of separate variables. These replace the `$col-*` variables entirely and allow you to fully customize the grid tier.
  - Merged similar mixins into one, instead of repeating our media queries, functionalizing them with the same value each time, we now have `.make-grid-columns()`, `.make-grid()`, and `.make-gutter()`. Also, instead of using `.media-xl-up()`, `.media-lg-up()`, `.media-md-up()`, `.media-sm-up()`, you can use `.media-breakpoint-up(xl)`, `.media-breakpoint-up(lg)`, `.media-breakpoint-up(md)`, `.media-breakpoint-up(sm)`.

Components

- **Dropped panels, thumbnails, and wells** for a more all-encompassing component, cards.
- **Dropped the Glyphicons icon font.** If you need icons, we suggest adding:
  - the open-iconic version of Glyphicons
  - Font Awesome
  - Ionicons
  - Foundation
  - See the Icons page for a list of alternatives. Have additional suggestions? Please open an issue or PR.
- **Dropped the JSRs jQuery plugin.**
  - We recommend using `jsrsasign` instead. See the JSRS/jsrsasign wiki for details and specific API/usage.
  - Alternatively, `node-forge` is a good option, and is actively maintained. See `node-forge` documentation.
  - If you were using JSRS to apply additional `data-attr` attributes, the polyfills might not support your use case. One option for this would be `jsrsasign-rsaevp`, which adds PEM support.
- **Dropped the pager component** as it was essentially a slightly customized pagination.
- **Refactored nearly all components** to use more un-nested class selectors instead of over-specific children selectors.

By component

Here are highlights by changes by component between v3.x.x and v4.0.0.

Reboot

Reboot, formerly in our Reboot, a new stylesheet that builds on Normalize with our own personal customized reset styles. Selectors appearing in this file only use elements—there are no classes here. This isolates our reset styles from our component styles for a more predictable inheritance model. Some of the changes we've made include `box-sizing: border-box`, `margin` resets, `line-height` changes, leaning on `rem` units on more elements, and many form element tweaks.

Typography

- Moved all `.text-*` utilities to the `_utilities.scss`.
- `.text-justify` class has been dropped. Text aligns left, right, or center.
- `.text-justify` has been dropped. Instead, use `.text-left` and `.text-right` classes (as mirror) or to `.text` and `.text-center`.
- `.text-nowrap` utility has moved to classes `.nowrap` and the `.text-nowrap` mixin.
- `.text-muted` now requires that its children the items have the `.text-muted` class applied to them.

Images

- Renamed `.img-responsive` to `.img-fluid`.
- Dropped `.img-rounded` and `.img-circle`.
- Added `.rounded` and `.rounded-circle`.

Tables

- Nearly all instances of the `.table-*` classes have been removed, meaning related tables will now automatically inherit styles from their parent. Exceptions are `.table-bordered` and `.table-striped`.
- Responsive tables no longer require a wrapping element. Instead, just add the `.table-responsive` right on the `.table`.
- Renamed `.table-condensed` to `.table-sm` for consistency.
- Dropped `.table-inverse` variant.
- Dropped `.table-active` in favor of `.table-hover` for block-level hover tests. For inline hover and other flexible options, use `.table-hover` with `.table-active`.
- Dropped `.table-header` and `.table-footer`.
- Dropped `.table-row` and `.table-cell`. Use `.table-header` and the various `.table-header` classes.
- Horizontal forms overhauled.
  - Dropped the `.form-horizontal` class requirement.
  - Dropped `.form-horizontal` variants styles from the `.row` mixin, so `.row` is now required for horizontal grid layouts (e.g., `.row` `.col-xl-7` inside `.form-group`).
  - Added new `.form-row` class to vertically center labels with `.col-*` classes.
  - Dropped `.form-horizontal .control-label` in favor of `.form-control-label` and `.form-check-label` and `.form-check-label`.
- Added custom forms support for checkboxes, radios, selects, and file inputs.
  - Renamed `.input-group-addon`, `.input-group-btn` and `.input-group-text` classes with HTML5-form validation via CSS3's `:invalid` and `:valid` selectors.

Buttons

- Renamed `.btn-default` to `.btn-secondary`.
- Dropped `.btn-block` in favor of flexbox utilities, or proportionally much smaller than v3's.
- The `.active` class, features of the `.btn` `:hover` jQuery plugin has been dropped. This includes the `.active` `.hover` and `.focus` methods. We advise using a tiny bit of custom JavaScript instead, which will have the benefit of removing `.active` when clicking elsewhere.
  - Note that the other features of the plugin (button checkboxes, button radios, single-toggle buttons) have been dropped as well.
- Changed `.fade` `.in` `.collapse` to `.fade` `.show` `.collapse` `.collapsed`. However `.fade` `.show` `.collapse` is still necessary because some Javascript listeners are still looking for it.

Button group

- Renamed `.btn-group-justified` for a replacement you can use `.btn-group-fill` instead of `.fill` `.btn-group` `.fill` `.btn-group` as a `.btn-group` `.fill` `.btn-group`.
- Dropped the `.btn-group-xs` class entirely given removal of `.btn-xs`.
- Removed explicit spacing between button groups in button toolbars, over-ingrained white-ness.
- Improved documentation for use with other components.

Dropdowns

- Switched from parent selectors to singular classes for all components, modifiers, etc.
- Simplified dropdown styles to no longer ship with spaced or floated dropdowns attached to the dropdown menu.
- Dropped `.dropup` in favor of `.dropup` and `.dropleft`.
- Rebuilt dropdown styles with flexbox and to provide `.menu` further support for `.left` and `.right` based dropdown items.
- Renamed `.divider` to `.dropdown-divider`.
- Dropped dropdown menu `.menu` dropdown menu to instead they exclusively only after `.dropdown`.
- Dropdown triggers no longer require an explicit `id` or `aria-labelled` for accessibility. Instead, we'll use and pair with the `.dropdown` class.
- Dropped `.pull-left` and `.pull-right` classes for the new flexbox problem `.dropdown` classes. For example, instead of `.pull-left .menu` and `.pull-right .menu`, you'll use `.dropleft .menu` and `.dropright .menu`.
- Added flexbox utility classes for grid system and components.

List groups

- Renamed `.panel` to `.list-group`.
- Dropped `.panel-group` in favor of an nested class, `.list-group .list-group`, for styling link and button versions of list group items.
- Added `.list-group-flush` class for with cards.

Modal

- Renamed `.panel` to `.modal`.
- Dropped `.panel-group` alignment of dismiss icons in the header to likely broken as we're no longer using flexbox. Floated content in `.modal-header` will need to be cleared. Also, `.close` is now floated right by default.
- Dropped `.fade` jQuery plugin support due to automatically-fired and hard-wired transition to be triggered and the corresponding `.show` to `.fade` event were removed. We recommend instead using client-side templating or a site-binding framework, or calling `.show()` yourself.

Navs

- Renamed component with flexbox.
- Dropped nearly all `.nav-*` variations for simpler styling on an nested classes.
- Dropped `.nav-stacked` in favor of `.flex-column` and `.flex-column-sm` variations.
- Dropped `.nav-justified` and `.nav-tabs-justified` in favor of `.nav-fill` and `.nav-tabs-fill`.

Navbar

This section has been entirely rewritten in flexbox with improved support for alignments, responsiveness, and customization.

- Renamed `.navbar-fixed-*` classes to `.fixed-*` and `.navbar-sticky-*` to `.sticky-*`. Also, `.fixed-*` and `.sticky-*` are now prefixed with `.navbar` where you choose where to collapse the navbar. Previously, this was a case-specific modification and required its own selector.
- `.navbar-default` is now `.navbar-light`. Except `.navbar-inverse` remains the same. **Use of these is required on each navbar.**
- Renamed `.navbar-toggle` to `.navbar-toggler`. Also, its related three-bar-icon is now `.navbar-toggler-icon`.
- Navbars now require a `.navbar-brand` element.
- Dropped `.navbar-form` in favor of `.form-inline`. Also, `.navbar-text` now also supports `.form-inline`.
- Grand flexbox styles, `.navbar-left` now can flexbox utilities for easy alignment space.
- `.navbar-text` is now `.navbar-nav-text` and has different styles and inner markup (no more `.text` `.navbar-text`).
- Renamed `.navbar-fixed-top` class entirely. It's no longer necessary. Instead, just use `.fixed-top` and apply margin utilities as needed.
- Navbars no longer include `.pull-left` or `.pull-right` by default. Use utilities as necessary.
- All examples featuring navbars have been updated to include new markup.

Pagination

- Rewrote component with flexbox.
- Dropped classes `.page-item` and `.page-link` in one respect on the descendants of `.pagination`.
- Dropped the `.pager` component entirely as it was little more than customized pagination.

Breadcrumbs

- Re-styled them. `.breadcrumb` now requires on the descendants of `.breadcrumb`.

Labels and badges

- Renamed `.label` to `.badge` in the `_badge.scss` element.
- Dropped the `.badge` component as it was nearly identical to labels. Use the `.badge` and `.badge` together with the label modifiers to create badges.
- Badges are no longer flexed automatically to fit and pill and other variants. Utility classes are now required for this.
- `.badge-pill` has been dropped and `.badge` `.pill` `.badge` `.pill` added to match component modifier classes used elsewhere.

Panels, thumbnails, and wells

Removed entirely for the new card component.

Panels

- `.panel` to `.card`, now built with flexbox.
- `.panel-default` removed and its replacement `.card` is now the default.
- `.panel-heading` replaced with `.card-header` and `.card-footer`. `.card-footer` is a replacement. It is different.
- `.panel-heading` to `.card-header`.
- `.panel-footer` to `.card-footer`. Depending on the desired look, you may also want to use `.card-header` or `.card-footer` in `.card-header`.
- `.panel-group` to `.card-group`. Also, `.card-group` `.card` form a set. `.card-group` ends entirely, instead produces a different look `.card-group`.
- `.panel-body` to `.card-body`.
- `.panel-title` to `.card-title`.
- `.panel-primary`, `.panel-success`, `.panel-info`, `.panel-warning`, `.panel-danger` have been dropped for `.bg-*`, `.card` and `.card-*` utilities generated from our Sass map.
- `.panel-footer` to `.card-footer`.

Progress

- Rewrote component with flexbox.
- Dropped `.progress-striped` and `.progress-striped` classes with `.bg-*` utilities. For example, `.bg-*progress-bar-success-bar-danger` becomes `.bg-*progress-bar-bg-success-bar-danger`.
- Dropped `.active` for animated progress bars with `.progress-bar-animated`.

Carousel

- Overhauled the entire component to simplify design and styling. We have fewer styles for you to overrides, new indicators, and new controls.
- All CSS has been re-named and renamed, ensuring each class is prefixed with `.carousel`.
  - `.carousel-inner` to `.carousel-inner`, `.carousel-item` and `.carousel-item.active`, `.carousel-item-next`, `.carousel-item-prev`, `.carousel-item-left`.
  - `.item` to `.item-next`, `.item-prev`.
  - `.left` and `.right` to `.carousel-control-prev` and `.carousel-control-next`.
  - `.carousel-control.left` and `.carousel-control.right` to `.carousel-control-prev` and `.carousel-control-next`.
- Removed all responsive styling, deferring to utilities (e.g., showing captions on certain viewports) and custom styles as needed.
- Removed image centering in favor of a carousel items, deferring to utilities.
- Transition the Carousel examples to include the new markup and styles.

Tables

- Removed support for styled nested tables. All table styles are now inherited in or not for simpler selectors.
- Added inverse table variant.

Utilities

- **Display, hidden, and more:**
  - Made display utilities responsive (e.g., `.d-none` and `.d-lg-block`). Also, `.hidden-*` classes are now `.d-none` and `.d-*-block`. Also, `.hidden-print` and `.hidden-print` classes are now `.d-print-block`. For example, instead of `.hidden-xl-up` use `.d-xl-none`.
  - Renamed the `.center-block` utilities to use the display utility naming scheme. Refer to under the Responsive utility section of this page.
  - Dropped `.show-*` and `.hidden-*` in favor of `.d-none` and `.d-block`.
  - Dropped `.show-inline` and `.show-inline-block` classes for responsive floats and removed `.pull-left` and `.pull-right` since they're redundant to `.float-left` and `.float-right`.
- **Type:**
  - Added responsive variations to our text alignment classes: `.text-left`, `.text-right`, `.text-center`.
- **Alignment and spacing:**
  - Added new responsive margin and padding utilities for all sides, plus vertical and horizontal shorthands.
  - Removed support of `.pull-xs-left` and `.pull-xs-right`.
  - Added `.clearfix` to the `_utilities.scss` class.
  - Clearfix updated to drop support for older browser versions.

Vendor prefix mixins

Our vendor prefix mixins, which were deprecated in v2.2.0, have been removed in Bootstrap 4. Since we use Autoprefixer, they're no longer needed.

Removed the following mixins: `.translate()`, `.translate3d()`, `.scale()`, `.skew()`, `.translate(x,y,z)`, `.translate3d(x,y,z)`, `.rotate(z)`, `.rotate3d(x,y,z,z)`, `.scale(x,y)`, `.scale3d(x,y,z)`, `.skew(x,y)`, `.translate(x,y