Experience Cloud Developer Guide

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CONTENTS

CHAPTER 1 Get Up to Speed with Experience Builder Sites

In this chapter ...

Experience Builder templates let you create branded sites where your employees, customers, and partners can connect. Built on the Lightning Component framework, Experience Builder templates include many ready-to-use features and Lightning components. But the real power of the Lightning Component framework is that you can develop custom Lightning components and features to meet your unique business needs and completely transform the look and feel of your site.

As of Spring '19 (API version 45.0), you can build Lightning components using two programming models: the Lightning Web Components model, and the original Aura Components model. Lightning web components are custom HTML elements built using HTML and modern JavaScript.

Tip: The rename to Experience Cloud in Spring '21 (API version 50.0) introduced some new terminology, and it can be tricky to know what's what. Here's the rundown.

Experience Builder sites (formerly called Lightning communities) are template-based sites that you customize in Experience Builder. And with the launch of the Lightning Web Runtime (LWR), we added two new terms for even greater clarity.

- *LWR sites* are built with the latest LWR-based templates, such as the Build Your Own (LWR) template. LWR sites can only be used with Lightning web components, not Aura components. See LWR Sites for Experience Cloud.
- *Aura sites* are built with our original templates, such as Customer Service, Partner Central, and Customer Account Portal, which run on Aura. For Aura sites, Lightning web components and Aura components can coexist and interoperate on a page.

You can configure both Lightning web components and Aura components as drag-and-drop components for Experience Builder. Admins and end users don't know which programming model was used to develop the components—to them, they're simply Lightning components.

Whether you're a developer, partner, or ISV, this guide describes how to create custom Aura sites and components, theme layout components, and Lightning Bolt Solutions.

Before You Begin

Before you begin developing custom Experience Builder sites, ensure that you're familiar with developing in Lightning.

You can create Experience Builder sites and Lightning components in **Enterprise**, **Performance**, **Unlimited**, and **Developer Editions**, or a sandbox.

To use this guide successfully, it helps to have:

- An org with Digital Experiences enabled
- A new or existing site that's based on an Experience Builder template or a Lightning Bolt Solution
- Familiarity using Experience Builder
- Experience developing Lightning components and using CSS

Resources for Lightning Development

Unfamiliar with Lightning development? Then check out these resources.

Lightning Aura Components Developer Guide
The go-to guide for all things Aura. The foundational concepts and approaches the guide documents form the bedrock of this guide. Think of the *Experience Cloud Developer Guide* as Part 2 in the development series; it's no use to you until you familiarized yourself with Part 1.

Lightning Web Components Developer Guide
Learn how to develop Lightning web components, custom HTML elements built using HTML and modern JavaScript.

LWR Sites for Experience Cloud Developer Guide
Develop sites that load quickly and scale well using the Build Your Own (LWR) template for Experience Cloud. This template is based on the latest Lightning Web Runtime (LWR) and the Lightning Web Components (LWC) programming model.

Build Lightning Web Components (Trailhead Trail)
Develop reusable Lightning web components using JavaScript and HTML.

Quick Start: Aura Components (Trailhead Project)
Create your first component that renders a list of contacts from your org.

Build a Custom Theme Layout Component for Experience Builder Sites (Trailhead Project)
Customize your Experience Builder site with a theme layout component.

Lightning Components Performance Best Practices (Blog Post)
Learn about Lightning characteristics that impact component performance, and get best practices to optimize your components.

Resources for Experience Cloud

Unfamiliar with Experience Cloud? Then check out these resources.

Set Up and Manage Experience Cloud Sites (Help)
Create branded sites using templates to interact directly with your customers and partners online.

Expand Your Reach with Experience Cloud (Trailhead Trail)
Learn the tools you need to get started with Salesforce Experience Cloud.

Experience Cloud Overview (Help)
Stay up to date on other Experience Cloud resources.

What Is Salesforce Lightning?

Salesforce Lightning makes it easier to build responsive applications for any device, and encompasses the Lightning Component framework and helpful tools for developers.

Lightning includes these technologies.

- Lightning components accelerate development and app performance. Develop custom components that other developers and admins can use as reusable building blocks to customize Experience Builder sites, the Salesforce mobile app, and Lightning Experience.
- Lightning App Builder empowers admins to build Lightning pages visually, without code, using off-the-shelf and custom-built Lightning components. Make your Lightning components available in the Lightning App Builder so administrators can build custom user interfaces without code.
- Experience Builder empowers admins to build sites visually using templates and components. Make your Lightning components available in Experience Builder so administrators can build site pages without code.

Some Salesforce products built with the Lightning framework include:

- Experience Builder templates
- Lightning Bolt Solutions
- Lightning Experience
- Salesforce mobile app

Note: You don't need to enable Lightning Experience to use Experience Builder templates or develop Lightning components. Experience Builder sites use the same underlying technology as Lightning Experience, but they're independent of each other.

SEE ALSO:

Salesforce Help: How Experience Cloud Uses Lightning

Lightning Aura Components Developer Guide

Which Experience Builder Template Do I Use?

Depending on which Experience Builder template that you use, you can build Experience Builder sites using two programming models: the Lightning Web Components model, and the original Aura Components model. The Build Your Own (LWR) template is based on the new Lightning Web Runtime (LWR) and can only be used with Lightning web components, not Aura components. Other templates are based on the Aura Components model and can use both Lightning web components and Aura components.

Build Your Own

Provides the basic pages that every Experience Builder site needs: Home, Create Record, Error, Record Detail, Record List, Related Record List, Search, Check Password, Forgot Password, Login, Login Error, and Register. Add more pages and components as needed for the experience you're building. To refine the look of your site, customize your branding and themes.

Build Your Own (LWR)

Powered by the new Lightning Web Runtime (LWR) platform, this customizable template delivers unparalleled page performance and improves developer productivity. Quickly build pixel-perfect pages and develop Lightning web components and themes to match your unique brand.

Suitable for developers, consulting partners, and ISVs who are familiar with developing custom Lightning web components, and working with Salesforce DX, User Interface API, and Apex.

See the LWR Sites for Experience Cloud guide.

Customer Account Portal
A private and secure place for customers to access and update their account information. Improve customer relationships and decrease service costs by letting customers work in the portal. Customers can see and pay invoices, update their account information, and search your knowledge base for answers to their most frequent questions.

Customer Service
A powerful, responsive self-service template with multiple prebuilt theme options. The Customer Service template lets users post questions to the community, search for and view articles, collaborate, and contact support agents by creating cases. Supports Knowledge, Chatter Questions, and cases.

Partner Central
A flexible, responsive template designed for channel sales workflows. Recruit, build, and grow your partner network to drive channel sales and marketing together in a branded online space. Easily configure lead distribution, deal registration, and marketing campaigns. Share training materials and sales collateral in a central space, and use reports to track your pipeline.

Help Center
A public-access, self-service community that exposes the articles that you make available from your knowledge base. You reduce the load on your customer support team, and your users get the satisfaction of finding their own solutions.

SEE ALSO:

Salesforce Help: Which Experience Cloud Template Should I Use

Experience Cloud Developer Release Notes

Use the Salesforce Release Notes to learn about the most recent updates and changes to the Experience Cloud developer experience.

For new and changed features, see Developer Productivity in the Experience Cloud section of the Salesforce Release Notes. You can also look for Experience Cloud in New and Changed Items for Developers in the Salesforce Release Notes.

CHAPTER 2 Develop Experience Builder Sites: The Basics

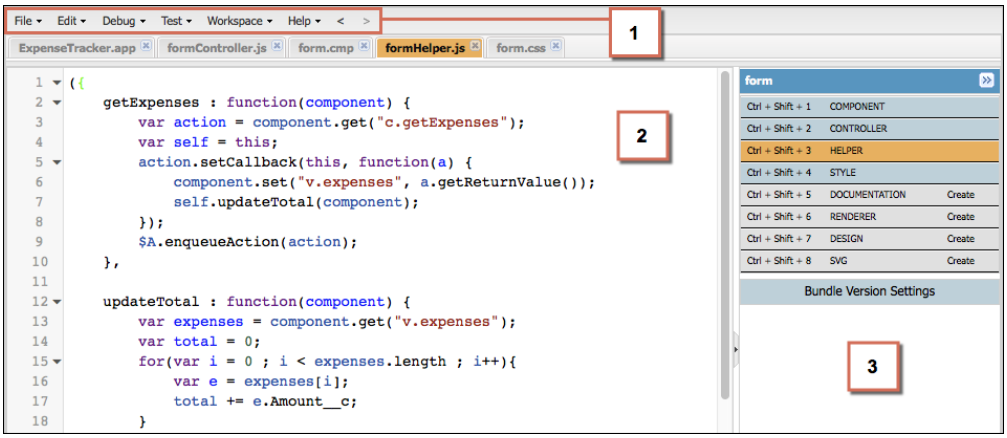
In this chapter ...

Learn about the Developer Console development tool, how to create a basic drag-and-drop Aura component, and tips to consider along the way.

Using the Developer Console

The Developer Console provides tools for developing your Aura components and applications.

You can use the Developer Console in the same supported browsers as Lightning Experience and Salesforce Classic.




```
({
    getExpenses : function(component) {
        var action = component.get("c.getExpenses");
        var self = this;
        action.setCallback(this, function(a) {
            component.set("v.expenses", a.getReturnValue());
            self.updateTotal(component);
        });
        $A.enqueueAction(action);
    },

    updateTotal : function(component) {
        var expenses = component.get("v.expenses");
        var total = 0;
        for(var i = 0 ; i < expenses.length ; i++){
            var e = expenses[i];
            total += e.Amount__c;
        }
```

The Developer Console enables you to perform these functions.

- Use the menu bar (1) to create or open these Lightning resources.
  - Application
  - Component
  - Interface
  - Event
  - Tokens
- Use the workspace (2) to work on your Lightning resources.
- Use the sidebar (3) to create or open client-side resources that are part of a specific component bundle.
  - Controller
  - Helper
  - Style
  - Documentation
  - Renderer
  - Design
  - SVG

While the Developer Console provides an easy way to work with Aura components, it doesn't include many developer tools and features. To enable source-drive development with editor features like code completion and linting, consider these alternatives:

- Code Builder—A web-based IDE that has all the power and flexibility of VS Code, Salesforce Extensions for VS Code, and Salesforce CLI in your web browser. You can install Code Builder as a managed package in a supported Salesforce org edition.

- Salesforce DX Tools—Use the Salesforce CLI and VS Code with the Salesforce Extension Pack to deploy code to an org.

SEE ALSO:

Salesforce Help: Open the Developer Console

Lightning Aura Components Developer Guide: Create Aura Components in the Developer Console

Lightning Aura Components Developer Guide: Component Bundles

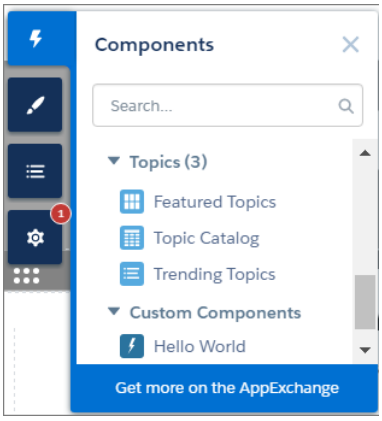
Configure Drag-and-Drop Aura Components for Experience Builder

Before you can use a custom Aura component in Experience Builder, there a few configuration steps to take.

1. Add an Interface to Your Component

To appear as a drag-and-drop component in Experience Builder, a component must implement the `forceCommunity:availableForAllPageTypes` interface.

After you create the Aura component, it appears in the Components panel of all Aura sites in your org.



Here's the sample code for a simple "Hello World" component. A component must be named *`componentName`*`.cmp`.

Note: To make a resource, such as a component, usable outside of your own org, mark it with `access="global"`. For example, use `access="global"` if you want a component to be usable in an installed package or by a Experience Builder user in another org.

```
<aura:component implements="forceCommunity:availableForAllPageTypes" access="global">
    <aura:attribute name="greeting" type="String" default="Hello" access="global" />
    <aura:attribute name="subject" type="String" default="World" access="global" />

    <div>{!v.greeting}, {!v.subject}!</div>
</aura:component>
```

Warning: When you add custom components to your site, they can bypass the object- and field-level security (FLS) you set for the guest user profile. Lightning components don't automatically enforce CRUD and FLS when referencing objects or retrieving the objects from an Apex controller. This means that the framework continues to display records and fields for which users don't have CRUD permissions and FLS visibility. You must manually enforce CRUD and FLS in your Apex controllers.

2. Add a Design Resource to Your Component Bundle

A design resource controls which component attributes are exposed in Experience Builder. The design resource lives in the same folder as your `.cmp` resource, and describes the design-time behavior of the Aura component—information that visual tools need to display the component in a page or app.

For example, to set a default value for an attribute, or make a Aura component attribute available for administrators to edit in Experience Builder, your component bundle needs a design resource.

Here's the design resource that goes in the bundle with the "Hello World" component. A design resource must be named *componentName*`.design`.

```
<design:component label="Hello World">
    <design:attribute name="greeting" label="Greeting" />
    <design:attribute name="subject" label="Subject" description="Name of the person you
want to greet" />
</design:component>
```

Optional. Add an SVG Resource to Your Component Bundle

To define a custom icon for your component, add an SVG resource to the component bundle. The icon appears next to the component in the Experience Builder Components panel.

If you don't include an SVG resource, the system uses a default icon ().

Here's a simple red circle SVG resource to go with the "Hello World" component. An SVG resource must be named *componentName*`.svg`.

```
<?xml version="1.0"?>
<!DOCTYPE svg PUBLIC "-//W3C//DTD SVG 1.1//EN"
  "http://www.w3.org/Graphics/SVG/1.1/DTD/svg11.dtd">

<svg xmlns="http://www.w3.org/2000/svg"
     width="400" height="400">
  <circle cx="100" cy="100" r="50" stroke="black"
    stroke-width="5" fill="red" />
</svg>
```

Optional. Add a CSS Resource to Your Component Bundle

To style your custom component, add a CSS resource to the component bundle.

Here's the CSS for a simple class to go with the "Hello World" component. A CSS resource must be named *componentName*`.css`.

```
.THIS .greeting {
    color: #ffe4e1;
    font-size: 20px;
}
```

After you create the class, apply it to your component.

```
<aura:component implements="forceCommunity:availableForAllPageTypes" access="global">
    <aura:attribute name="greeting" type="String" default="Hello" access="global" />
    <aura:attribute name="subject" type="String" default="World" access="global" />
```

```
    <div class="greeting">{!v.greeting}, {!v.subject}!</div>
</aura:component>
```

SEE ALSO:

Lightning Aura Components Developer Guide: Browser Support for Aura Components

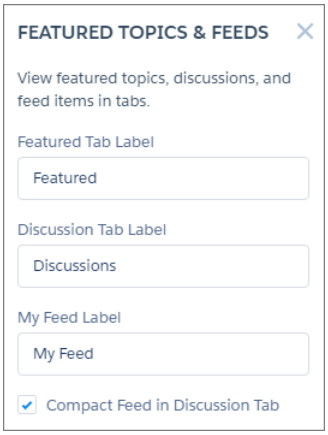
Expose Component Attributes in Experience Builder

You use a design resource to control which attributes are exposed in Experience Builder. A design resource lives in the same folder as your component. It describes the design-time behavior of the Aura component—information that visual tools need to display the component in a page or app.

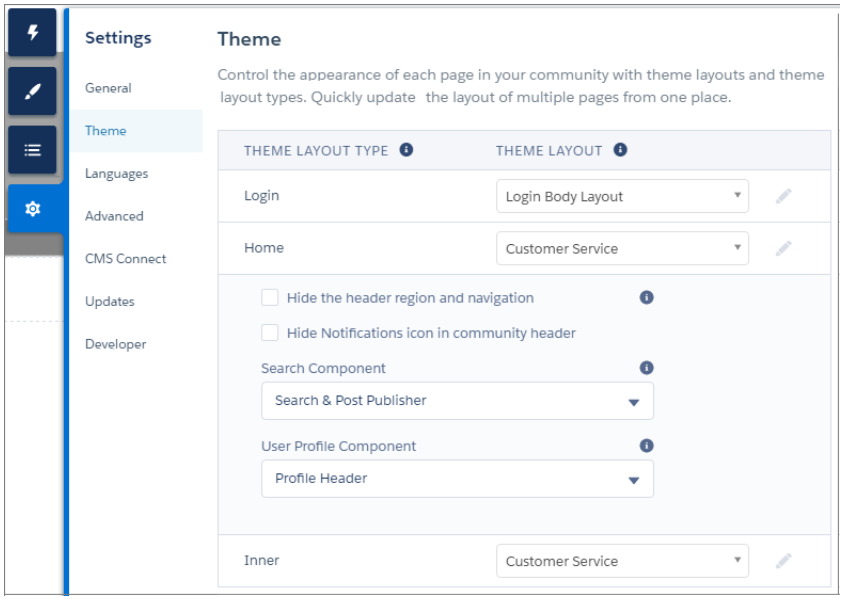
To make an Aura component attribute available for administrators to edit in Experience Builder, add a `design:attribute` node for the attribute in the design resource. When you mark an attribute as required, it automatically appears in Experience Builder, unless it has a default value assigned to it.

You must specify required attributes with default values and attributes not marked as required in the component definition in the design resource to make them appear for users. A design resource supports attributes only of type `int`, `string`, or `boolean`.

For drag-and-drop components, exposed attributes appear in the component's properties panel.



For theme layout components, exposed attributes appear when the theme layout is selected in the **Settings** > **Theme** area.



SEE ALSO:

Lightning Aura Components Developer Guide: Aura Component Bundle Design Resources

Tips and Considerations for Configuring Aura Components for Experience Builder

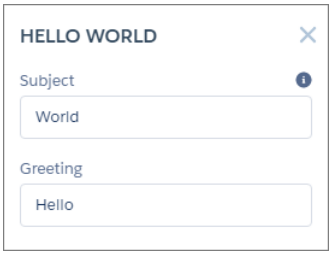
Keep these guidelines in mind when creating Aura components and component bundles for Aura sites.

Components

- Give the component a friendly name using the `label` attribute in the design file element, such as `<design:component label="foo">`.
- Design your components to fill 100% of the width, including margins, of the region that they display in.
- Make sure that the component provides an appropriate placeholder behavior in declarative tools if it requires interaction.
- Never let a component display a blank box. Think of how other sites work. For example, Facebook displays an outline of the feed before the feed items come back from the server, which improves the user's perception of UI responsiveness.
- If the component depends on a fired event, give it a default state that displays before the event fires.
- Style components using standard design tokens to make them consistent with the Salesforce Lightning Design System. (SLDS)
- Keep in mind that Lightning Locker is enforced for all Aura components created in Summer '17 (API version 40.0) and later when Lightning Locker is enabled in the org and the site. At the org level, Lightning Locker is in use if Lightning Web Security hasn't been enabled. See Develop Secure Sites: CSP, LWS, and Lightning Locker.
- For a custom component, when you make a new property available for edit in Experience Builder, keep this consideration in mind for site translations: If the component is in use on a page in Experience Builder, delete the component from the page and replace it with the updated version. Otherwise, when you export the site content for translation, the property that you added is omitted for that component instance in the exported file. If the component contains content that's already translated, export the site content first to preserve the existing translation. Then replace the component with the updated version.

Attributes

- Use the design file to control which attributes are exposed to Experience Builder.
- Make your attributes easy to use and understandable to an administrator. Don't expose SOQL queries, JSON objects, or Apex class names.
- Give required attributes default values to avoid a poor user experience. When a component that has required attributes with no default values is added to Experience Builder, it appears invalid.
- Use basic supported types (`string`, `integer`, `boolean`) for exposed attributes.
- Specify a min and max for integer attributes in the `<design:attribute>` element to control the range of accepted values.
- Be aware that string attributes can provide a data source with a set of predefined values, allowing the attribute to expose its configuration as a picklist.
- Give attributes a label with a friendly display name.
- Include a description to explain the expected data and provide guidelines, such as the data format or expected range of values. Description text appears as a tooltip in the property panel.



- To delete a design attribute for a component that implements the `forceCommunity:availableForAllPageTypes` interface, first remove the interface from the component before deleting the design attribute. Then reimplement the interface. If the component is referenced in a site page, you must remove the component from the page before you can change it.

SEE ALSO:

Lightning Aura Components Developer Guide: Using the Salesforce Lightning Design System in Apps

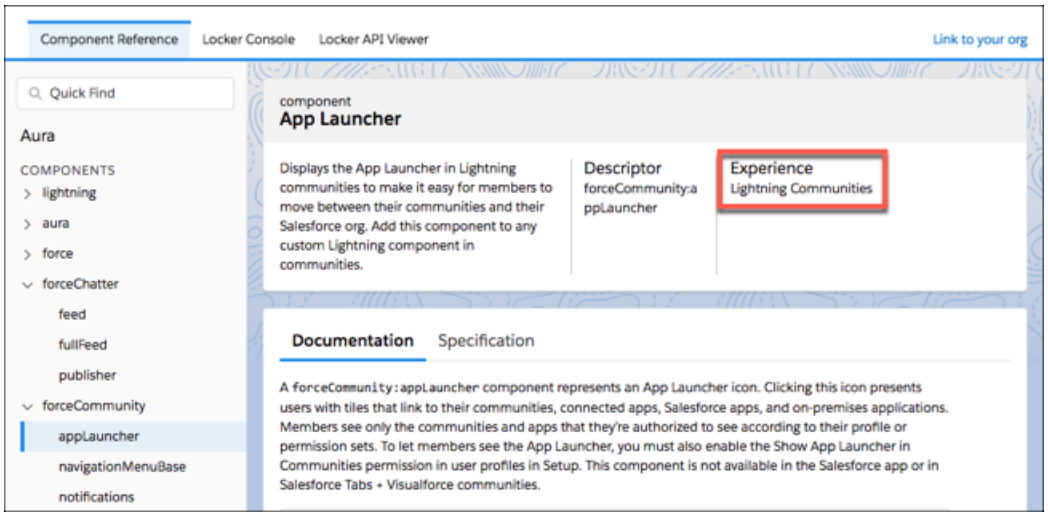
Lightning Aura Components Developer Guide: Styling with Design Tokens

Lightning Aura Components Developer Guide: Aura Component Bundle Design Resources

Supported Aura Components, Interfaces, and Events

Not all Aura components, interfaces, and events are supported for Aura-based Experience Builder sites. Some are available only for the Salesforce mobile app or Lightning Experience. Check out what's available before customizing your site.

Aura components, interfaces, and events are documented in the Component Library. Each component, interface, and event indicates which experience it supports.



SEE ALSO:

Component Reference

Interface Reference

Event Reference

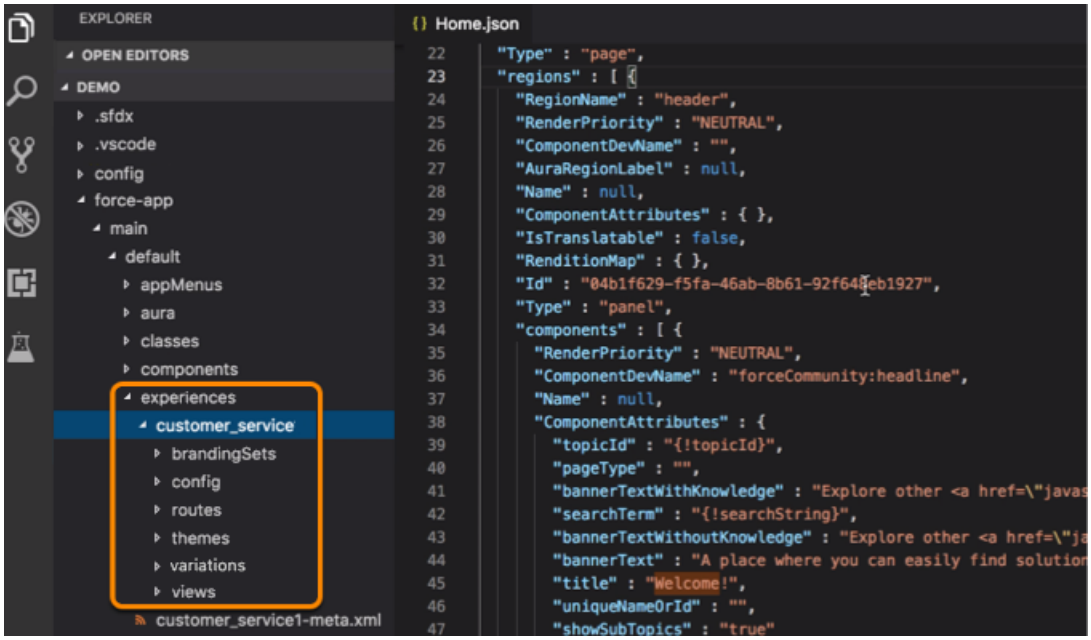
Personalization Target Developer and Group Names

Determine the developer name and group name for your experience variation targets when using Connect REST API or Metadata API to personalize your Experience Builder site.

For the Target Input request body of Connect Rest API or the PersonalizationTargetInfo subtype of the Audience metadata type, you must specify:

- The target group name in the `groupName` property
- The target developer name in the `targetValue` property

To determine these names, you have to copy property values from several JSON files in the site's ExperienceBundle folders.



The way you determine these values varies depending on whether you're targeting page variations, branding sets, component visibility, or component attributes.

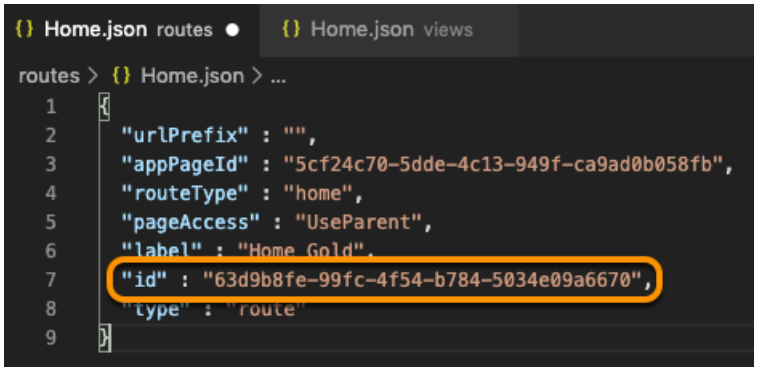
Page Variations

To determine the group name and developer name for a page variation, open the relevant route file and the corresponding view file. For example, open the `Home.json` file in the routes folder and the `Home.json` file in the views folder.

Group Name

Format: ***`route.id`***, where *`route.id`* is the `id` property of the route JSON file.

Example: `63d9b8fe-99fc-4f54-b784-5034e09a6670`

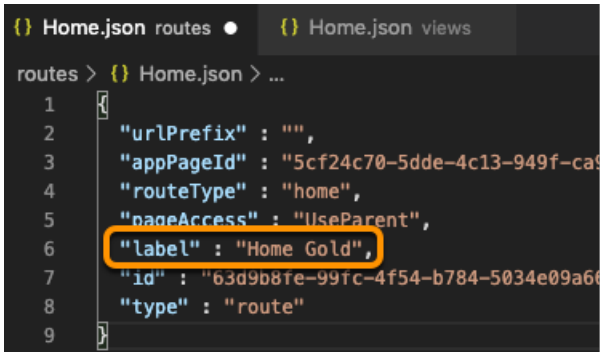


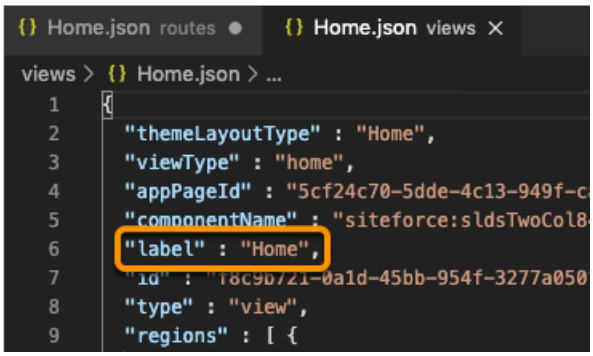
Developer Name

Format: ***`route.label_view.label`***`_Page`, where:

- *`route.label`* is the `label` property of the route JSON file.
- *`view.label`* is the `label` property of the view JSON file.

Example: `Home_Gold_Home_Page`





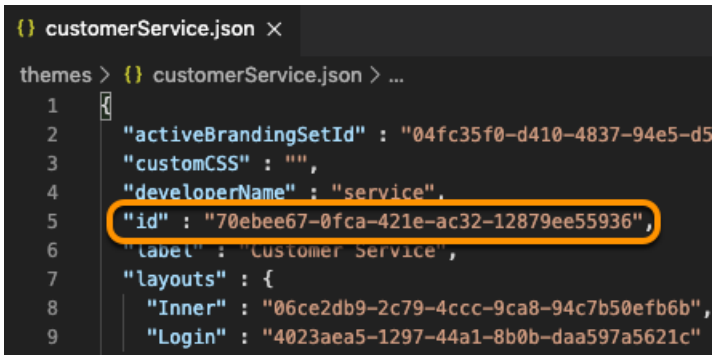
Branding Sets

To determine the group name and developer name for a branding set, open the relevant branding set file and the corresponding theme file. For example, in a Customer Service site, open the `customerService.json` file in the themes folder and the `customerService.json` file in the brandingSets folder.

Group Name

Format: ***`theme.id`***`$#$Branding`, where *`theme.id`* is the `id` property of the theme JSON file.

Example: `70ebee67-0fca-421e-ac32-12879ee55936$#$Branding`

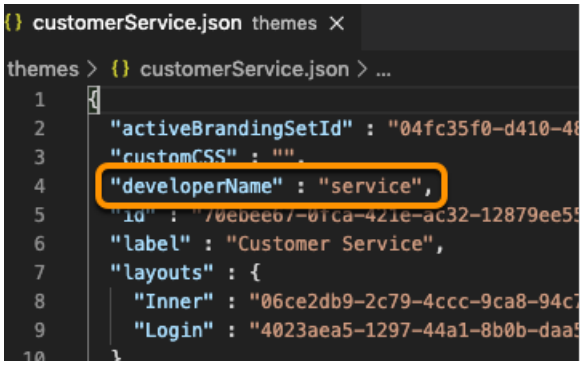


Developer Name

Format: ***`theme.developerName_brandingSet.label`***`_Branding`, where:

- *`theme.developerName`* is the `developerName` property of the theme JSON file.
- *`brandingSet.label`* is the `label` property of the branding set JSON file.

Example: `service_Customer_Service_Branding`



Component Visibility

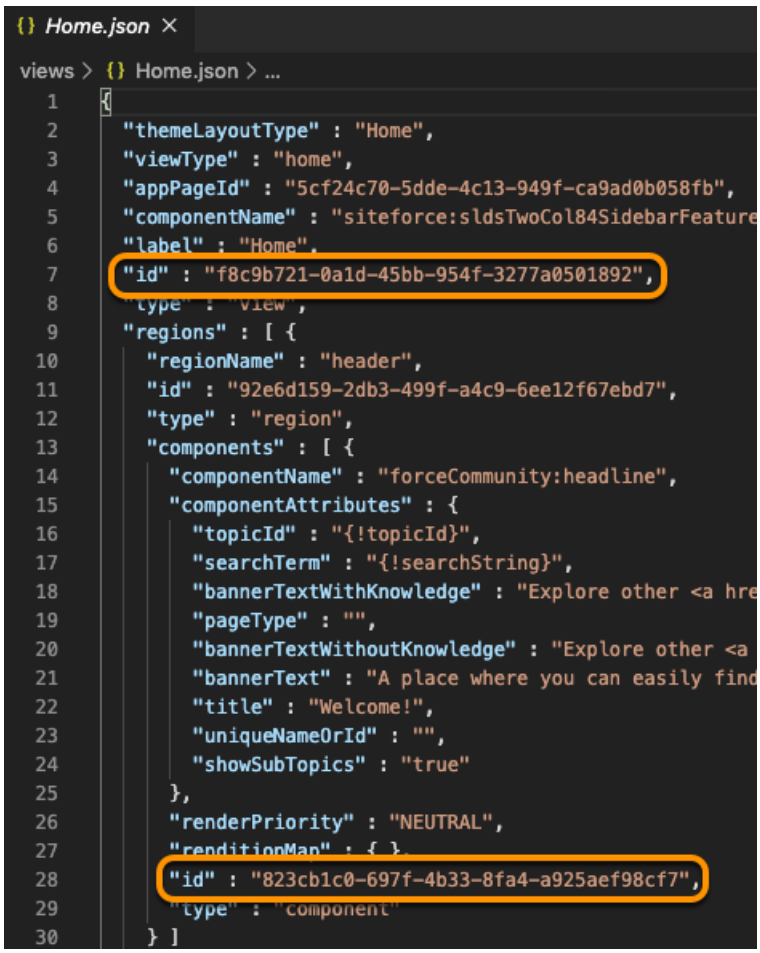
To determine the group name and developer name for component visibility, open the view file that contains the component. For example, open the `Home.json` file in the views folder.

Group Name

Format: ***`view.id`***`$#$`***`component.id`***, where:

- *`view.id`* is the `id` property of the view JSON file.
- *`component.id`* is the `id` property of the component in the view JSON file.

Example: `f8c9b721-0a1d-45bb-954f-3277a0501892$#$823cb1c0-697f-4b33-8fa4-a925aef98cf7`

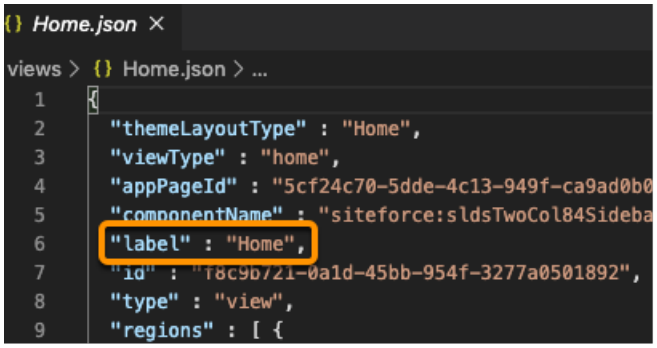


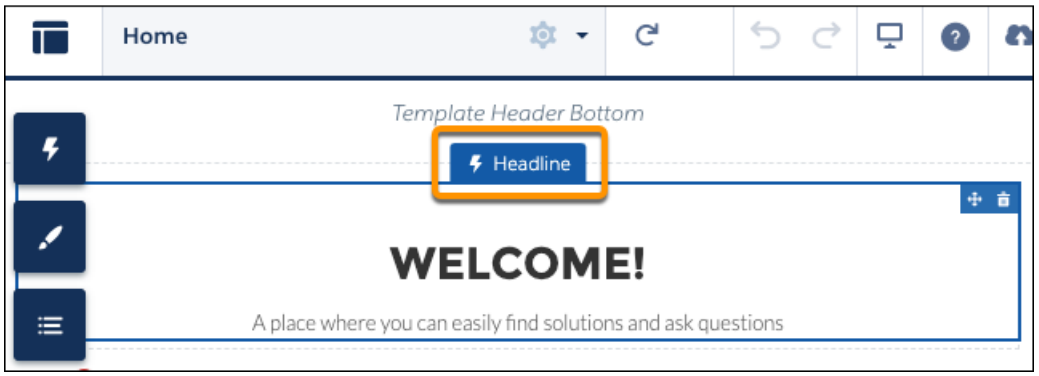
Developer Name

Format: ***`view.label_componentName`***`_Component`, where:

- *`view.label`* is the `label` property of the view JSON file.
- *`componentName`* is the name of the component in Experience Builder (not in the JSON file).

Example: `Home_Headline_Component`





Note: If necessary, you can add a numeric value to the developer name to make it unique. For example, `Home_Page_Rich_Content_Editor_Component1`.

Component Attributes

For component attributes, the group and developer names vary depending on whether the component is in the view body or in the header or footer of a theme layout.

Components in the View Body

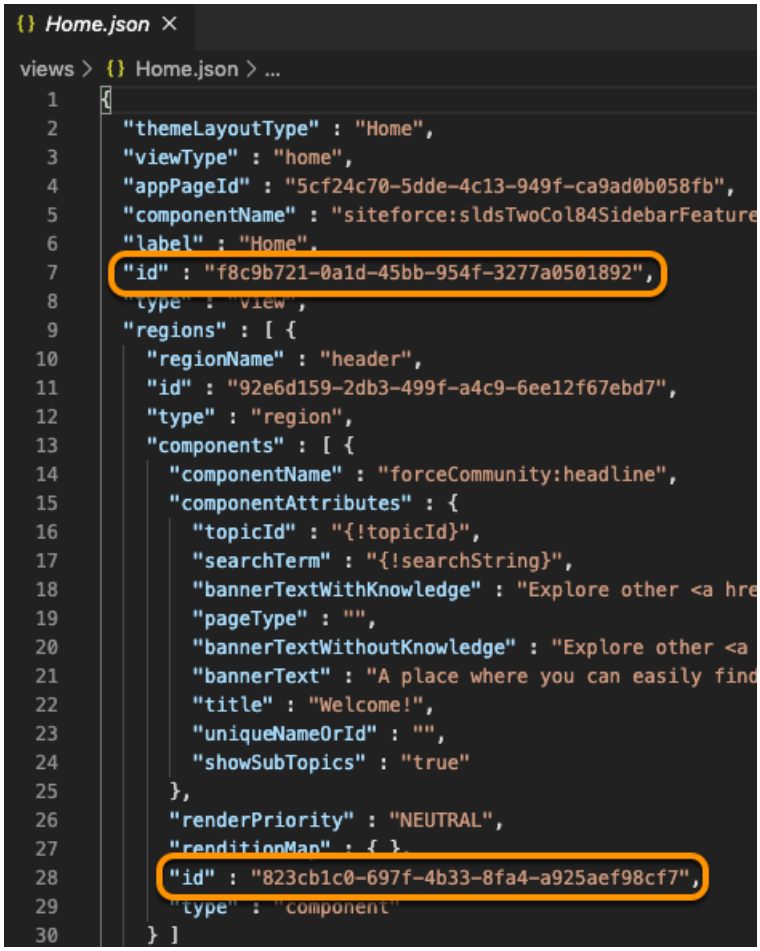
To determine the group and developer names for a component in the view body, open the view file that contains the component. For example, open the `Home.json` file in the views folder.

Group Name

Format: ***`view.id`***`$#$`***`component.id`***, where:

- *`view.id`* is the `id` property of the view JSON file.
- *`component.id`* is the `id` property of the component in the view JSON file.

Example: `f8c9b721-0a1d-45bb-954f-3277a0501892$#$823cb1c0-697f-4b33-8fa4-a925aef98cf7`

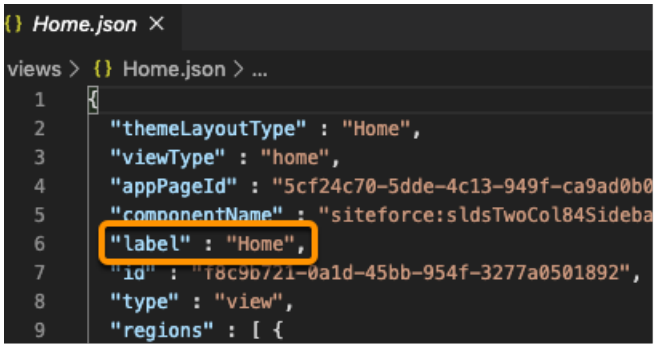


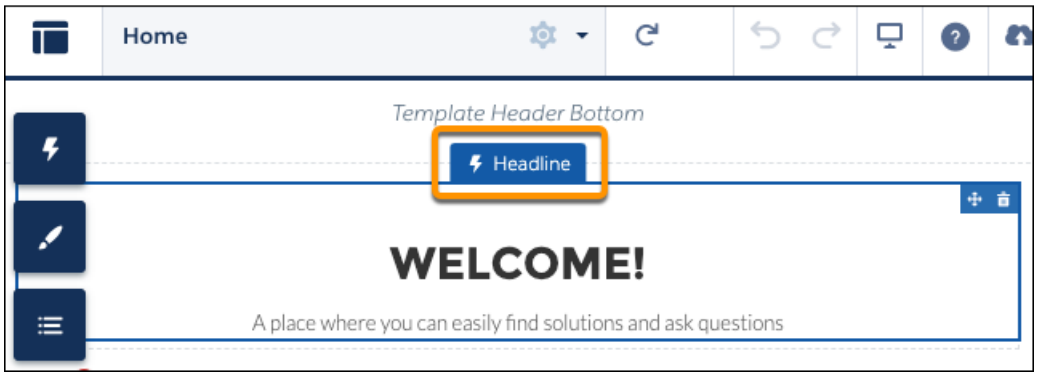
Developer Name

Format: ***`view.label_componentName`***`_Component_Properties`, where:

- *`view.label`* is the `label` property of the view JSON file.
- *`componentName`* is the name of the component in Experience Builder (not in the JSON file).

Example: `Home_Headline_Component_Properties`





Note: If necessary, you can add a numeric value to the developer name to make it unique. For example, `Home_Page_Rich_Content_Editor_Component1`.

Components in the Header or Footer

To determine the group and developer names for a component in the header or footer of a theme layout, open the theme file that contains the component. For example, in a Customer Service site, open the `customerService.json` file in the themes folder.

Group Name

Format: ***`themeLayout.id`***`$#$`***`component.id`***, where:

- *`themeLayout.id`* is the `id` property of the layout that contains the component.
- *`component.id`* is the `id` property of the component in the layout.

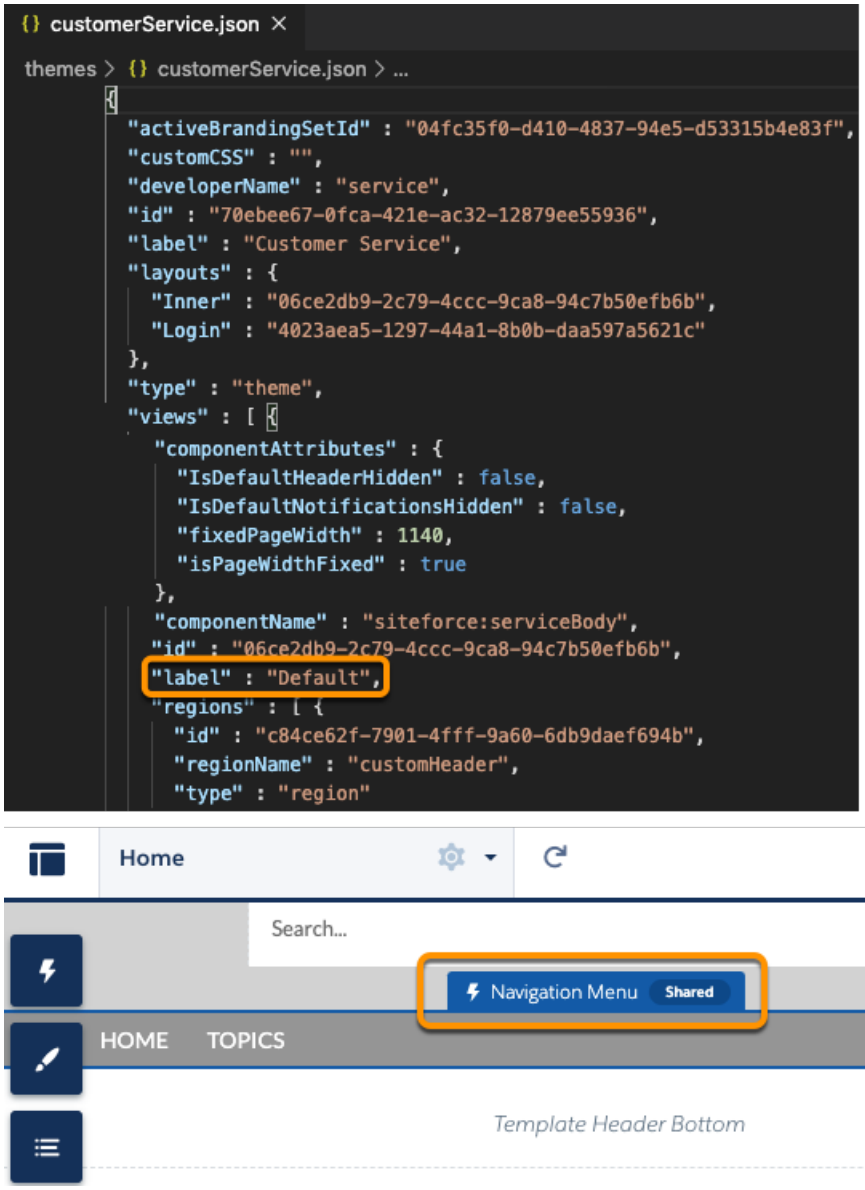
Example: `06ce2db9-2c79-4ccc-9ca8-94c7b50efb6b$#$c55d1908-fe6b-47e8-b41e-70ad05aeb490`

Developer Name

Format: ***`themeLayout.label_componentName`***`_Component_Properties`, where:

- *`themeLayout.label`* is the `label` property of the layout that contains the component.
- *`componentName`* is the name of the component in Experience Builder (not in the JSON file).

Example: `Default_Navigation_Menu_Component_Properties`



SEE ALSO:

Metadata API Developer Guide: Audience

Connect REST API Developer Guide: Target Input

Comply with a User's Personal Information Visibility Settings

Orgs with portals and sites provide specific settings to hide a user's personally identifiable and contact information from other users. These settings aren't enforced in Apex, even with Apex security features such as the `WITH USER_MODE` clause or the `stripInaccessible` method. To hide specific fields from a guest or external authenticated users, follow the sample code outlined below.

To hide a user's personal information in the User object:

```
public User[] fetchUserDetail(Set userIds) {
    // Query all the fields of user which we are expected in user record to show that on
UI or to
    // perform some business logic.
    User[] userRecords = [SELECT id, username, communitynickname, firstname, lastname,
title
    FROM User WHERE id IN :userIds];

    for (User userRecord : userRecords) {
        // User is not fetching his own record and is not standard user.
       if(userRecord.id != UserInfo.getUserId() && !Auth.CommunitiesUtil.isInternalUser())
 {
            // clear-out all PII fields form user record which we have queried above.
            userRecord.username = '';
            userRecord.title = '';
        }
    }
    return userRecords;
}
```

To comply with a user's contact information visibility settings within a community or portal, we check the preferences associated with specific fields and show or hide the data accordingly. **For a user's contact visibility settings within an Experience Cloud site:**

```
public User[] fetchUserRecordRespectingFLVPreferences(Set<Id> userIds) {

    //Fetch users records along with fields specific user preferences.
    User[] userRecords = [SELECT email, UserPreferencesShowEmailToExternalUsers,
UserPreferencesShowEmailToGuestUsers FROM User WHERE id IN :userIds];

    // If context user is internal user then return result without any restriction.
    if (Auth.CommunitiesUtil.isInternalUser()) {
        return userRecords;
    }

    // If user is guest user then return result as per the user's UserPreference for the
fields related to the Guest user visibility.
    if (Auth.CommunitiesUtil.isGuestUser()){
        return fetchUserRecordForGuestUser(userRecords);
    }

   // Return result as per the user's UserPreference for the fields related to the External
 user visibility
    return fetchUserRecordForExternalUser(userRecords);

}

// Apply Field level visibilty logic by checking user's UserPreferences for the fields
related to the External user visibility.
public User[] fetchUserRecordForExternalUser(User[] userRecords) {

    for(User userRecord : userRecords) {

        //Clear field of user record when context user fetching other user's record and
```

```
Field Level Visibility for that field is set to Restricted.
        if(userRecord.id != UserInfo.getUserId() &&
!userRecord.UserPreferencesShowEmailToExternalUsers)
        {
            userRecord.email = '';
        }

    }

    return userRecords;
}

// Apply Field level visibilty logic by checking user's UserPreferences for the fields
related to the Guest user visibility.
public User[] fetchUserRecordForGuestUser(User[] userRecords) {

    for(User userRecord : userRecords) {

        //Clear field of user record when context user fetching other user's record and
user preference for that field is NOT set to public.
        if(!userRecord.UserPreferencesShowEmailToGuestUsers)
        {
            userRecord.email = '';
        }

    }

    return userRecords;

}
```

SEE ALSO:

Salesforce Help: Manage Personal User Information Visibility for External Users

Salesforce Help: Share Personal Contact Information Within Experience Cloud Sites

CHAPTER 3 Brand Your Aura Site

In this chapter ...

Customize the look and feel of your Aura site using the Theme panel in Experience Builder or develop your own custom components to achieve a pixel-perfect design.

Within Experience Builder, you can modify styles that are specific to the template and therefore can't be shared between sites. The options in Experience Builder are the simplest to use and don't require component development.

- The Theme panel updates the template with simple, point-and-click properties. This approach is ideal for admins to use.

  Individual component property panels, such as for headers or search, provide additional more specific adjustments in look and feel.

- The CSS Editor lets you create custom CSS to style elements across your site. This option is suitable if you're familiar with CSS and want to make only minor modifications to some template components. With theme swapping in Aura sites, custom CSS is tied directly to your active theme.

To customize the appearance of your site completely, however, you need to develop your own custom components. Aura sites support both Lightning web components and Aura components. Where possible, we recommend developing Lightning web components we because they perform better and are easier to develop.

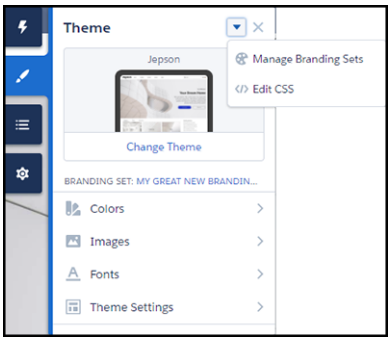
- Custom Lightning web components and Aura components encapsulate a CSS resource as part of the component bundle, making the components reusable across sites.
- Content layout components define the content regions of your page and contain components.
- Theme layout components let you customize the structural layout of the template, such as the header and footer, and override its default styles.

Update a Template with the Theme Panel

Within Experience Builder, the simplest way to change the look of a template is with the Theme panel. Administrators can quickly style an entire sites using the theme panels to apply colors, specify fonts, add a logo, or adjust general page structure and defaults.

The properties set in the Theme panel apply to the pages in a template and most off-the-shelf components. Use Branding Sets to quickly apply bundles of colors, images, and fonts.

The Theme panel's properties also apply to custom Aura components that use standard design tokens to control their appearance.



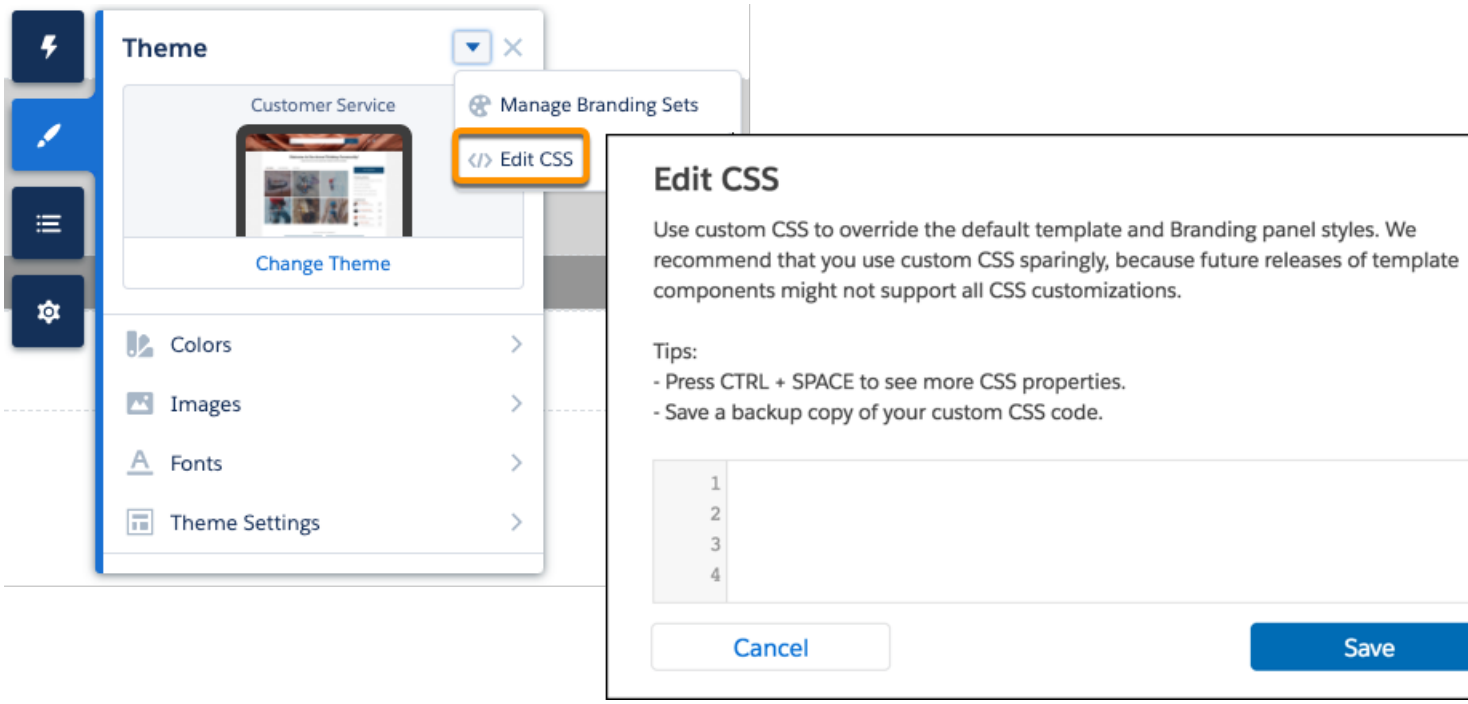
SEE ALSO:

Salesforce Help: Prebuilt Experience Builder Themes

Use the CSS Editor for Custom CSS

Use the CSS Editor in Experience Builder to create custom CSS to style elements across your Aura site. This option is suitable if you're familiar with CSS and want to make only minor modifications to some template components.

Warning: Use custom CSS sparingly and avoid targeting DOM elements in components that you don't own. Doing so is brittle because changes to the component's internal DOM structure is likely to break hard-coded CSS selectors. Salesforce can change the internal implementation of Salesforce components at any point . Additionally, Salesforce Customer Support can't help resolve any issues with custom CSS.



To make minor CSS modifications to a component, use Chrome DevTools to inspect the page and discover the item's fully qualified name and CSS class.

Tip: For substantial template customizations, instead of using custom CSS, use the CSS resource in custom Lightning web components or Aura components and in custom theme layout components. If you use global overrides, always test your site in sandbox when it's updated each release.

You can link to a CSS style sheet as either a static or external resource in the head markup in **Settings** > **Advanced**. However, because global value providers aren't supported in the head markup or in CSS overrides, you can't use `$resource` to reference static resources. Instead, use a relative URL using the syntax `/sfsites/c/resource/resource_name`.

For example, if you upload an image as a static resource called Headline, reference it in the CSS Editor as follows:

```
.forceCommunityHeadline
{
    background-image: url('/sfsites/c/resource/headline')
}
```

Head markup is also useful for adding favicon icons, SEO meta tags, and other items. However, be aware that using the default strict CSP security level can affect your code.

Migrate CSS Overrides

Between Spring '17 and Winter '19, the CSS selectors of several Experience Builder components were updated. If you haven't updated your template since then, and your site uses custom CSS to override the default template and Theme panel styles, you must migrate to the new selectors.

SEE ALSO:

Salesforce Help: Static Resources

Salesforce Help: Add Markup to the Page `<head>` to Customize Your Experience Builder Site

Migrate CSS Overrides

Between Spring '17 and Winter '19, the CSS selectors of several Experience Builder components were updated. If you haven't updated your template since then, and your site uses custom CSS to override the default template and Theme panel styles, you must migrate to the new selectors.

See Update Your Experience Builder Template in Salesforce Help.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

CSS Overrides Migration for the Navigation Menu

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

CSS Overrides Migration for the Panels Container

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

CSS Overrides Migration for the Record Banner Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

CSS Overrides Migration for the Record Detail Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

CSS Overrides Migration for the Record Layout Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

CSS Overrides Migration for the Record List Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

CSS Overrides Migration for the Record Related List Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

CSS Overrides Migration for the Related Articles Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

CSS Overrides Migration for the Reputation Leaderboard Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

CSS Overrides Migration for the Embedded Service Sidebar Header Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

CSS Overrides Migration for Trending Articles by Topic Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

SEE ALSO:

Use the CSS Editor for Custom CSS

CSS Overrides Migration for the Navigation Menu

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes for the Navigation Menu.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

Full Navigation Menu

Previous Selector	New Selector

`.forceCommunityNavigationMenu`
`.forceCommunityNavigationMenu #navigationMenu`
`.forceCommunityNavigationMenu .navigationMenu`
`.forceCommunityNavigationMenu .navigationMenuWrapper`
	`.comm-navigation`

Mobile Menu Curtain

Previous Selector	New Selector
`.forceCommunityNavigationMenu .navigationMenuWrapperCurtain`	`.comm-navigation nav.slds-is-fixed`

Home Menu Item

Previous Selector	New Selector
`.forceCommunityNavigationMenu .homeLink` `.forceCommunityNavigationMenu .homeButton`	`.comm-navigation .slds-list__item a[data-type="home"]`

Home Menu Item Link

Previous Selectors	New Selector

`.forceCommunityNavigationMenu`
`.homeLink.forceCommunityNavigationMenu`
`.homeButton.comm-navigation .slds-list__item a[data-type="home"]`
	`.comm-navigation .comm-navigation__item a[data-type="home"]`

Mobile Menu Toggle Button

Previous Selector	New Selector
`.forceCommunityNavigationMenu .toggleNav`	`.siteforceServiceBody .cHeaderPanel .cAltToggleNav`

Top-Level Menu Items

Includes submenu triggers.

Previous Selector	New Selector
`.forceCommunityNavigationMenu .menuItem` `.forceCommunityGlobalNavigation .navigationMenuNode`	`.comm-navigation .comm-navigation__list > .slds-list__item`

`.forceCommunityNavigationMenu .menuItem`
`.forceCommunityGlobalNavigation .navigationMenuNode`
`.comm-navigation .comm-navigation__list > .slds-list__item`
	`.comm-navigation .comm-navigation__list > .slds-list__item > .comm-navigation__item`

Current Top-Level Menu Item

Previous Selector	New Selector
`.forceCommunityNavigationMenu .current` `.forceCommunityGlobalNavigation .menuItem.current`	`.comm-navigation .comm-navigation__list > .slds-list__item > .slds-is-active`

`.forceCommunityNavigationMenu .current`
`.forceCommunityGlobalNavigation .menuItem.current`
`.comm-navigation .comm-navigation__list > .slds-list__item > .slds-is-active`
	`.comm-navigation .comm-navigation__list > .slds-list__item> .comm-navigation__item > .slds-is-active`

Top-Level Menu Item Links

Previous Selector	New Selector
`.forceCommunityNavigationMenu .menuItemLink`	`.comm-navigation .comm-navigation__list > .slds-list__item > a`

Previous Selector	New Selector

`.forceCommunityNavigationMenu a.menuItemLink`
`.forceCommunityNavigationMenu .menuItem .menuItemLink`
`.forceCommunityNavigationMenu .menuItem a`
`.forceCommunityNavigationMenu .menuItem a.menuItemLink`
	`.comm-navigation .comm-navigation__list > .slds-list__item > button`

`.forceCommunityNavigationMenu .menuItemLink`
`.forceCommunityNavigationMenu a.menuItemLink`
`.forceCommunityNavigationMenu .menuItem .menuItemLink`
`.forceCommunityNavigationMenu .menuItem a`
`.forceCommunityNavigationMenu .menuItem a.menuItemLink`
`.comm-navigation .comm-navigation__list > .slds-list__item > a`
`.comm-navigation .comm-navigation__list > .slds-list__item > button`
	`.comm-navigation .comm-navigation__list > .slds-list__item> .comm-navigation__item > a`
	`.comm-navigation .comm-navigation__list > .slds-list__item> .comm-navigation__item > button`

Submenu Items

Previous Selector	New Selector
`.forceCommunityNavigationMenu .subMenuItem`	`.comm-navigation .slds-list_vertical.slds-is-nested .slds-list__item`
`.forceCommunityNavigationMenu .subMenuItem` `.comm-navigation .slds-list_vertical.slds-is-nested .slds-list__item`	`.comm-navigation .slds-list_vertical.slds-is-nested .comm-navigation__item`

Current/Active Submenu Item

Previous Selector	New Selector
`.forceCommunityNavigationMenu .subMenuItem.current`	`.comm-navigation .slds-list_vertical.slds-is-nested .slds-list__item .slds-is-active`

Previous Selector	New Selector
`.forceCommunityNavigationMenu .subMenuItem.current` `.comm-navigation .slds-list_vertical.slds-is-nested .slds-list__item .slds-is-active`	`.comm-navigation .slds-list_vertical.slds-is-nested .comm-navigation__item .slds-is-active`

Submenu Trigger Link

Previous Selector	New Selector
`.forceCommunityNavigationMenu .triggerLink` `.forceCommunityNavigationMenu .triggerLabel`	`.comm-navigation .slds-list__item button:enabled`

`.forceCommunityNavigationMenu .triggerLink`
`..forceCommunityNavigationMenu .triggerLabel`
`.comm-navigation .slds-list__item button:enabled`
	`.comm-navigation .comm-navigation__item button:enabled`

Submenu Trigger Link Icon

Previous Selector	New Selector
`.forceCommunityNavigationMenu .triggerLink .forceIcon`	`.comm-navigation .slds-list__item button:enabled .slds-icon_container`
`.forceCommunityNavigationMenu .triggerLink .forceIcon` `.comm-navigation .slds-list__item button:enabled .slds-icon_container`	`.comm-navigation .comm-navigation__item button:enabled .slds-icon_container`

Menu Items

Includes top-level and submenu items.

Previous Selector	New Selector
`.forceCommunityNavigationMenu .navigationMenu li`	`.comm-navigation .slds-list__item`
`.forceCommunityNavigationMenu .navigationMenu li`	`.comm-navigation .comm-navigation__item`

Previous Selector	New Selector
`.comm-navigation .slds-list__item`	

Menu Item Links

Includes top-level and submenu items.

Previous Selector	New Selector
`.forceCommunityNavigationMenu a` `.forceCommunityNavigationMenu a.menuItemLink`	`.comm-navigation .slds-list__item a` `.comm-navigation .slds-list__item button`

`.forceCommunityNavigationMenu a`
`.forceCommunityNavigationMenu a.menuItemLink`
`.comm-navigation .slds-list__item a`
`.comm-navigation .slds-list__item button`
	`.comm-navigation .comm-navigation__item a.comm-navigation .comm-navigation__item button`

Submenus

Previous Selector	New Selector
`.forceCommunityNavigationMenu .subMenu`	`.comm-navigation .slds-list_vertical.slds-is-nested`

Submenu Items

Previous Selector	New Selector
`.forceCommunityNavigationMenu .subMenuItem`	`.comm-navigation .slds-list_vertical.slds-is-nested .slds-list__item`
`.forceCommunityNavigationMenu .subMenuItem` `.comm-navigation .slds-list_vertical.slds-is-nested .slds-list__item`	`.comm-navigation .slds-list_vertical.slds-is-nested .comm-navigation__item`

Submenu Item Links

Previous Selector	New Selector
`.forceCommunityNavigationMenu .subMenuItem a` `.forceCommunityNavigationMenu .subMenu a`	`.comm-navigation .slds-list_vertical.slds-is-nested .slds-list__item a`
`.comm-navigation .slds-list_vertical.slds-is-nested .comm-navigation__item`	`.comm-navigation .slds-list_vertical.slds-is-nested .comm-navigation__item a`

CSS Overrides Migration for the Panels Container

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

Panels Container

Previous Selector	New Selector

`.uiPanelManager2`
`.onePanelManager`
`.siteforcePanelManager`
	`.comm-panels-container`

CSS Overrides Migration for the Record Banner Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

Detail Field Label

Previous Selector	New Selector
`.forceCommunityRecordHeadline .slds-text-heading-label-normal`	`.forceCommunityRecordHeadline .slds-form-element__label`

Detail Field Value

Previous Selector	New Selector
`.forceCommunityRecordHeadline .slds-text-body--regular`	`.forceCommunityRecordHeadline .slds-form-element__static`

CSS Overrides Migration for the Record Detail Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

Form Element Separator

Previous Selector	New Selector
`.forceCommunityRecordDetail .slds-form-element__control .slds-form-element_separator`	`.forceCommunityRecordDetail .slds-form-element_separator`

CSS Overrides Migration for the Record Layout Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

Full Record Layout

Previous Selector	New Selector
`.forceRecordLayout`	`force-record-layout2`
`.forceRecordLayout.forcePageBlock`	`force-record-layout-block`

Section

Previous Selector	New Selector
`.forceRecordLayout .full.forcePageBlockSectionView`	`force-record-layout2 force-record-layout-section`
`.forceRecordLayout .full.forcePageBlockSection`	
`.forceRecordLayout .full.forcePageBlockSectionView.forcePageBlockSection`	
`.forceRecordLayout .forcePageBlockSectionView`	
`.forceRecordLayout .forcePageBlockSection`	
`.forceRecordLayout .forcePageBlockSectionView.forcePageBlockSection`	

Section Title

Previous Selector	New Selector
`.forceRecordLayout .full.forcePageBlockSection h3`	`force-record-layout2 force-record-layout-section h3`

Section Row

Previous Selector	New Selector
`.forceRecordLayout .full.forcePageBlockSectionRow`	`force-record-layout2 force-record-layout-row`
`.forceRecordLayout .forcePageBlockSectionRow`	

Section Item

Previous Selector	New Selector

`.forceRecordLayout .full.forcePageBlockItem.forcePageBlockItemView`
`.forceRecordLayout .full.forcePageBlockItem`
`.forceRecordLayout .full.forcePageBlockItemView`
`.forceRecordLayout .forcePageBlockItem`
`.forceRecordLayout .forcePageBlockItemView`
`.forceRecordLayout .forcePageBlockItem.forcePageBlockItemView`
	`force-record-layout2 force-record-layout-item`

Section Item Label

Previous Selector	New Selector
`.forceRecordLayout .slds-form-element__label`	`force-record-layout2 .slds-form-element__label`

Section Item Value

Previous Selector	New Selector
`.forceRecordLayout .itemBody`	`force-record-layout2 .slds-form-element__static`

Section Item Value Link

Previous Selector	New Selector
`.forceRecordLayout a`	`force-record-layout2 a`

CSS Overrides Migration for the Record List Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

List View Button Bar

Previous Selector	New Selector
`.forceListViewManagerHeader .forceListViewManagerButtonBar`	`.forceListViewManagerHeader force-list-view-manager-button-bar`

List View Button Bar Buttons

Previous Selector	New Selector
`.forceListViewManagerHeader .forceListViewManagerButtonBar button`	`.forceListViewManagerHeader force-list-view-manager-button-bar button`

List View Status Information

Previous Selector	New Selector
`.forceListViewManagerHeader .test-listViewStatusInfo`	`.forceListViewManagerHeader force-list-view-manager-status-info`

Picker Trigger Link

Previous Selector	New Selector
`.forceListViewManagerHeader .triggerLink`	`.forceListViewManagerHeader .triggerLink .slds-button`

CSS Overrides Migration for the Record Related List Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

Detail Field Label

Previous Selector	New Selector
`.forceCommunityRelatedRecords .slds-card__header-link .slds-text-heading--small`	`.forceCommunityRelatedRecords .slds-card__header-title`

CSS Overrides Migration for the Related Articles Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

Full Related Articles

Previous Selector	New Selector

`.selfServiceSimilarArticles`
`.base-items`
`.uiAbstractList`
`.selfServiceBaseSimpleItems`
	`.comm-related-articles`

Component Title

Previous Selector	New Selector
`.selfServiceSimilarArticles h2` `.selfServiceSimilarArticles .base-items-header`	`.comm-related-articles h2`

Article List

Previous Selector	New Selector
`.selfServiceSimilarArticles ul` `.selfServiceSimilarArticles .base-items`	`.comm-related-articles ul`

Article List Items

Previous Selector	New Selector
`.selfServiceSimilarArticles .base-simple-item`	`.comm-related-articles li`
`.selfServiceSimilarArticles .base-simple-item`	`.comm-related-articles .comm-related-articles__item`

Previous Selector	New Selector
`.comm-related-articles li`	

Article Links

Previous Selector	New Selector
`.selfServiceSimilarArticles .item-title` `.selfServiceSimilarArticles .item-title-link`	`.comm-related-articles li a`

`.selfServiceSimilarArticles .item-title`
`.selfServiceSimilarArticles .item-title-link`
`.comm-related-articles li a`
	`.comm-related-articles`
	`.comm-related-articles__item a`

CSS Overrides Migration for the Reputation Leaderboard Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

Full Reputation Leaderboard

Previous Selector	New Selector
`.forceCommunityReputationLeaderboard.leaderboard`	`.comm-leaderboard`

Reputation Leaderboard Row

Previous Selector	New Selector
`.forceCommunityReputationLeaderboardRow`	`.comm-leaderboard li`
`.forceCommunityReputationLeaderboardRow` `.comm-leaderboard li`	`.comm-leaderboard .comm-leaderboard__item`

User Info Column

Previous Selector	New Selector
`.forceCommunityReputationLeaderboard .pointsAndLevels` `.forceCommunityReputationLeaderboard .userInfoCol`	`.comm-leaderboard .slds-media__body`

Reputation Points Column

Previous Selector	New Selector
`.forceCommunityReputationLeaderboard .reputationCol`	`.comm-leaderboard__points-column`

Title

Previous Selector	New Selector
`.forceCommunityReputationLeaderboard .title`	`.comm-leaderboard h2`

User Level Name

Previous Selector	New Selector
`.forceCommunityReputationLeaderboard .reputationLevelName`	`.comm-leaderboard__level-name`

User Reputation Level Image

Previous Selector	New Selector
`.forceCommunityReputationLeaderboard .reputationLevelImage`	`.comm-leaderboard .slds-media__body .slds-icon_small`

Username in User

Previous Selector	New Selector
`.forceCommunityReputationLeaderboard .userName`	`.comm-leaderboard__user-name`

User Photo in User

Previous Selector	New Selector
`.forceCommunityReputationLeaderboard .userPhoto`	`.comm-leaderboard .slds-media__figure`

User Points in Reputation Levels

Previous Selector	New Selector
`.forceCommunityReputationLeaderboard reputationPointsNumber.`	`.comm-leaderboard__points`

User Points Word in Reputation Levels

Previous Selector	New Selector
`.forceCommunityReputationLeaderboard .reputationPointsWord.`	`.comm-leaderboard__points-word`

CSS Overrides Migration for the Embedded Service Sidebar Header Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

Header Background Color

Previous Selector	New Selector
`.sidebarHeader { background-color: #aaa; }`	`.embeddedServiceSidebar.sidebarHeader { background-color:#aaa; }`

CSS Overrides Migration for Trending Articles by Topic Component

If you plan to continue using custom CSS overrides, migrate them forward after you update the template.

This topic identifies selector changes.

Note:

- Use custom CSS sparingly since template updates don't always support customizations.
- Custom CSS is now shared across all your site pages. If you used custom CSS for Login pages, copy it and close the CSS editor. Then navigate to a non-Login page, reopen the editor, and add the custom CSS.

Full Trending Articles

Previous Selector	New Selector

`.selfServiceTopicTrendingArticles`
`.base-items`
`.uiAbstractList`
`.selfServiceBaseSimpleItems`
	`.comm-topic-trending-articles`

Component Title

Previous Selector	New Selector
`.selfServiceTopicTrendingArticles h2` `.selfServiceTopicTrendingArticles .base-items-header`	`.comm-topic-trending-articles h2`

Article List

Previous Selector	New Selector
`.selfServiceTopicTrendingArticles ul` `.selfServiceTopicTrendingArticles .base-items`	`.comm-topic-trending-articles ul`

Article List Items

Previous Selector	New Selector
`.selfServiceTopicTrendingArticles .base-simple-item`	`.comm-topic-trending-articles li`
`.selfServiceTopicTrendingArticles .base-simple-item` `.comm-topic-trending-articles li`	`.comm-topic-trending-articles .comm-topic-trending-articles__item`

Article Links

Previous Selector	New Selector
`.selfServiceTopicTrendingArticles .item-title-link` `.selfServiceTopicTrendingArticles a`	`.comm-topic-trending-articles li a`

`.selfServiceTopicTrendingArticles .item-title-link`
`.selfServiceTopicTrendingArticles a`
`.comm-topic-trending-articles li a`
	`.comm-topic-trending-articles`
	`.comm-topic-trending-articles__item a`

Use Custom Fonts in Your Experience Builder Site

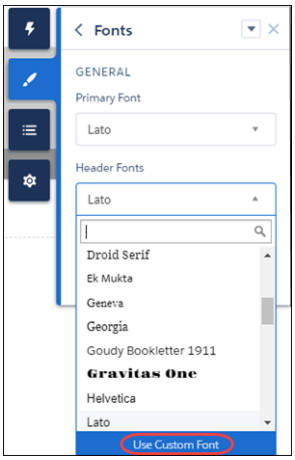
Upload custom fonts as static resources and use them for primary and header fonts throughout your site. If you've more than one font file to upload, use a .zip file.

1. In Setup, enter *Static Resources* in the Quick Find box, and then select **Static Resources**.
2. Click **New**, upload the file, and give the static resource a name. Keep a note of the resource name.
   If your site has public pages, select **Public** in the Cache Control setting. If you don't make the font resource publicly available, the page uses the browser's default font instead.
3. In Experience Builder, open the CSS editor by clicking **Theme** > > **Edit CSS**.
4. Use the `@font-face` CSS rule to reference the uploaded font.
   For example:

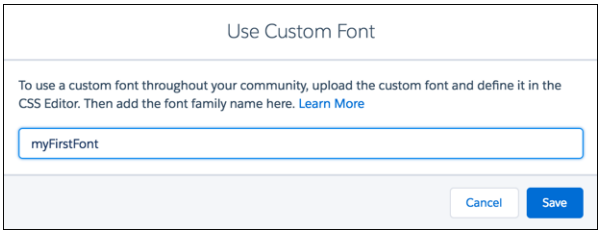
   ```
   @font-face {
       font-family: 'myFirstFont';
       src: url('/myPartnerSite/s/sfsites/c/resource/MyFonts/bold/myFirstFont.woff')
   format('woff');
   }
   ```

   Note: `format()` is an optional hint that describes the format of the font referenced in the URL.

   - To reference a single font file, use the syntax */path_prefix/s/sfsites/c/resource/resource_name*, where *path_prefix* is the URL value that was added when you created the site, such as `myPartnerSite`.
     For example, if you upload a file called `myFirstFont.woff` and name the resource MyFonts, the URL is `/myPartnerSite/s/sfsites/c/resource/MyFonts`.
   - To reference a file in a .zip file, include the folder structure but omit the .zip file name. Use the syntax */path_prefix/s/sfsites/c/resource/resource_name/font_folder/font_file*.
     So if you upload `fonts.zip`, which contains `bold/myFirstFont.woff`, and you name the resource MyFonts, the URL is `/myPartnerSite/s/sfsites/c/resource/MyFonts/bold/myFirstFont.woff`.
5. In the Theme panel, select **Fonts**, select the Primary Font or Header Fonts dropdown list, and then click **Use Custom Font**.



6. Add the font family name that you entered in the CSS editor—for example, `myFirstFont`—and save your changes.



Customize the Theme Layout of Your Template

To put your own stamp on a template theme and transform its appearance, build a custom theme layout component. You can customize the template's structural layout, such as the header and footer, and override its default styles.

A theme layout component is the top-level layout for the template pages in your site. Theme layout components are organized and applied to your pages through theme layouts. A theme layout component includes the common header and footer, and often includes navigation, search, and the user profile menu. In contrast, the content layout defines the content regions of your pages. The next image shows a two-column content layout.

SEE ALSO:

Trailhead: Build a Custom Theme Layout Component for Experience Builder Sites

How Do Custom Theme Layouts Work?

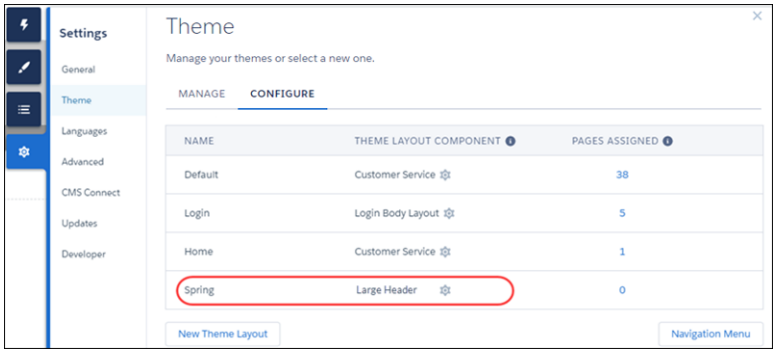
To understand how a theme layout works, let's look at things from the Experience Builder perspective. In Experience Builder, theme layouts combine with theme layout components to give you granular control of the appearance and structure of each page in your site. You can customize the layout's header and footer to match your company's branding and style, configure theme properties, or use a custom search bar and user profile menu. You then use theme layouts to apply a theme layout component to individual pages and quickly change layouts from one central location.

A theme layout categorizes the pages in your site that share the same theme layout component. You can assign a theme layout component to any existing theme layout. Then you apply the theme layout —and thereby the theme layout component—in the page's properties.

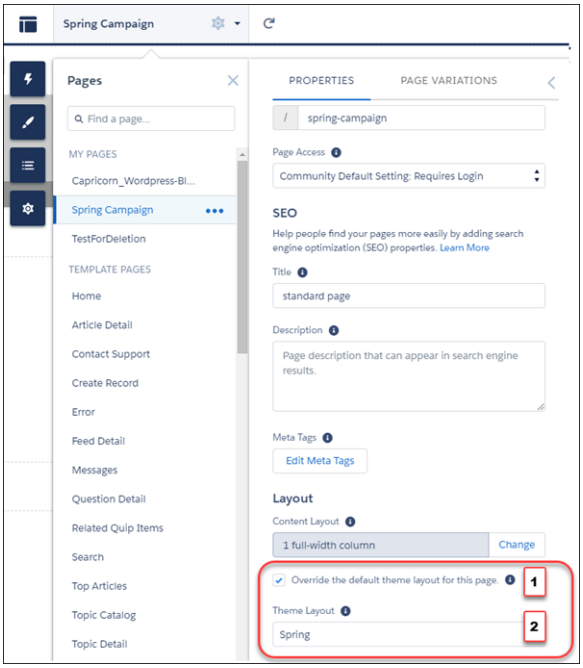
For example, the Customer Service template includes the following theme layouts and components, but you can create custom components or switch layouts as needed.

- Default applies the Customer Service theme layout to all pages, except the login pages.
- Login applies the Login Body Layout theme layout component to the login pages.

Example: Let's say you create three pages for your upcoming Spring campaign. Using the `forceCommunity:themeLayout` interface, you create a custom Large Header theme layout in the Developer Console. In the **Settings** > **Theme** area, you add a custom theme layout called Spring to categorize the campaign pages and you assign the Large Header layout component to it.



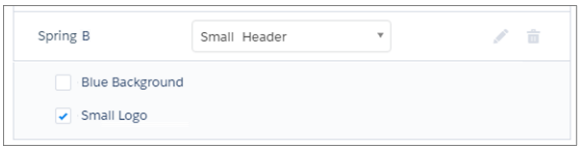
Next, you apply the Spring theme layout in each page's properties, which instantly applies the Large Header layout to each page. Select **Override the default theme layout for this page.** (1) to display Theme Layout. Choose the new layout (2) from the available choices.



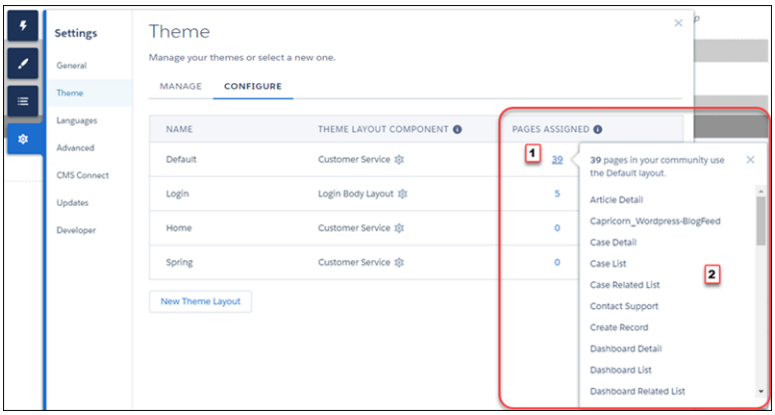
Everything looks rosy until the VP of marketing decides that the header takes up too much room. That's an easy fix, because you don't have to update the properties of each page to change the theme layout. Instead, with one click in the Theme area, you can switch Spring to the Small Header layout and instantly update all three pages.

Example: Now let's say that the Small Header layout includes two custom properties—Blue Background and Small Logo. You enabled and applied these properties to all your campaign pages. However, for one page, you want to apply only the Small Logo property.

In this case, you could create a theme layout called Spring B, assign the Small Header layout component to it, and enable Small Logo. Then, you apply the Spring B theme to the page.



Not sure which pages are associated with any of your theme layouts?



With a click and a glance, you can see how many and which pages are associated with any of your theme layouts. From **Settings** > **Theme**, click the Pages Assigned total for any theme layout row (1). Clicking this value opens a list of the pages associated with that theme layout (2).

Theme layouts make it easy to reuse the same theme layout component in different ways while maintaining as much granular control as you need.

SEE ALSO:

Trailhead: Build a Custom Theme Layout Component for Experience Builder Sites

Configure a Custom Theme Layout Component

Let's look at how to create a custom theme layout component in the Developer Console to transform the appearance and overall structure of the pages in the Customer Service template.

1. Add an Interface to Your Theme Layout Component

A theme layout component must implement the `forceCommunity:themeLayout` interface to appear in Experience Builder in the **Settings** > **Theme** area.

Explicitly declare `{!v.body}` in your code to ensure that your theme layout includes the content layout. Add `{!v.body}` wherever you want the page's contents to appear within the theme layout.

Add attributes declared as `Aura.Component[]` to include regions in the theme layout, which contain the page's components. You can add components to the regions in your markup or leave regions open for users to drag-and-drop components into. Attributes declared as `Aura.Component[]` and included in your markup are rendered as open regions in the theme layout that users can add components to. For example:

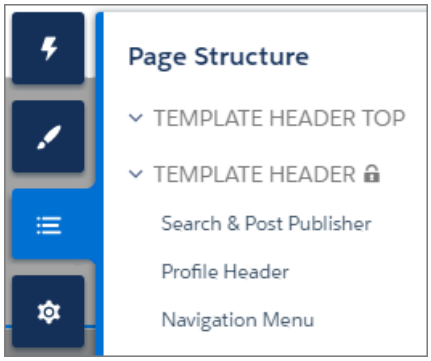
```
<aura:component implements="forceCommunity:themeLayout">
<aura:attribute name="myRegion" type="Aura.Component[]"/>

{!v.body}

</aura:component>
```

In Customer Service, the Template Header consists of these locked regions.

- `search`, which contains the Search Publisher component
- `profileMenu`, which contains the Profile Header component
- `navBar`, which contains the Navigation Menu component



To create a custom theme layout that reuses the existing components in the Template Header region, declare `search`, `profileMenu`, or `navBar` as the attribute name value, as appropriate. For example:

```
<aura:attribute name="navBar" type="Aura.Component[]" required="false" />
```

Tip: If you create a swappable custom profile menu or a search component, declaring the `search` or `profileMenu` attribute name value also lets users select the custom component when using your theme layout in Experience Builder.

Add the regions to your markup to define where to display them in the theme layout's body.

Here's the sample code for a simple theme layout.

```
<aura:component implements="forceCommunity:themeLayout" access="global" description="Sample
 Custom Theme Layout">
    <aura:attribute name="search" type="Aura.Component[]" required="false"/>
    <aura:attribute name="profileMenu" type="Aura.Component[]" required="false"/>
    <aura:attribute name="navBar" type="Aura.Component[]" required="false"/>
    <aura:attribute name="newHeader" type="Aura.Component[]" required="false"/>
    <div>
        <div class="searchRegion">
            {!v.search}
        </div>
        <div class="profileMenuRegion">
            {!v.profileMenu}
        </div>
```

```
        <div class="navigation">
            {!v.navBar}
        </div>
        <div class="newHeader">
            {!v.newHeader}
        </div>
        <div class="mainContentArea">
            {!v.body}
        </div>
    </div>
</aura:component>
```

2. Add a Design Resource to Include Theme Properties

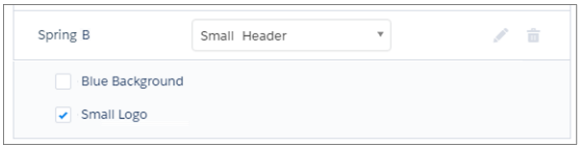
You can expose theme layout properties in Experience Builder by adding a design resource to your bundle.

First, implement the properties in the component.

```
<aura:component implements="forceCommunity:themeLayout" access="global" description="Small
 Header">
    <aura:attribute name="blueBackground" type="Boolean" default="false"/>
    <aura:attribute name="smallLogo" type="Boolean" default="false" />
    ...
```

Define the theme properties in the design resource to expose the properties in the UI. This example adds a label for the Small Header theme layout along with two checkboxes.

```
<design:component label="Small Header">
    <design:attribute name="blueBackground" label="Blue Background"/>
    <design:attribute name="smallLogo" label="Small Logo"/>
</design:component>
```



3. Add a CSS Resource to Avoid Overlapping Issues

Add a CSS resource to your bundle to style the theme layout as needed, ideally using standard design tokens.

To avoid overlapping issues with positioned elements, such as dialog boxes or hovers:

- Apply CSS styles.

  ```
  .THIS {
      position: relative;
      z-index: 1;
  }
  ```

- Wrap the elements in your custom theme layout in a `div` tag.

  ```
  <div class="mainContentArea">
      {!v.body}
  </div>
  ```

Note: The theme layout controls the styling of anything within it, so it can add styles such as drop-shadows to regions or components. For custom theme layouts, SLDS is loaded by default.

SEE ALSO:

Lightning Aura Components Developer Guide: Standard Design Tokens for Experience Builder Sites

Trailhead: Build a Custom Theme Layout Component for Experience Builder Sites

Use Expressions to Add Dynamic Data to Aura Sites

With expressions, you can access property values and other information to pass into a component's attributes.

An expression is any set of literal values, variables, subexpressions, or operators that can be resolved to a single value. Method calls aren't allowed in expressions.

The expression syntax is: `{!expression}` where `expression` is a placeholder for the expression. Add expressions to content regions. Expressions aren't supported in shared regions like the header, hero, and footer sections.

Use these expressions to display the authenticated user's information, images associated with data categories, or record information on a site page.

Expression	Displays
`{!CurrentUser.name}`	Combined first and last name of the user, as displayed on the user detail page.
`{!CurrentUser.firstName}`	First name of the user, as displayed on the user edit page.
`{!CurrentUser.lastName}`	Last name of the user, as displayed on the user edit page.
`{!CurrentUser.userName}`	Administrative field that defines the user's login.
`{!CurrentUser.id}`	Salesforce ID of the user.
`{!CurrentUser.email}`	Email address of the user.
`{!CurrentUser.communityNickname}`	Name used to identify the user in a site.
`{!CurrentUser.accountId}`	Account ID associated with the user. This expression displays a valid account ID for partner and customer users. For all others, it displays '000000000000000'.
`{!CurrentUser.effectiveAccountId}`	Account ID associated with the effective account. This expression displays a valid account ID for partner and customer users. For all others, it displays '000000000000000'.
`{!Global.PathPrefix}/{!DataCategory.Name}.jpg`	Image associated with the data category in a search component.
`{!Global.PathPrefix}/<Name of the Subfolder>/{!DataCategory.Name}.jpg`	Image associated with the data category in a subfolder in a search component.
`{!recordId}`	15-digit record ID on object pages.

Expression	Displays
`{!term}`	Expression that returns the HTML-encoded search term in the Aura-based standard search page.

SEE ALSO:

LWR Sites for Experience Cloud : Use Expressions in LWR Sites

Create Custom Content Layout Components for Experience Builder

Experience Builder includes several ready-to-use layouts that define the content regions of your page, such as a two-column layout with a 2:1 ratio. However, if you need a layout that's customized for your site, create a custom content layout component to use when building new pages in Experience Builder. You can also update the content layout of the default pages that come with your site template.

When you create a custom content layout component in the Developer Console, it appears in Experience Builder in the New Page and the Change Layout dialog boxes.

1. Add a New Interface to Your Content Layout Component

To appear in the New Page and the Change Layout dialog boxes in Experience Builder, a content layout component must implement the `forceCommunity:layout` interface.

Here's the sample code for a simple two-column content layout.

```
<aura:component implements="forceCommunity:layout" description="Custom Content Layout"
access="global">
    <aura:attribute name="column1" type="Aura.Component[]" required="false"></aura:attribute>

    <aura:attribute name="column2" type="Aura.Component[]" required="false"></aura:attribute>


     <div class="container">
         <div class="contentPanel">
             <div class="left">
                 {!v.column1}
             </div>
             <div class="right">
                 {!v.column2}
             </div>
         </div>
     </div>
</aura:component>
```

Note: Mark your resources, such as a component, with `access="global"` to make the resource usable outside of your own org. For example, if you want a component to be usable in an installed package or by a Lightning App Builder user or a Experience Builder user in another org.

You can also create documentation for a component, event, or interface marked `access="global"`. This documentation is automatically displayed in the Component Library of an org that uses or installs your package.

2. Add a CSS Resource to Your Component Bundle

Next, add a CSS resource to style the content layout as needed.

Here's the sample CSS for our simple two-column content layout.

```
.THIS .contentPanel:before,
.THIS .contentPanel:after {
    content: " ";
    display: table;
}
.THIS .contentPanel:after {
    clear: both;
}
.THIS .left {
    float: left;
    width: 50%;
}
.THIS .right {
    float: right;
    width: 50%;
}
```

CSS resources must be named *componentName*`.css`.

3. Optional: Add an SVG Resource to Your Component Bundle

You can include an SVG resource in your component bundle to define a custom icon for the content layout component when it appears in the Experience Builder.

The recommended image size for a content layout component in Experience Builder is 170px by 170px. However, if the image has different dimensions, Experience Builder scales the image to fit.

SVG resources must be named *componentName*`.svg`.

SEE ALSO:

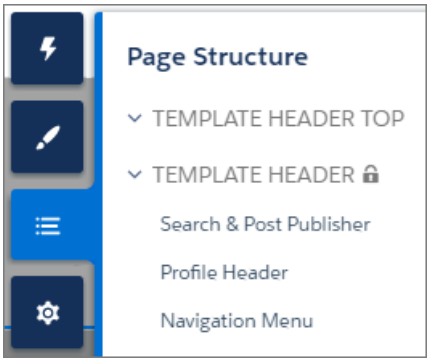
Salesforce Help: Change the Content Layout in Experience Builder

Configure Swappable Search and Profile Menu Components

Create custom components to replace the template's standard Profile Header and Search & Post Publisher components in Experience Builder.

In Customer Service, for example, the Template Header consists of these locked regions:

- `search`, which contains the Search Publisher component
- `profileMenu`, which contains the Profile Header component
- `navBar`, which contains the Navigation Menu component



These designated region names let you easily:

- Swap search and profile components in the default theme layout component or a custom theme layout component.
- Swap theme layout components while persisting existing customizations, such as the selected search component.

When a component implements the correct interface—`forceCommunity:searchInterface` or `forceCommunity:profileMenuInterface`, in this case—it's identified as a candidate for these regions. They therefore appear as swappable components in a theme layout component, such as the default Customer Service theme layout component, which declares `search` or `profileMenu` as an attribute name value.

```
<aura:attribute name="search" type="Aura.Component[]" required="false" />
```

forceCommunity:profileMenuInterface

Add the `forceCommunity:profileMenuInterface` interface to an Aura component to allow it to be used as a custom profile menu component for the template. After you create a custom profile menu component, admins can select it in Experience Builder in **Settings** > **Theme** to replace the template's standard Profile Header component.

This code is for a simple profile menu component.

```
<aura:component implements="forceCommunity:profileMenuInterface" access="global">
    <aura:attribute name="options" type="String[]" default="Option 1, Option 2"/>
    <ui:menu >
        <ui:menuTriggerLink aura:id="trigger" label="Profile Menu"/>
        <ui:menuList class="actionMenu" aura:id="actionMenu">
            <aura:iteration items="{!v.options}" var="itemLabel">
                <ui:actionMenuItem label="{!itemLabel}" click="{!c.handleClick}"/>
            </aura:iteration>
        </ui:menuList>
    </ui:menu>
</aura:component>
```

forceCommunity:searchInterface

Add the `forceCommunity:searchInterface` interface to an Aura component to allow it to be used as a custom search component for the template. After you create a custom search component, admins can select it in Experience Builder in **Settings** > **Theme** to replace the template's standard Search & Post Publisher component.

This code is for a simple search component.

```
<aura:component implements="forceCommunity:searchInterface" access="global">
    <div class="search">
        <div class="search-wrapper">
            <form class="search-form">
                <div class="search-input-wrapper">
                    <input class="search-input" type="text" placeholder="My Search"/>
                </div>
                <input type="hidden" name="language" value="en" />
            </form>
        </div>
    </div>
</aura:component>
```

SEE ALSO:

Trailhead: Build a Custom Search Component

Ensure Custom Components in Orgs with Experience Cloud Sites Are Secure

Developers can customize functionality and business logic in Experience Cloud sites by using custom components. As with any custom solution, developers must be aware of potential security-related pitfalls. Bypassing built-in defenses can expose sites and orgs to security risks.

For example, if a developer stores sensitive data as text in a custom component's definition, the data can potentially be exposed. Such an exposure can happen when Digital Experiences are enabled in the org, the org has custom components, and the custom component's developer name is known. Exposure can occur whether the site is public or private.

Data exposed can include:

- Sensitive information stored as text in the component definition
- The complete component definition of the component including HTML, JavaScript, and CSS files
- Names of any other components included in the component definition
- Any Apex controller and method names used in the component definition

Such data can be exposed for any custom component in the org, whether they're used in the Salesforce org, on an Experience Cloud site, or when unused.

Take the following steps to decrease risk of data exposure in custom components.

- Review the component definitions in all your custom components in the org
- Avoid storing any sensitive data in component definitions. Sensitive data can include personally identifiable information, company confidential information, or any information deemed sensitive to your business and customers
- Review all your custom controllers and ensure that only required user profiles have access to them
- Ensure that only required methods are exposed using `@AuraEnabled`
- Use a naming convention for custom components that is complex and unique to your org

CHAPTER 4 Develop Secure Sites: Authenticated and Guest Users

In this chapter ...

When implementing an Experience Cloud site accessible by external and unauthenticated guest users, keep these security considerations in mind. External users have login privileges to your Experience Cloud site, but they can't access your internal Salesforce org. A guest user is anyone on the internet who can visit the publicly accessible pages and components of your Experience Cloud site.

Limit Declarative Access

Granting permission to view an object allows external users to view that object using standard controllers. Standard controllers are available in Experience Builder sites and Salesforce Tabs + Visualforce sites that have Lightning features enabled. These controllers grant access based solely on the platform declarative permissions.

Grant declarative access to create, view, modify, or delete only those objects for which external users are allowed to access without mediation via your controller. The Salesforce platform includes standard controllers that can be used to create, read, update, or delete data. Standard UI controllers enforce the declarative access policies encoded in the platform's sharing rules, in the create, read, update, and delete (CRUD) permissions, and in field-level security (FLS). If you grant permissions to an external user to view or update an object, they're able to perform the operation. Don't grant excessive permissions to any object if you don't want those permissions exercised.

Determine a Security Model

For every use case, determine whether to implement a custom access control model or to rely on the declarative platform access control model. We recommend using the platform declarative access control model when possible. However, sometimes your requirements call for a custom access control model.

If you require a custom access control model:

1. Remove declarative data permissions, including create, read, update, and delete (CRUD), field-level security (FLS), and sharing, to the objects accessed by the controller from the appropriate user profile and permission set. Declare the controller without sharing.
2. Implement procedural access control in controllers without sharing. For each affected controller, implement procedural access control logic as required by your security policy.

If you can use the platform's declarative access control model:

1. Declare your controller with sharing, and configure the sharing, CRUD permissions for objects, and FLS appropriately for each profile and permission set.

Choosing a Security Model for your Controller: An Example

Consider a controller that creates a lead. Examples of custom access control include:

- Requiring a CAPTCHA before a lead is created.
- Requiring a referral code before a lead is created.
- Requiring the user to agree to a license agreement before a lead is created.

In each of these examples, the desired policy requires a procedural step that can't be enforced by declarative sharing, CRUD permissions, or FLS. In these cases, write custom logic in your apex controller to enforce the procedural rules. To ensure that users can access only the underlying data by invoking your controller, you must remove declarative access, including CRUD, FLS, and sharing to the lead object.

However, if your security policy can be mapped to the platform's CRUD permissions, FLS, and sharing logic, configure the appropriate sharing settings and object CRUD permissions to implement that logic. And then declare your controller with sharing.

Be aware that removing declarative access and relying on without-sharing procedural logic rules comes with some risk.

- Implement your organization's security logic via procedural Apex code. Implementation errors, or failure to correctly implement the appropriate profile, record, or stateful access checks, leads to unauthorized data access.
- If your security policy requires stateful logic, implement custom session management logic to preserve state across requests.
- Writing procedural access control logic is hard for org admins to maintain and modify quickly.

Removing CRUD permissions and FLS access is the only way to ensure that users must use your controller and can't use standard controllers to access the underlying objects. Because the platform can't distinguish between unauthenticated guest users, you often must implement custom access control and deny declarative access to all objects for guest users.

Unauthenticated Guest User Guidelines

Consider these guidelines about record ID encryption and providing different levels of access to unauthenticated guest users before you choose a declarative or custom access control model.

Encrypt Record IDs for Guest Users

For security reasons, don't allow guest users to look up records by record ID unless you want the record to be public. When a guest user creates a record and wants to access it later, create an encrypted string that uses a combination of the record ID, record creation timestamp, and a current timestamp. The encrypted string acts as a unique identifier for the record that only the record creator has. At a later date, the Apex code that handles the request requires the guest user to submit the encrypted string. That Apex code decrypts the string to get the record ID and other record identifiers, and it retrieves or updates the requested record.

Tip: The User Encryption Decryption AppExchange package provides the `UserCryptoHelper` class, which uses the `System.Crypto` Apex library for the encryption and decryption, stores the related data for you, and provides two template

flows. Use the managed package to implement customized record ID encryption, or create a similar managed package of your own.

SEE ALSO:

Sample Code Without Sharing: Give Guest Users Access to Create Records and Read Them Later

Sample Code Without Sharing: Give Guest Users Access to Create Records and Update Them Later

Apex Developer Guide

Apex Reference Guide: Crypto Class

Give Guest Users Access to Read Records

When you allow guest users access to read record data, you expose your data to the public. Review our guidelines, and design your implementation to allow the necessary access to guest users without compromising your data.

Warning: The Summer '20 release added new settings and updated guidelines for guest user record access. As of Winter '21, the guidelines introduced with the Summer '20 update are enforced. After the Winter '21 release, use one of the methods described in this document because the previous methods no longer work.

Each time a guest user requests to read record data, the response runs in a mode that determines if sharing rules apply to the request. Because the modes have different security implications, consider the sensitivity of your data to determine the safest method for your business needs. You can also use separate flows or multiple Apex classes to run some requests in one mode and other requests in another mode.

How to Treat Sensitive Information

Remove all sensitive information from records before returning data to an unauthenticated user. For security reasons, don't use guessable information like record IDs to retrieve records that contain sensitive information.

With Sharing

A record request that runs with sharing can't access records unless sharing rules give the guest user access to them. Consider sharing rules for read-only access if these scenarios are true:

- You want to make the records public and accessible by anyone.
- The target records can be selected with sharing rules without exposing other records.

Without Sharing

Warning: When you implement requests without sharing, design the requests and the response data carefully to ensure that you don't unintentionally expose your org's sensitive data.

A record request that runs in system mode without sharing performs actions with system-level access and bypasses sharing rules. If you aren't careful about the actions it performs and how it performs them, the request can expose or modify record data when run without sharing. A query that runs without sharing exposes all selected records to the public.

Consider system mode without sharing if any of these scenarios are true:

- Your guest users need more than read-only access for the records.
- You don't want the records to be public.
- You can't select the records without exposing other records.

- The target records are part of a parent-child relationship and access to the child records is limited by write access on the parent records. Because sharing rules can't give write access to guest users, run the request without sharing in this scenario.

Encrypted Record IDs for Record Selection

If a guest user creates a record and must access it later, encrypt the record ID with the record creation timestamp, and return the encrypted string to the client. Provide the guest user with a URL that contains the encrypted string so they can avoid typing the long string. When they request read access to the record, retrieve the encrypted string from the URL. To select the record, use the decrypted record ID.

Lightning Components

Lightning components that link directly with an object's fields automatically perform object create, read, updated, and delete (CRUD) permission and field-level security (FLS) checks to determine whether the components display for the user. For records that you don't share with guest users, the CRUD and FLS checks fail, and the components don't display. To use Lightning components to display those records, set their values to variables, and separately associate those variables with the object's fields in Apex code.

Because this method works around the automatic CRUD and FLS checks, implement your Lightning components with these guidelines:

- In your queries, include only the record fields that you need.
- Don't pass sensitive fields to the client-side code.
- Pass only fields that the client requires to the client. All data sent to the client is public.

Code Samples

- Sample Code With Sharing: Give Guest Users Access to Read Records
- Sample Code Without Sharing: Give Guest Users Access to Create and Read Records in the Same Transaction
- Sample Code Without Sharing: Give Guest Users Access to Create Records and Read Them Later

Flow Samples

- Sample Flow With Sharing: Give Guest Users Access to Read Records
- Sample Flow Without Sharing: Give Guest Users Access to Create and Read Records in One Flow

SEE ALSO:

Salesforce Help: Secure Guest Users' Sharing Settings and Record Access

Salesforce Help: Sharing Rules

Salesforce Security Guide: Sharing Rules

Give Guest Users Access to Create Records

So guest users can create object records, configure the guest user profile to include create access for the desired object.

To grant create access to an object, you must grant read access to the object. If read access isn't needed on that object, we recommend removing all permissions for that object and running the create logic in a without sharing controller.

Tip: Perform data validation on guest-created data to ensure that it doesn't impact your automated processes.

Record IDs and Guest Users

After record creation, don't include the record ID in the response to the client. To create a unique record identifier for later access, encrypt the record ID with the record creation timestamp, and return the encrypted string to the client.

When you retrieve a record, the record ID is automatically included in the object. Remove the record ID from the object, and don't pass it to the client.

Record Creation and Access in Apex Methods

Guest user sharing rules take effect after the transaction completes. If Apex code with sharing creates and then requests the newly created record, and the guest user is relying on sharing rules to access the record, the read request fails because the guest sharing rules haven't taken effect. To allow a guest user to create a record and read the newly created record in the same method, define the class with the `without sharing` keyword.

Record Creation and Access in Flow

In a flow, the Create Records element doesn't create records until the interview executes a Screen, Local Action, or Pause element. To create and read the same record in the same flow, insert a screen between record creation and retrieval, or read the record in an Apex action.

Samples

- Sample Flow: Give Guest Users Access to Create Records
- Sample Flow Without Sharing: Give Guest Users Access to Create and Read Records in One Flow
- Sample Code Without Sharing: Give Guest Users Access to Create and Read Records in the Same Transaction

SEE ALSO:

Salesforce Help: Configure the Guest User Profile

Encrypt Record IDs for Guest Users

Give Guest Users Access to Update Records

To allow guest users to update records, perform the action in the system context without sharing. Before you allow a user to update a record, verify an encrypted token previously provided to the user as a best practice. To ensure that it's the correct record, verify information about the record, such as its creator.

Warning: The Summer '20 release added new settings and updated guidelines for guest user record access. As of Winter '21, the guidelines introduced with the Summer '20 update are enforced. After the Winter '21 release, you must use the without sharing mode because you can't use sharing rules to grant guest users update access to records..

Lightning Components and Guest Users

Lightning components that link directly with an object's fields automatically perform object permissions and field-level security (FLS) checks to determine whether the components display for the user. If you have the **Secure guest user record access** setting enabled, then you can't give guest users access to update records. In that scenario, object permission checks that require update permissions fail and the components don't display.

To use Lightning components to handle guest user input, use variables to set the values of the Lightning components. Then separately associate those variables with the record's fields in the Apex code. Because this method works around the automatic object permissions and FLS checks, implement your Lightning components with these guidelines:

- Use server-side code to retrieve the record and verify it's the record that you want to update before you perform the update.
- Don't pass record fields to the client unless you want to display them to the user. Any data you send to the client is public.
- Don't pass record IDs to the client. Don't accept record IDs from the client. To create a unique identifier for a record, encrypt the record ID as a string.
- Use server-side logic to restrict the update to only the desired fields. Don't use client-side code to determine server-side behavior.
- Use server-side logic to validate data from the client before the code performs the update.

SEE ALSO:

Sample Code Without Sharing: Give Guest Users Access to Create Records and Update Them Later

Salesforce Developers Wiki: Enforcing CRUD and FLS

Encrypt Record IDs for Guest Users

Declarative Access Control Model Examples

These code and flow examples use the declarative access control model to provide unauthenticated guest users access to read records.

Sample Flow With Sharing: Give Guest Users Access to Read Records

In this sample flow, the guest user enters a date range and then views events within that range. The guest user has read access to the records with sharing rules, so the guest user profile determines which fields the flow can access.

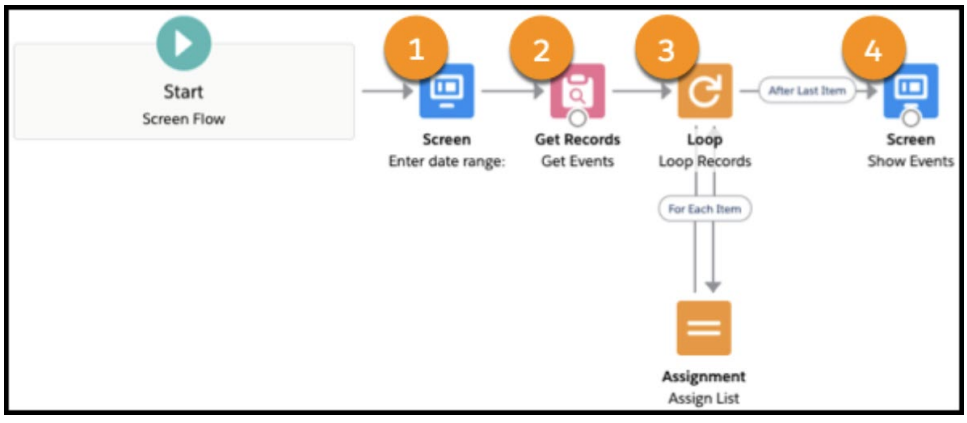
Sample Code With Sharing: Give Guest Users Access to Read Records

In this collection of code samples, the guest user enters a date range and then views events within that range. The guest user has read access to the records via sharing rules.

Sample Flow With Sharing: Give Guest Users Access to Read Records

In this sample flow, the guest user enters a date range and then views events within that range. The guest user has read access to the records with sharing rules, so the guest user profile determines which fields the flow can access.

Important: Before you give read access to guest users, see Give Guest Users Access to Read Records.



Flow Configuration

Because the guest user has access to the records via sharing rules, set the **How to Run the Flow** setting to **User or System Context—Depends on How Flow is Launched**.

Enter Date Range (1)

The first element in the flow is a screen that displays start and end date input fields. The element saves the input dates in the variables `Start_Date` and `End_Date`.

Get Events (2)

The next element is a Get Records query that selects events if they match these criteria:

- The event's `StartDateTime` is greater than the `Start_Date` variable.
- The event's `EndDateTime` is less than the `End_Date` variable.
- The event's `isPrivate` value is `False`.
- The event's `isArchived` value is `False`.

The element saves the selected events in the `GetEvents` variable.

Loop Records (3)

The Loop element loops over each event in the `GetEvents` variable.

Inside the loop, the Assignment element appends each event's `StartDateTime`, `EndDateTime`, `Subject`, and `Location` to a string.

Show Events (4)

The final element is a screen that displays the string that contains all the events.

SEE ALSO:

Salesforce Help: Secure Guest Users' Sharing Settings and Record Access

Salesforce Help: Sharing Rules

Salesforce Help: Which Context Do Flows Run In?

Salesforce Help: Flow Elements

Sample Code With Sharing: Give Guest Users Access to Read Records

In this collection of code samples, the guest user enters a date range and then views events within that range. The guest user has read access to the records via sharing rules.

Important: Before you give read access to guest users, see Give Guest Users Access to Read Records.

Aura Component: DisplayEvents.cmp

This sample Aura component displays two `lightning:input` components, where the user enters a start and end date to view events. The `lightning:card` component displays each event's `StartDateTime`, `EndDateTime`, `Subject`, and `Location`.

```
<aura:component controller="GuestUserEventsAuraController">

    <aura:attribute name="events" type="Event[]"/>
    <aura:attribute name="StartDate" type="String" default=""/>
    <aura:attribute name="EndDate" type="String" default=""/>

    <lightning:input type="datetime" name="StartDate" value="{!v.StartDate}"
aura:id="StartDate" label="Start after: " required="true"/>
   <lightning:input type="datetime" name="EndDate" value="{!v.EndDate}" aura:id="EndDate"
 label="End before: " required="true"/>
   <lightning:button name="Submit" variant="brand" label="Find events" title="Find events"
 onclick="{!c.handleSearch}"/>

    <lightning:card title="Events">
        <p class="slds-p-horizontal--small">
            <aura:iteration items="{!v.events}" var="event">
                {!event.Subject} ({!event.Location}) starts at {!event.StartDateTime} and
 ends at {!event.EndDateTime} <br/>
            </aura:iteration>
        </p>
    </lightning:card>
</aura:component>
```

Component Controller: DisplayEventsController.js

This sample JavaScript controller processes events for the Aura component and calls the methods in the helper file.

```
({
    handleSearch : function(component, event, helper) {
        helper.doSearch(component, event, helper);
    }
})
```

JavaScript Helper: DisplayEventsHelper.js

This JavaScript helper creates an asynchronous request to find events within the two timestamps that the user submitted and defines the actions to take when the request completes.

```
({
        doSearch : function(component, event, helper) {
            var start_date = component.find("StartDate").get("v.value");
            var end_date = component.find("EndDate").get("v.value");
            var action = component.get("c.searchEvents");
            action.setParams({
                "start_date": start_date,
                "end_date": end_date
            });
            action.setCallback(this, function(response){
                component.set("v.events", response.getReturnValue());
```

```
            });
            $A.enqueueAction(action);
        }
})
```

Apex Controller: GuestUserEventsAuraController.cls

This sample Apex controller receives the call to find records from the JavaScript helper. It selects events that match these criteria:

- The event's `StartDateTime` is greater than the `Start_Date` parameter.
- The event's `EndDateTime` is less than the `End_Date` parameter.
- The event's `isPrivate` value is `False`.
- The event's `isArchived` value is `False`.

The query returns these fields for each of the events:

- `StartDateTime`
- `EndDateTime`
- `Location`
- `Subject`
- `Id`

Because the guest users don't need the record ID, a `for` loop copies all the other fields to a new Event object. Then, we add the new objects to a new list and return that list to the client.

The guest user has access to the records with sharing rules, so we define the class with the `with sharing` keyword.

Warning: Any system or individual on the internet can invoke `@AuraEnabled` methods. Protect the execution of the method by implementing procedural access checks. Make sure that the query selects only the desired records and only the required fields.

```
public with sharing class GuestUserEventsAuraController {

    @AuraEnabled
    public static List<Event> searchEvents(Datetime start_date, Datetime end_date){
        List<Event> results = [SELECT Event.Subject,
                                      Event.StartDateTime,
                                      Event.EndDateTime,
                                      Event.Location
                FROM Event
                WHERE Event.EndDateTime<:end_date AND
                      Event.StartDateTime>:start_date AND
                      Event.isPrivate=False AND
                      Event.isArchived=False];

        List<Event> filtered_events = new List<Event>();
        for (Event event : results) {
            Event new_event = new Event(Subject = event.Subject,
                                                                  StartDateTime =
event.StartDateTime,
                                                                  EndDateTime =
event.EndDateTime,
                                                                  Location = event.Location);

            filtered_events.add(new_event);
```

```
        }
        return filtered_events;
    }
}
```

SEE ALSO:

Salesforce Developers Wiki: Enforcing CRUD and FLS

Salesforce Help: Secure Guest Users' Sharing Settings and Record Access

Salesforce Help: Sharing Rules

Apex Developer Guide

Lightning Aura Components Developer Guide

Custom Access Control Model Examples

These code and flow examples use a custom access control model to provide unauthenticated guest users access to create records.

Sample Code Without Sharing: Give Guest Users Access to Create Records and Read Them Later

These code samples support two separate interactions. In the first interaction, the guest user creates a case. To allow for future access, an Apex method replaces the record ID with an encrypted string. When the guest user wants to read the case later, they enter the encrypted string. An Apex method decrypts the string and uses it to retrieve the case.

Sample Flow: Give Guest Users Access to Create Records

In this sample flow, the guest user enters feedback and the flow stores it in a custom object record. The guest user doesn't have access to read the record after creation.

Sample Code Without Sharing: Give Guest Users Access to Create and Read Records in the Same Transaction

In this collection of code samples, the guest user enters details to report a support issue and Apex code creates a case. An Apex method retrieves the new record and Aura components display parts of the record to the guest user after creation. The Apex code runs without sharing because we aren't relying on object permissions and platform sharing to allow the guest user to access the record.

Sample Flow Without Sharing: Give Guest Users Access to Create and Read Records in One Flow

In this sample flow, the guest user enters details to report a support issue and the flow creates a case. After the guest user creates the record, a default active user becomes the owner of the record and the guest user doesn't have direct access to it. The flow then retrieves the new case to get the case's `CaseNumber` and `Status` fields and displays those fields to the guest user. Because the guest user doesn't own the record after creation and the flow must retrieve the record, the flow runs without sharing.

Sample Code Without Sharing: Give Guest Users Access to Create Records and Update Them Later

These code samples support two separate interactions. In the first interaction, the guest user creates a case. For security reasons, an Apex method replaces the record ID with an encrypted string. When the guest user wants to close the case later, they enter that encrypted string. An Apex method decrypts the string to get the record ID, uses the record ID to select the case, and updates the case's status.

Sample Code Without Sharing: Give Guest Users Access to Create Records and Read Them Later

These code samples support two separate interactions. In the first interaction, the guest user creates a case. To allow for future access, an Apex method replaces the record ID with an encrypted string. When the guest user wants to read the case later, they enter the encrypted string. An Apex method decrypts the string and uses it to retrieve the case.

Aura Component: CreateCase.cmp

This sample Aura component displays several components where a guest user can enter details about a new case or the token from an existing case. After record creation, `lightning:card` components display the new case's encrypted token or the status of the case that matches the token.

For demonstration purposes, this sample uses a field where the guest user can enter their case's token. To implement this scenario, provide the guest user with a link that contains the token, and retrieve the token from the URL.

```
<aura:component controller="GuestUserCreateForLater">
    <aura:attribute name="caseID" type="String"/>
    <aura:attribute name="case_status" type="String"/>
    <aura:attribute name="subject" type="String"/>
    <aura:attribute name="description" type="String"/>
    <aura:attribute name="email" type="String"/>

     Enter details to create a new case
    <lightning:input type="email" name="email" required="true" value="{!v.email}"
aura:id="email" label="Where should we send email updates?"/>
    <lightning:input name="subject" label="Subject" required="true" value="{!v.subject}"
aura:id="subject"/>
    <lightning:textarea name="description" required="true" label="Description"
value="{!v.description}" aura:id="description"/>
   <lightning:button name="submit" variant="brand" label="Create case" title="Create case"
 onclick="{!c.submitCase}"/>

    <aura:if isTrue="{!v.caseID}">
        <lightning:card title="Case">
            <p class="slds-p-horizontal--small">
                New case created:
                <p>{!v.caseID}</p>
            </p>
        </lightning:card>
    </aura:if>

    Or enter an existing case token to view the status of the case
    <lightning:textarea name="existing_case" required="false" label="Existing case token"
 aura:id="existing_case"/>
 <lightning:button name="submit" variant="brand" label="Lookup case" title="Lookup case"
onclick="{!c.lookupCase}"/>
    <aura:if isTrue="{!v.case_status}">
        <lightning:card title="Case">
            <p class="slds-p-horizontal--small">
                Case status:
                <p>{!v.case_status}</p>
            </p>
```

```
        </lightning:card>
    </aura:if>
</aura:component>
```

Component Controller: CreateCaseController.js

This sample JavaScript controller processes events for the Aura component and calls the methods in the helper file.

```
({
    submitCase : function(component, event, helper) {
        helper.makeCase(component, event, helper);
    }
    lookupCase : function(component,event,helper){
        helper.getCase(component,event,helper);
    }
})
```

JavaScript Helper: DisplayCaseHelper.js

This JavaScript helper has two methods:

`makeCase()`
The `makeCase()` method creates an asynchronous request to create a case with the submitted data. When the request completes, the callback stores the new case's unique token in the `caseID` field in a variable used by the Aura component.

`getCase()`
The `getCase()` method uses a token entered by the guest user to asynchronously retrieve a case that matches the token. The method's callback catches the response from the Apex method and stores the value in the `case_status` variable.

```
({
    makeCase : function(component, event, helper) {
        var subject = component.find("subject").get("v.value");
        var description = component.find("description").get("v.value");
        var email = component.find("email").get("v.value");

        var action = component.get("c.CreateCase");
        action.setParams({
            "subject": subject,
            "description": description,
            "email": email
        });
        action.setCallback(this, function(response){
            component.set("v.caseID", response.getReturnValue());
        });
        $A.enqueueAction(action);
    },
    getCase : function(component,event,helper){
        var case_token = component.find("existing_case").get("v.value");
        var action = component.get("c.GetCase");
        action.setParams({
            "token":case_token
        });
        action.setCallback(this, function(response){
            component.set("v.case_status", response.getReturnValue());
```

```
        });
        $A.enqueueAction(action);
    }
})
```

Apex Controller: GuestUserCreateForLater.cls

This sample Apex controller receives calls to create and retrieve cases. It uses the User Encryption Decryption AppExchange package to encrypt and decrypt data.

`CreateCase()`
The `CreateCase()` Apex method creates a case with the guest user's input. After record creation, it generates an encrypted string from the record ID, the record's `CreatedDate` field, and the current timestamp. The Apex method returns the encrypted string.

`GetCase()`
The `GetCase()` method decrypts the provided string, validates the results, and passes the decrypted record ID and created timestamp to a helper method to retrieve the original record. The response is the status of the record.

Define the class with the `without sharing` keyword because we aren't relying on object permissions and platform sharing to create and access records.

Warning: Any system or individual on the internet can invoke `@AuraEnabled` methods. Make sure that the query can retrieve only the newly created record, and select only the required fields.

```
public class without sharing GuestUserCreateForLater {

    @AuraEnabled
    public static String CreateCase(String subject,
                                    String description,
                                    String email){
  Case new_case = new Case(Subject=subject,
                           Description=description,
                           SuppliedEmail=email);
        insert new_case;

        List<Case> results = getCase(new_case.Id);


        String encryptedID = ued.UserCryptoHelper.doEncrypt(results[0].Id+'|'+
results[0].CreatedDate.getTime() +'|'+System.DateTime.now().getTime());
        return encryptedID;
    }

    public static final Long validTimestampMinutes = 10;

    @AuraEnabled
    public static String GetCase(String token){
        String status = 'Case not found';
        String decrypted_token = '';
        try {
            decrypted_token = ued.UserCryptoHelper.doDecrypt(token);
        } catch(Exception e) {
            return status;
        }
```

```
        String[] decrypted_parts = decrypted_token.split('\\|');
        String decryptedRecordId = decrypted_parts[0];
        String created_timestamp = decrypted_parts[1];
        String original_request_timestamp = decrypted_parts[2];



        if( isTimestampValid(System.Long.valueOf(original_request_timestamp)) ){
         List<Case> caseList = getCase(decryptedRecordId, created_timestamp);
         if(caseList.size() == 1){
             status = caseList[0].Status;
      }else{
                status = 'Case not found';
         }
     }
        return status;

    }

    private static List<Case> getCase(String caseID, Datetime created_date)
    {
        List<Case> results = [SELECT Case.CaseNumber, Case.CreatedDate, Case.Status
        FROM Case
        WHERE Case.Id=:caseID AND Case.CreatedDate=:created_date];
        return results;
    }

    private static Boolean isTimestampValid(Long timestamp)
    {
        return ((System.now().getTime() - timestamp) / 60000) < validTimestampMinutes;
    }
}
```

Note: If you're loading highly sensitive information, consider one of these additional measures to increase security.

- Ask the user to enter additional information related to the data that they're attempting to read or modify, which only they know.
- Require the user to log in to read or modify the data.

SEE ALSO:

Salesforce Help: Secure Guest Users' Sharing Settings and Record Access

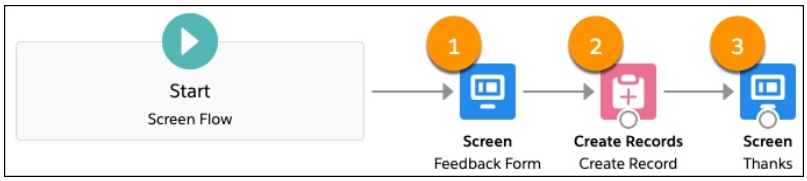
Apex Developer Guide

Lightning Aura Components Developer Guide

Sample Flow: Give Guest Users Access to Create Records

In this sample flow, the guest user enters feedback and the flow stores it in a custom object record. The guest user doesn't have access to read the record after creation.

Important: Before you give record creation access to guest users, read Give Guest Users Access to Create Records.



Custom Feedback__c Object

This scenario uses the Feedback__c custom object to store feedback from guest users. A Feedback__c custom object has these fields, listed in alphabetical order:

`Email__c`
Required. The guest user's email address. Data type: Email

`Score__c`
Required. The feedback score entered by the guest user. Possible values are `0`, `1`, `2`, `3`, `4`, `5`.

`Additional_comments__c`
Any additional feedback entered by the guest user. Data type: Long Text Area

Flow Configuration

Because the flow doesn't require read access to any records and we're not relying on object permissions, set the **How to Run the Flow** setting to **System Context without Sharing—Access All Data**.

Feedback Form (1)

The first element in the flow is a screen that displays these components:

- An Email component for the user's email address.
- A Slider component for the user's feedback score, set to allow whole numbers from 0 to 5.
- A Long Text Area component for any additional comments.

Create Records (2)

The next element is a Create Records element that creates a Feedback__c record.

End Screen (3)

The final screen element displays text to thank the user for their feedback.

SEE ALSO:

Salesforce Help: Which Context Do Flows Run In?
Salesforce Help: Flow Elements
Salesforce Help: Allow Guest Users to Access Flows
Salesforce Help: Which Context Do Flows Run In?
Salesforce Help: Flow Elements
Salesforce Help: Allow Guest Users to Access Flows

Sample Code Without Sharing: Give Guest Users Access to Create and Read Records in the Same Transaction

In this collection of code samples, the guest user enters details to report a support issue and Apex code creates a case. An Apex method retrieves the new record and Aura components display parts of the record to the guest user after creation. The Apex code runs without sharing because we aren't relying on object permissions and platform sharing to allow the guest user to access the record.

Aura Component: CreateCase.cmp

This sample Aura component displays several components where the user enters details about the case. After creation, the `lightning:card` component displays the new case's case number and status.

```
<aura:component controller="GuestUserCreateCase">

    <aura:attribute name="caseNumber" type="String"/>
    <aura:attribute name="status" type="String"/>
    <aura:attribute name="subject" type="String" default=""/>
    <aura:attribute name="description" type="String" default=""/>
    <aura:attribute name="email" type="String" default=""/>
    <aura:attribute name="name" type="String" default=""/>
    <aura:attribute name="reason" type="String"/>
    <aura:attribute name="type" type="String" default=""/>

    <lightning:select name="select" label="Reason" required="true" value="{!v.reason}"
aura:id="reason">
        <option value="installation">Installation</option>
        <option value="equipmentcomplexity">Equipment Complexity</option>
        <option value="performance">Performance</option>
        <option value="breakdown">Breakdown</option>
        <option value="equipmentdesign">Equipment Design</option>
        <option value="feedback">Feedback</option>
        <option value="other">Other</option>
    </lightning:select>

    <lightning:select name="type" label="Type" required="true" value="{!v.type}"
aura:id="type">
        <option value="mechanical">Mechanical</option>
        <option value="electrical">Electrical</option>
        <option value="electronic">Electronic</option>
        <option value="structural">Structural</option>
        <option value="other">Other</option>
    </lightning:select>

    <lightning:input type="email" name="email" required="true" value="{!v.email}"
aura:id="email" label="Where should we send email updates?"/>
    <lightning:input name="name" label="Name" required="true" value="{!v.name}"
aura:id="name"/>


    <lightning:input name="subject" label="Subject" required="true" value="{!v.subject}"
aura:id="subject"/>
    <lightning:textarea name="description" required="true" label="Description"
value="{!v.description}" aura:id="description"/>
```

```
   <lightning:button name="submit" variant="brand" label="Submit case" title="Submit case"
 onclick="{!c.submitCase}"/>

    <aura:if isTrue="{!v.caseNumber}">
        <lightning:card title="Case">
            <p class="slds-p-horizontal--small">
                {!v.caseNumber} has status {!v.status}.
            </p>
        </lightning:card>
    </aura:if>
</aura:component>
```

Component Controller: CreateCaseController.js

This sample JavaScript controller processes events for the Aura component and calls the methods in the helper file.

```
({
    submitCase : function(component, event, helper) {
        helper.makeCase(component, event, helper);
    }
})
```

JavaScript Helper: DisplayCaseHelper.js

This JavaScript helper creates an asynchronous request to create a case with the submitted data. When the request completes, the callback stores the case number and case status in variables used by the Aura component.

```
({
        makeCase : function(component, event, helper) {
            var subject = component.get("v.subject");
            var description = component.get("v.description");
            var email = component.get("v.email");
            var name = component.get("v.name");
            var reason = component.get("v.reason");
            var type = component.get("v.type");


            var action = component.get("c.CreateCase");
            action.setParams({
                "subject": subject,
                "description": description,
                "email": email,
                "name": name,
                "reason": reason,
                "caseType": type
            });
            action.setCallback(this, function(response){
                component.set("v.caseNumber", response.getReturnValue()[0]);
                component.set("v.status", response.getReturnValue()[1]);
            });
            $A.enqueueAction(action);
        }
})
```

Apex Controller: GuestUserCreateCase.apxc

This sample Apex controller creates the record, retrieves the new record, and returns the required fields from the new record to the client. Because object permissions and platform sharing aren't used, this controller runs without sharing.

To avoid unintended exposure of record data, the `CreateCase` method returns only the `CaseNumber` and `Status` fields.

Warning: Any system or individual on the internet can invoke `@AuraEnabled` classes. Make sure that the method returns only the required fields from the new record.

```
public without sharing class GuestUserCreateCase {

    @AuraEnabled
    public static List<String> CreateCase(String subject,
                                           String description,
                                           String email,
                                           String name,
                                           String reason,
                                           String caseType,
                                           String phone){
  Case new_case = new Case(Subject=subject,
                                  Description=description,
                                  SuppliedEmail=email,
                                  SuppliedName=name,
                                  Reason=reason,
                                  Type=caseType,
                                  SuppliedPhone=phone);
        insert new_case;

        List<Case> results = getCase(new_case.Id);

        List<String> response = new List<String>();
        response.add(results[0].CaseNumber);
        response.add(results[0].Status);
        return response;

    }

private static List<Case> getCase(String caseID)
{
    List<Case> results = [SELECT CaseNumber, Status
 FROM Case
    WHERE Case.Id=:caseID];
    return results;
}

}
```

SEE ALSO:

Salesforce Help: Secure Guest Users' Sharing Settings and Record Access

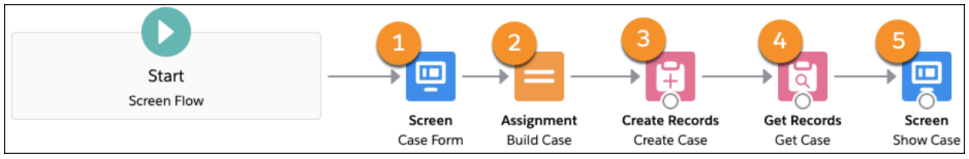
Apex Developer Guide

Lightning Aura Component Developer Guide

Sample Flow Without Sharing: Give Guest Users Access to Create and Read Records in One Flow

In this sample flow, the guest user enters details to report a support issue and the flow creates a case. After the guest user creates the record, a default active user becomes the owner of the record and the guest user doesn't have direct access to it. The flow then retrieves the new case to get the case's `CaseNumber` and `Status` fields and displays those fields to the guest user. Because the guest user doesn't own the record after creation and the flow must retrieve the record, the flow runs without sharing.

Important: Before you give create and read access to guest users, read Give Guest Users Access to Read Records and Give Guest Users Access to Create Records.



Flow Configuration

Because the flow creates a record and then retrieves the record without sharing, set the **How to Run the Flow** setting to **System Context Without Sharing—Access All Data**.

Case Form (1)

The first element in the flow is a screen that displays these input components:

- A Text component for the company's name
- A Name component for the submitter's name
- An Email component for the submitter's email address
- A Phone component for the submitter's phone number
- A Picklist component with option values from the record type's `Type_Options` field
- A Picklist component with option values from the record type's `Reason_Options` field
- A Text component for the subject of the case
- A Long Text Area component for the description of the case

Assignment (2)

The second element assigns the data from the input components to a new `Case` record variable.

Create Records (3)

The next element is a Create Records element that uses the `Case` record variable to create a Case record. In addition to the information entered by the guest user, set the element configuration to define the case's origin field as `Web`.

Get Records (4)

The Get Records element retrieves the new record by its `Id` field that is automatically defined by the Create Records element. The retrieved record is stored in a new `Case` record variable.

End Screen (5)

The final screen element displays the Case's `CaseNumber` and `Status` fields from the Get Record element's `Case` record variable.

SEE ALSO:

- *Salesforce Help*: Which Context Do Flows Run In?
- *Salesforce Help*: Flow Elements
- *Salesforce Help*: Allow Guest Users to Access Flows
- *Salesforce Help*: Apex Actions
- *Salesforce Help*: Flows in Transactions
- *Apex Developer Guide*: InvocableMethod Annotation

Sample Code Without Sharing: Give Guest Users Access to Create Records and Update Them Later

These code samples support two separate interactions. In the first interaction, the guest user creates a case. For security reasons, an Apex method replaces the record ID with an encrypted string. When the guest user wants to close the case later, they enter that encrypted string. An Apex method decrypts the string to get the record ID, uses the record ID to select the case, and updates the case's status.

Aura Component: CreateCase.cmp

This sample Aura component displays components for record creation and closure.

To create a case, the guest user uses components to enter case details. After record creation, `lightning:card` components display the new case's encrypted token or the status of the case that matches the token.

For demonstration purposes, this sample displays a component where the guest user enters the case's token directly. To implement this scenario, provide the guest user with a link that contains the token, and retrieve the token from the URL.

```
<aura:component controller="GuestUserCreateForLater">
    <aura:attribute name="caseID" type="String"/>
    <aura:attribute name="case_status" type="String"/>
    <aura:attribute name="subject" type="String"/>
    <aura:attribute name="description" type="String"/>
    <aura:attribute name="email" type="String"/>

     Enter details to create a new case
    <lightning:input type="email" name="email" required="true" value="{!v.email}"
aura:id="email" label="Where should we send email updates?"/>
    <lightning:input name="subject" label="Subject" required="true" value="{!v.subject}"
aura:id="subject"/>
    <lightning:textarea name="description" required="true" label="Description"
value="{!v.description}" aura:id="description"/>
   <lightning:button name="submit" variant="brand" label="Create case" title="Create case"
 onclick="{!c.submitCase}"/>

    <aura:if isTrue="{!v.caseID}">
        <lightning:card title="Case">
            <p class="slds-p-horizontal--small">
                New case created:
                <p>{!v.caseID}</p>
```

```
            </p>
        </lightning:card>
    </aura:if>

    Or enter an existing case token to close the case
    <lightning:textarea name="existing_case" required="false" label="Existing case token"
 aura:id="existing_case"/>
 <lightning:button name="submit" variant="brand" label="Close case" title="Close case"
onclick="{!c.updateCase}"/>
    <aura:if isTrue="{!v.case_status}">
        <lightning:card title="Case">
            <p class="slds-p-horizontal--small">
                Case status:
                <p>{!v.case_status}</p>
            </p>
        </lightning:card>
    </aura:if>
</aura:component>
```

Component Controller: CreateCaseController.js

This sample JavaScript controller processes events for the Aura component and calls the methods in the helper file.

```
({
    submitCase : function(component, event, helper) {
        helper.makeCase(component, event, helper);
    },
    updateCase : function(component,event,helper){
        helper.updateCase(component,event,helper);
    }
})
```

JavaScript Helper: CaseHelper.js

This JavaScript helper has two methods:

`makeCase()`
The `makeCase()` method creates an asynchronous request to create a case with the submitted data. When the request completes, the callback stores the new case's unique token in the `caseID` field in a variable used by the Aura component.

`updateCase()`
The `updateCase()` method uses a token entered by the guest user to asynchronously update the case that matches the token. The method's callback catches the response from the Apex method and stores the value in the `case_status` variable.

```
({
    makeCase : function(component, event, helper) {
        var subject = component.find("subject").get("v.value");
        var description = component.find("description").get("v.value");
        var email = component.find("email").get("v.value");

        var action = component.get("c.CreateCase");
        action.setParams({
            "subject": subject,
            "description": description,
```

```
            "email": email
        });
        action.setCallback(this, function(response){
            component.set("v.caseID", response.getReturnValue());
        });
        $A.enqueueAction(action);
    },
    updateCase : function(component,event,helper){
        var case_token = component.find("existing_case").get("v.value");
        var action = component.get("c.UpdateCase");
        action.setParams({
            "token":case_token
        });
        action.setCallback(this, function(response){
            component.set("v.case_status", response.getReturnValue());
        });
        $A.enqueueAction(action);
    }
})
```

Apex Controller: GuestUserCreateForLater.cls

This sample Apex controller receives calls to create and update cases. It uses the User Encryption Decryption AppExchange package to encrypt and decrypt data.

`CreateCase()`

The `CreateCase()` Apex method creates a case with the guest user's input. After record creation, it generates an encrypted string from the record ID, the record's `CreatedDate` field, and the current timestamp. The Apex replaces the new case's ID with the encrypted string.

`UpdateCase()`

The `UpdateCase()` method decrypts the provided string, validates the results, and uses the information to update the original record's status. The response is the status of the record or an error message, if one occurred.

Define the class with the `with sharing` keyword because it doesn't directly access the records.

Warning: Any system or individual on the internet can invoke `@AuraEnabled` classes. Make sure that the query can update only the correct record.

```
public with sharing class GuestUserCreateForLater {

    @AuraEnabled
    public static String CreateCase(String subject,
                                    String description,
                                    String email){
  Case new_case = new Case(Subject=subject,
                           Description=description,
                           SuppliedEmail=email);
        insert new_case;

       List<Case> results = GuestUserCaseHelperWS.getCase(new_case.Id);


        String encryptedID = ued.UserCryptoHelper.doEncrypt(results[0].Id+'|'+
results[0].CreatedDate.getTime() +'|'+System.DateTime.now().getTime());
```

```
        return encryptedID;
    }

    public static final Long validTimestampMinutes = 10;

    @AuraEnabled
    public static String UpdateCase(String token){
        String status = 'Case not found';
        String decrypted_token = '';
        try {
            decrypted_token = ued.UserCryptoHelper.doDecrypt(token);
        } catch(Exception e) {
            return status;
        }
        String[] decrypted_parts = decrypted_token.split('\\|');
        String decryptedRecordId = decrypted_parts[0];
        String created_timestamp = decrypted_parts[1];
        String original_request_timestamp = decrypted_parts[2];


        if( isTimestampValid(System.Long.valueOf(original_request_timestamp))) {

         List<Case> caseList = GuestUserCaseHelperWS.getCase(decryptedRecordId,
created_timestamp);
            if(caseList.size() == 1){
            Case case_to_update = caseList[0];
                        case_to_update.Status = 'Closed';
                try {
                         GuestUserCaseHelperWS.updateCase(case_to_update);
                         status = 'Closed';
                } catch(DmlException e){
                      System.debug('An unexpected error has occurred: ' + e.getMessage());

                }
            }else{
                status = 'Case not found';
            }
        }
        return status;
    }

    private static Boolean isTimestampValid(Long timestamp)
    {
        return ((System.now().getTime() - timestamp) / 60000) < validTimestampMinutes;
    }
}
```

Apex Helper Class: GuestUserCaseHelperWS.apxc

This sample Apex helper class defines methods that retrieve a record by its ID and update a record. The Apex controller calls this method.

Define the class with the `without sharing` keyword so that it can retrieve and update the record without requiring sharing.

```
public without sharing class GuestUserCaseHelperWS {

    public static List<Case> getCase(String caseID, Datetime created_date)
    {
        List<Case> results = [SELECT Case.CaseNumber, Case.CreatedDate, Case.Status
        FROM Case
        WHERE Case.Id=:caseIDAND Case.CreatedDate=:created_date];
        return results;
    }

    public static Case updateCase(Case case_to_update)
    {
        update case_to_update;
        return case_to_update;
    }
}
```

SEE ALSO:

Salesforce Help: Secure Guest Users' Sharing Settings and Record Access

Apex Developer Guide

Lightning Aura Components Developer Guide

Limit Access to Apex Classes

Allow guest and external users access to only those classes that they must call.

If an Apex class contains publicly exposed methods, such as methods using `@InvocableMethod`, `@AuraEnabled`, `@RestResource`, or `webservice`, then guest and external users can invoke these methods with arbitrary parameters. But they must have permission to execute the Apex class. We recommend limiting Apex class access to users with specific permission sets or profiles. Allowing guest and external users full access to Apex classes isn't secure. Think carefully about which users must call which Apex classes, create permission sets for these roles, and enable the Apex class for the required permission sets.

Flow Security

If guest or external users must run flows, override the flow permission to grant access only to specific external user profiles, permission sets, or site guest user profiles, rather than allowing users to run all flows. Avoid running flows in system context when possible, and restrict access to subflows. Otherwise, ensure that you implement procedural access controls for those flows and subflows.

Flows are a powerful feature that can override platform security settings for access to objects and Apex classes. Flows can be used to activate and deactivate permission sets. Yet screen flows are driven by the browser with user-controlled input parameters. Therefore, we recommend overriding the run flow permission to assign access to specific flows based on the guest or external user profile or permission set. For guest users, configure flow access policies on the guest user profile for the appropriate site.

It's also a good security practice to remove permissions to run subflows, even if users run the subflow independently. From a security perspective, it's better to create two separate flows and give access only to the flow that the user runs directly, and not the one running as a subflow. Grant flow access only to the highest-level parent flow and not to the subflows. The same recommendation can apply to invocable Apex methods called by flows. Avoid granting user access to those classes, so that calling those methods is limited to only the flows that they were meant to be called from.

Be aware that if a user has permission to run a screen flow, they can:

- Invoke the flow at any time and with parameters of their choosing.
- Cancel the flow at any time.

These considerations also apply to subflows, or flows called from other flows.

In particular, flow users can:

- View and modify the input (start) variables to a screen flow.
- View output variables returned from a screen subflow to the parent flow.
- If they have permission to run the subflow, modify input variables to subflows.

If any of these abilities violates your security policy, don't use subflows. For example, if billing information or other sensitive information that must be kept confidential is handled by subflows. Keep business logic in the main flow.

SOQL Injection

Sanitize user-controlled data passed into dynamic SOQL queries.

SOQL or SOSL injection occurs when Apex code inserts user-controlled data into dynamic SOQL or SOSL queries without properly sanitizing the input. There are two scenarios to consider:

- Changing the overall structure of the query
- Changing the value of a query parameter

Control these scenarios by invoking Apex code that prevents callers from accessing data they're not entitled to.

Consider this code:

```
@AuraEnabled
public static List<Account> getAccountName(string userId) {
  if (FeatureManagement.checkPermission('readAccount')) {
      string query='SELECT Name FROM Account WHERE Id=\''+ userId + '\'';
      return database.query(query);
  }
}
```

The user potentially gains control over the query and accesses more information than they're entitled to.

The return value of the query doesn't limit the information the user can access. The user can submit a string, such as :

```
userId = '0035Y00003pPJiNQAW\' OR AnnualRevenue>100000.00 OR Name=\'a'
// 0035Y00003pPJiNQAW is any id to any object that is not an account
```

The return value of the query names all the accounts with an annual revenue in excess of $100,000, which is not what the developer intended to return to the caller.

Fixing SOQL or SOSL injection requires the appropriate contextual encoding. Don't apply `String.escapeSingleQuotes` to every user input. Rather, sanitize fields based on where they appear in the SOQL or SOSL query.

- For variables in WHERE (SOQL), ORDER BY (SOQL), WITH (SOSL), or FIND (SOSL) clauses, use bound variables:

  ```
  string query='SELECT Name FROM Account WHERE Id=:userId';
  ```

- For field and table names, call `isAccessible` on the `describeResult` of the field. Or to enforce declarative policies, use your own procedural logic to limit the field or table names to what your security policy allows.

- For parameters in quoted strings, use bind variables. Don't use bind variables or `String.escapeSingleQuote` to sanitize table names and field names, or any parameters that don't appear in a quoted context.
- For other primitive types, cast the user input into a boolean, integer, Id, or other primitive (non-string) type.

Be aware that the WITH SECURITY_ENFORCED keyword doesn't sanitize WHERE clauses, only SELECT and FROM clauses, so it isn't a sanitizer for SOQL or SOSL injection attacks.

CHAPTER 5 Develop Secure Sites: CSP, LWS, and Lightning Locker

In this chapter ...

Aura and LWR sites in Experience Cloud use Content Security Policy (CSP) and either Lightning Web Security (LWS) or Lightning Locker to secure the site from malicious attacks and custom code vulnerabilities. Factor in the potential impact of these security features when you develop your own custom components, use third-party components, or add custom code in the `head` markup.

CSP

CSP is a W3C standard for controlling the source of content that can be loaded on a page. CSP rules work at the page level and apply to all third-party components and custom code. By default, the framework's headers allow content to be loaded only from secure (HTTPS) URLs and forbid XHR requests from JavaScript.

Different levels of CSP script security are available from Experience Builder. CSP levels are specific to each site.

Lightning Locker and Lightning Web Security

The Lightning Locker architectural layer enhances security by isolating individual Lightning component namespaces in their own containers and enforcing coding best practices. Lightning Locker has been the default security architecture for Lightning components and for Aura sites in Experience Cloud.

LWS is designed to make it easier for your components to use secure coding practices and aims to replace Lightning Locker. As with Lightning Locker, the goal of LWS is to prevent Lightning components from interfering with or accessing data that belongs to platform code or components from other namespaces. However, the architecture of Lightning Web Security protects Lightning web components using a different approach.

How LWS Applies At the Org and Site Levels

An admin can enable LWS at the org level to be used throughout the org instead of Lightning Locker via the Use Lightning Web Security for Lightning web components and Aura components setting in Session Settings in Setup.

This org-level setting affects Aura sites because when LWS is enabled in the org, LWS replaces Lightning Locker at the site level. Then, if you disable the Lightning Locker setting in Experience Builder for an Aura site, you're actually disabling LWS.

LWR sites have their own instance of LWS, so the org setting for LWS has no effect on LWR sites. If you disable Lightning Locker in the LWR site, the site's instance of LWS is disabled, even if LWS is enabled in the org.

Note: By default, Strict CSP is enabled for all new Experience Builder sites, which means that Lightning Locker or LWS is also enabled. To access the Lightning Locker setting in Experience Builder, select Relaxed CSP.

For the B2B store and the D2C store LWR templates in Commerce Cloud, LWS isn't enabled by default and can't be enabled.

This table summarizes the effect of the org-level setting and the site-level setting in an Aura or LWR site.

Experience Cloud site framework	Site-level setting	Org-level setting	LWS or Locker used in the site
Aura	✗	✗	✗
	✗	✓	✗
	✓	✗	**Lightning Locker**
	✓	✓	**LWS**
LWR	✗	✗	✗
	✗	✓	✗
	✓	✗	**LWS** (site's instance)
	✓	✓	**LWS** (site's instance)

SEE ALSO:

Salesforce Help: CSP and Lightning Locker in Experience Builder Sites

Salesforce Help: Select a Security Level in Experience Builder Sites

Salesforce Help: CSP and Lightning Locker Design Considerations

Lightning Web Components Developer Guide: Security with Lightning Locker

Lightning Aura Components Developer Guide: Developing Secure Code

Resolve Lightning Locker Conflicts in Aura Sites

Lightning Locker is enabled by default for all new Aura sites in Experience Cloud. However, occasionally a third-party component on the page or custom code in your `head` markup doesn't work as expected due to a conflict with Lightning Locker. In such a situation, Salesforce recommends using one of the workarounds described here.

Use JavaScript Custom Events

Lightning Locker protects third-party components and custom code from interacting with resources from other namespaces, but not from the `head` markup. This limitation means that your `head` markup can contain custom code that bypasses Lightning Locker and introduces security vulnerabilities. Third-party scripts in the `head` element can also conflict with Salesforce platform code, leading to unpredictable issues.

To address this limitation, isolate your third-party Aura and Lightning web components and custom code by using the `CustomEvent` constructor in your `head` markup. Third-party components and custom code can then interact with your resources without being responsible for loading or referencing that resource directly.

Any data that must be passed through the event to the listener is passed in the `detail` property, which is created when initializing the event. The `detail` property is mapped to the dataLayer in your `head` markup listener. The custom events are then dispatched to any resource that extends `EventTarget`. For an example of using custom events, see Adobe Analytics and Lightning Locker.

Warning: Be aware of the data that you're passing with the JavaScript `CustomEvent` constructor, and ensure that your usage is secure. Any JavaScript running on your page, including any third-party App Exchange components that you're using, can potentially listen for your event names and read this data.

Set an Aura Component to API 39.0

If your third-party component or custom code doesn't interact with an Aura component as expected, you can set the Aura component to Salesforce API version 39.0, which disables Lightning Locker for the component. See Disable Lightning Locker for a Component in the *Lightning Aura Components Developer Guide*.

Warning: Disabling Lightning Locker for an Aura component can introduce security flaws into your site and prevent the component from being available at design time or rendering at runtime.

For consistency and ease of debugging, avoid having a parent Aura component and a child component on different API versions. Therefore, don't use any Aura component set to API version 39.0 in a component hierarchy, such as a component within a component or a component that's extending another component.

If LWS is enabled in the org, setting API version 39.0 in the component doesn't disable LWS for the component. However, LWS is likely to allow behaviors of components that Lightning Locker blocks, removing the need to disable it.

Turn Off Lightning Locker

Warning: Use this workaround only as a last resort.

If you turn off Lightning Locker in your site, you disable it for *all* your site's third-party components and custom code. The ramifications can be far-ranging and unexpected, such as introducing security flaws into your site. And if a third-party component hasn't been enabled to work without Lightning Locker, it can prevent that component from being available at design time and rendering at runtime. When Lightning Locker is turned off, components from different namespaces can interact with and access each other's Document Object Model (DOM), and restrictions around custom resources interacting with your site are relaxed.

For more information on disabling Lightning Locker, see Select a Security Level in Experience Builder Sites in Salesforce Help.

Note: If LWS is enabled in the org, when you disable Lightning Locker in an Aura site, you actually disable LWS in the site. If you disable Lightning Locker in the LWR site, the site's instance of LWS is disabled, even if LWS is enabled in the org.

SEE ALSO:

- ExperienceBundle for Experience Builder Sites
- *Experience Cloud Help*: Select a Security Level in Experience Builder Sites
- *Salesforce Help*: Add Markup to the Page `<head>` to Customize Your Experience Builder Site
- *Lightning Web Components Dev Guide*: Communicate with Events
- *Lightning Aura Components Developer Guide*: Communicating with Events

Enable Third-Party Components to Run When Lightning Locker Is Off

If you turn off Lightning Locker in your Experience Builder site, any third-party components installed from a managed package must be configured to be available at design time and render at runtime.

You can turn off Lightning Locker from the Relaxed CSP or Strict CSP security levels.

If LWS is enabled in the org, when you disable Lightning Locker in an Aura site, you actually disable LWS in the site. If you disable Lightning Locker in the LWR site, the site's instance of LWS is disabled, even if LWS is enabled in the org. LWR sites can include third party libraries without disabling Lightning Locker or LWS. For more information see Integrate Third-Party Libraries Using the Privileged Script Tag in *LWR Sites for Experience Cloud*.

Warning: Turning off Lightning Locker can introduce security flaws to your site. Disable Lightning Locker only as a last resort.

Configure Third-Party Aura Components to Run Without Lightning Locker

For third-party Aura components, managed package developers must configure the `lightningcommunity:allowInRelaxedCSP` interface for the component.

Configure Third-Party Lightning Web Components to Run Without Locker

For third-party Lightning web components, managed package developers must configure the `lightningCommunity__RelaxedCSP` value in the `capability` tag of the component's configuration file.

SEE ALSO:

- ExperienceBundle for Experience Builder Sites
- *Experience Cloud Help*: Select a Security Level in Experience Builder Sites
- *Salesforce Help*: Where to Allowlist Third-Party Hosts for Experience Builder Sites
- *Lightning Web Component Reference*: Allow In Relaxed Csp
- *Lightning Web Components Developer Guide*: XML Configuration File Elements

Example: Adobe Analytics and Lightning Locker in Aura Sites

Because Adobe Analytics interacts with components in your Aura site, Lightning Locker can produce unexpected results. The recommended workaround is to isolate Adobe Analytics by using JavaScript Custom Events in your `head` markup. Adobe Analytics can then interact with components without being responsible for loading or referencing that resource directly.

Tip: LWR sites can include analytics by using a different strategy. For more information, see Integrate Third-Party Libraries Using the Privileged Script Tag in *LWR Sites for Experience Cloud*.

Include Adobe Analytics in Your Aura Site

Add the Adobe Analytics script and applicable event listeners to your site's `head` markup using the `script` tag.

```
<script>
    document.addEventListener('analyticsEvent', function(e) {
        //add logic here to tell your dataLayer about the event
        //dataLayer.action = e.detail.action;
        //dataLayer.label = e.detail.label;
        //or map payload to an AA library event
    });

    document.addEventListener('analyticsViewChange', function() {
    });
</script>
<script src="full-url-to-your-adobe-script" async></script>
```

Use Custom Events

For any component you want to interact with Adobe Analytics, implement a custom event using the `detail` property. This property passes data through the event to the listener and is mapped to the `dataLayer` in your `head` markup listener. The custom events can then be dispatched to any resource that extends `EventTarget`.

```
document.dispatchEvent(new CustomEvent('analyticsEvent', {'detail': {action: 'click',
label: 'Submitted Case'}}));
```

Warning: Be aware of the data you're passing with the JavaScript `CustomEvent` constructor, and ensure that your usage is secure. Any JavaScript running on your page, including Adobe Analytics, can potentially listen for your event names and read this data.

Implement Additional Events for Aura Components

If Adobe Analytics interacts with an Aura component, you also must implement the `forceCommunity:routeChange` and `aura:locationChange` events.

`forceCommunity:routeChange` tracks view changes within the Lightning Component Framework.

```
<aura:component implements="forceCommunity:availableForAllPageTypes">
    <aura:handler event="forceCommunity:routeChange" action="{!c.handleRouteChange}" />
</aura:component>
```

```
handleRouteChange : function(component, event, helper) {
    document.dispatchEvent(new Event('analyticsViewChange'));
}
```

`aura:locationChange` indicates that the hash part of the URL in the browser's location bar has been modified. However, changing the hash part of a location URL is used only rarely—for example, to implement a tab change in the Tabs component.

SEE ALSO:

- *Salesforce Help*: Add Markup to the Page `<head>` to Customize Your Experience Builder Site
- *Lightning Web Components Reference*: Route Change
- *Lightning Web Components Reference*: Location Change
- *Lightning Aura Components Developer Guide*: What is the Lightning Component Framework?
- Tab Layout

CHAPTER 6 Analyze and Improve Experience Builder Site Performance

The Salesforce Page Optimizer analyzes your site and identifies issues that impact performance. Use the information to refine your design and improve site performance for your members. The Page Optimizer is a free plug-in available from the Chrome Web Store. Download and install the plug-in as you would any Chrome extension.

To download the Page Optimizer, in Experience Builder, click  on the left sidebar, and then click **Advanced**.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To customize an Experience Cloud site:

- Be a member of the site AND Create and Set Up Experiences

  OR

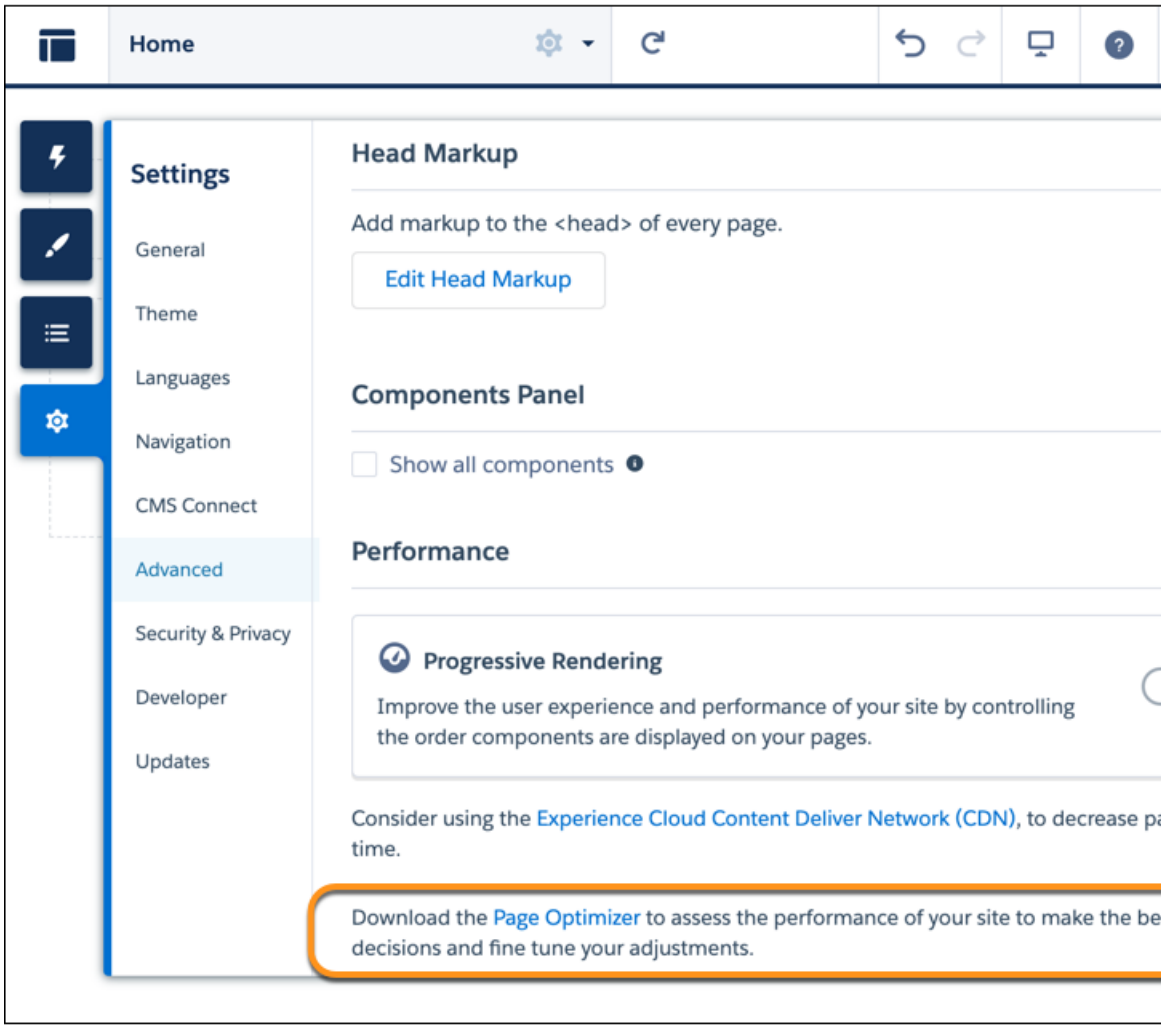
- Be a member of the site AND View Setup and Configuration AND an experience admin, publisher, or builder in that site

To publish an Experience Cloud site:

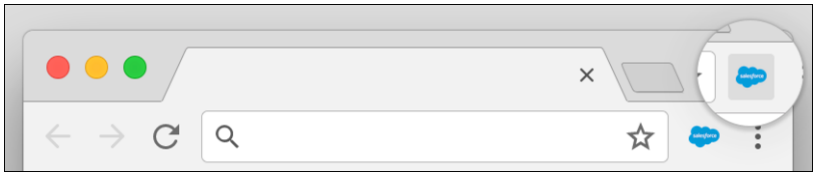
- Be a member of the site AND Create and Set Up Experiences

  OR

- Be a member of the site AND an experience admin or publisher in that site

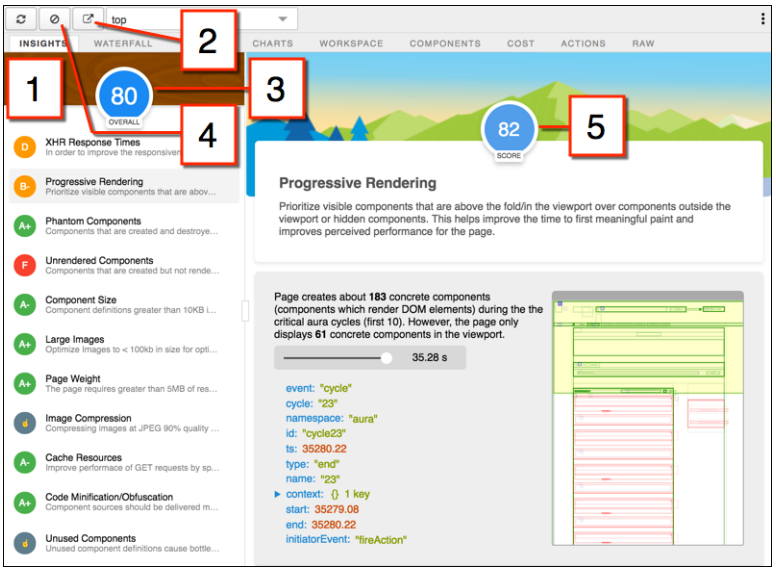


After installation, the Page Optimizer is located with your other Chrome extensions.



Insights

To analyze your site, navigate to your published site, load the page, and then launch the Page Optimizer.



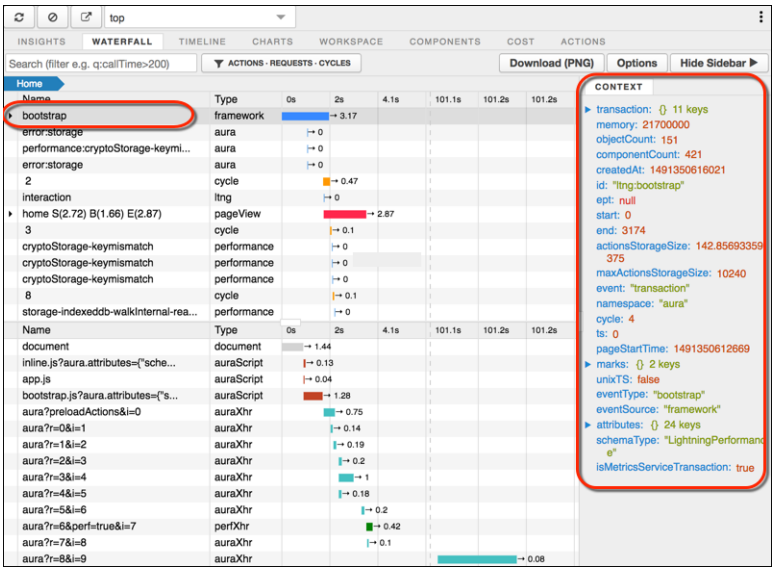
The Insights tab (1) evaluates your page based on best practices for web applications developed using the Lightning framework. This tab displays an overall performance score (3) along with individual scores (5) for various analysis rules. To view details and suggested actions, click each rule. For more room to work, click **Popout** (2).

The Insights tab is conservative in providing recommendations. For further insights, consider reviewing the raw data presented on the Waterfall, Timeline, Charts, Cost, and Actions tabs.

To remove collected metrics, click **Clear** (4). Perform some user actions on the page to collect new metrics, and then reopen the Page Optimizer. For example, to gather performance metrics for liking a feed item, clear performance metrics, click Like, and reopen the Page Optimizer.

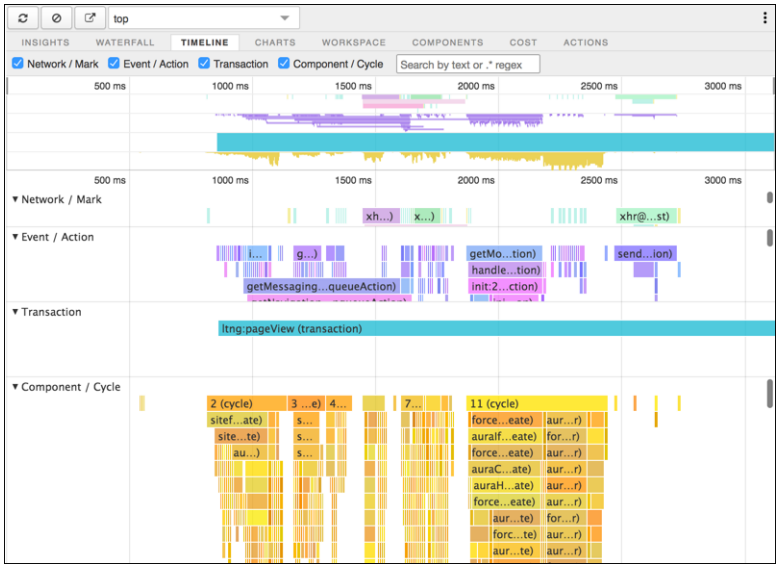
Waterfall

The Waterfall tab displays all network requests and performance instrumentation data. Click a row to view contextual information in the sidebar. Click the arrow to the left of each row to expand the information for each row.



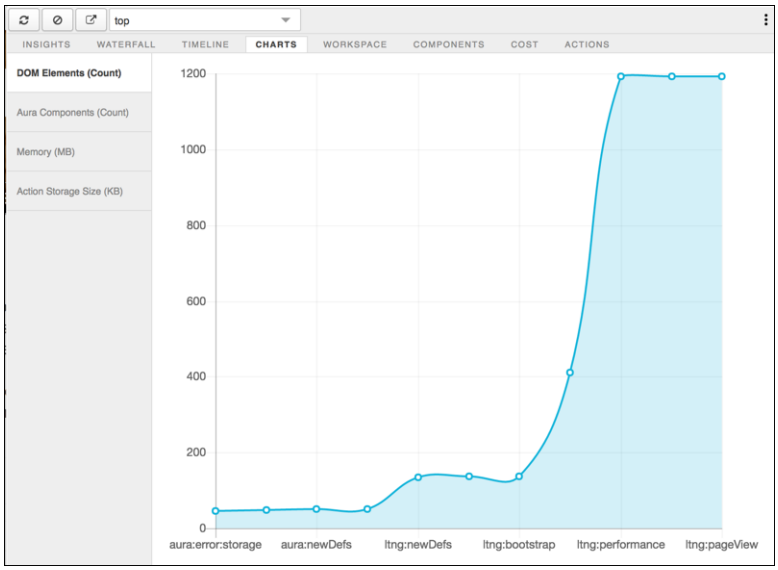
Timeline

The Timeline tab provides a profile of each component's rendering lifecycle. The timeline view is optimized for displaying Lightning framework metrics, so it's easier to interpret than Chrome DevTools.



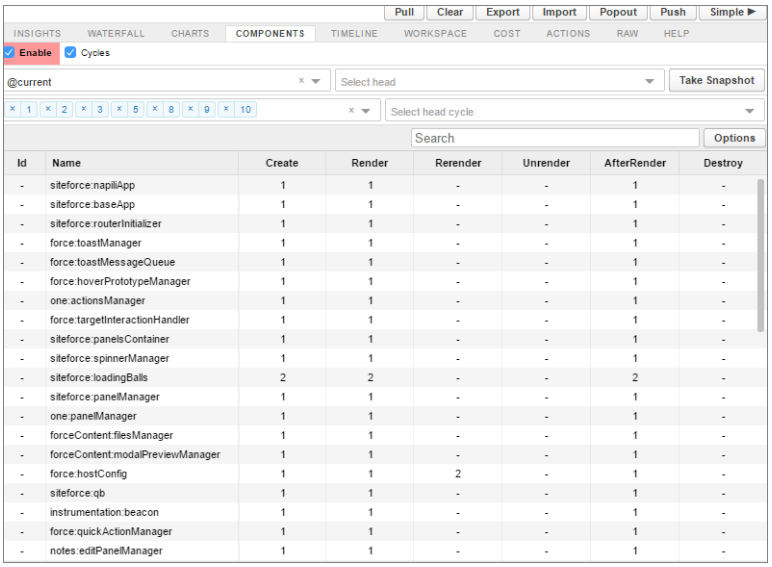
Charts

The Charts tab displays trending information about memory and components as customers use your page.



Components

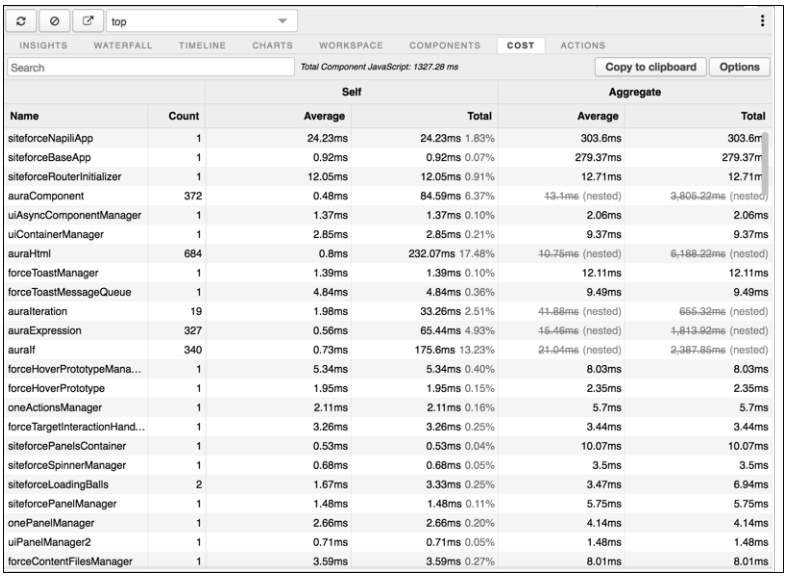
The Components tab displays the lifecycle counts for each component on the page. This view helps you identify potential component leaks and unexpected rendering behavior. Use the Component tab along with the Cost tab for an overall view of component performance.



Id	Name	Create	Render	Rerender	Unrender	AfterRender	Destroy
-	siteforce:napiliApp	1	1	-	-	1	-
-	siteforce:baseApp	1	1	-	-	1	-
-	siteforce:routerInitializer	1	1	-	-	1	-
-	force:toastManager	1	1	-	-	1	-
-	force:toastMessageQueue	1	1	-	-	1	-
-	force:hoverPrototypeManager	1	1	-	-	1	-
-	one:actionsManager	1	1	-	-	1	-
-	force:targetInteractionHandler	1	1	-	-	1	-
-	siteforce:panelsContainer	1	1	-	-	1	-
-	siteforce:spinnerManager	1	1	-	-	1	-
-	siteforce:loadingBalls	2	2	-	-	2	-
-	siteforce:panelManager	1	1	-	-	1	-
-	one:panelManager	1	1	-	-	1	-
-	forceContent:filesManager	1	1	-	-	1	-
-	forceContent:modalPreviewManager	1	1	-	-	1	-
-	force:hostConfig	1	1	2	-	1	-
-	siteforce:qb	1	1	-	-	1	-
-	instrumentation:beacon	1	1	-	-	1	-
-	force:quickActionManager	1	1	-	-	1	-
-	notes:editPanelManager	1	1	-	-	1	-

Cost

The Cost tab displays the amount of time each component was busy processing its logic. The lower the time, the better the performance.

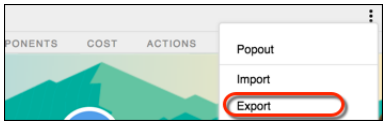


Actions

The Actions tab displays a list of all actions performed on the page along with their timing information.

Export

Export your analysis to a file to share with your development and support teams.



Submit Feedback

We want to hear from you. Share your comments, questions, requests, and any issues that you find. Submit Feedback.

SEE ALSO:

Salesforce Developer Blog: Lightning Components Performance Best Practices

CHAPTER 7 Add Pardot Tracking to Your Experience Builder Site

Pardot can track visitor interactions and activities on a site, even when the visitors haven't yet been converted to a prospect. After tracking is enabled, use Pardot to view reports on visitor engagement, and automatically score leads based on-site activity.

1. In Pardot, navigate to the campaign you want to track.
2. Click **View Tracking Code**, and copy the code.
3. Access Experience Builder of the site you want to add tracking to.
4. In **Settings** > **Advanced**, click **Edit Head Markup**, then paste in the Pardot tracking code.

Experience Builder sites are a single-page apps (SPA), so when the user navigates to different pages on the site, only the content area reloads rather than the entire page. The Pardot script records the first load of the site as a page view. Modify the script to allow in-app navigation within the page to be captured more accurately in Pardot.

1. In the Edit Head Markup window, modify the Pardot tracking code so that changes in page state are added to the session history.

   Here's a sample code snippet with modifications noted.

```
<script type='text/javascript'>
piAId = '{{%pardot-id-for-your-org%}}'; //no change from OOTB code
 (format: 123456)
piCId = '';
piHostname = '{{%pardot-hostname-for-your-org%}}'; //no change
from OOTB code (format: www.yourpardottrackerdomain.com)

(function() {
  //patching the history push state function to include calling
  // the async_load function that sends data to Pardot
  var pushState = history.pushState;
  history.pushState = function() {
    pushState.apply(history, arguments);
    async_load();
  };

    function async_load(){0
        var s = document.createElement('script'); s.type =
'text/javascript';
       s.src = ('https:' == document.location.protocol ? 'https://'
 : 'http://') + piHostname + '/pd.js';
        var c = document.getElementsByTagName('script')[0];
c.parentNode.insertBefore(s, c);
    }
    if(window.attachEvent)
```

```
    {
        window.attachEvent('onload', async_load);
         //attach event listener for browser history changes
         // for browsers that support attachEvent
         window.attachEvent('onpopstate', async_load);
    }
    else
    {
        window.addEventListener('load', async_load, false);
        //add eventlistener for browser history changes
        // for all other browsers
        window.addEventListener('popstate', async_load, false);
    }
})();


</script>
```

Update your site's Content Security Policy (CSP) settings so that the head markup works as expected.

1. Access **Experience Builder** > **Settings** > **Security**.
2. Select **Relaxed CSP: Permit Access to Inline Scripts and Allowed Hosts**, and then click **Allow** in the confirmation window.
3. Under **CSP Errors**, you see a list of blocked sites. Click **Allow URL** for each site you want to allow as Pardot tracker domains.

After enabling a successful integration between Pardot and Experience Cloud, you can accurately track page views and score leads based on a visitor's Experience Cloud site navigation.

SEE ALSO:

Salesforce Help: Implement Tracking Code

Salesforce Help: Add Markup to the Page `<head>` to Customize Your Experience Builder Site

Salesforce Help: Where to Allowlist Third-Party Hosts for Experience Builder Sites

CHAPTER 8 Use a CMS with Your Experience Builder Site

Content management systems (CMS) give you the power to reuse content rather than having to duplicate it. Using a CMS, you can feed content to multiple sites and also centrally update it to keep it current everywhere at once.

Experience Cloud has two CMS options for your needs. Salesforce CMS is built into your org for creating, managing, and organizing content with multiple channels in your org. And CMS Connect is a tool for embedding content from a third-party CMS in your site. For more information about both options, refer to CMS Developer Guide.

CHAPTER 9 Report on Deflections: The Deflection Signals Framework

In this chapter ...

A `lightningcommunity:deflectionSignal` event is fired when a user initiates a case then views a deflection item that addresses their issue and causes them to abandon the case.

For example, let's say a user is filling out a form to create a customer case, and then sees a useful article on the page. After clicking the article, the user finds it helpful and decides that creating a case is unnecessary. A `lightningcommunity:deflectionSignal` event is then fired. The event includes information about the user's interaction with the article. The user's action is reported as a successful deflection because the user didn't create a case.

You can report on these events through custom report types with the target object Community Case Deflection Metrics. The signal appears in reports as either a Successful Deflection, Failed Deflection, or Potential Deflection.

Note: Only those `lightningcommunity:deflectionSignal` events that are triggered by authenticated users are reported.

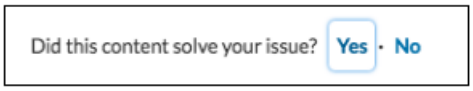
SEE ALSO:

Case Create Deflection Signal

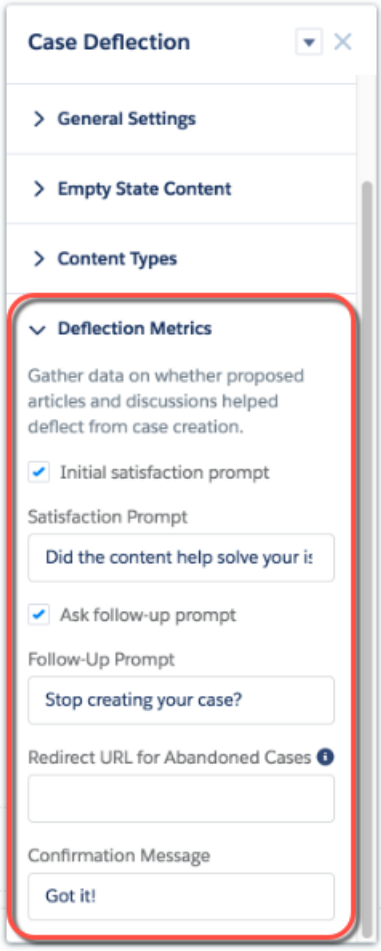
Case Create Deflection Signal

The `lightningcommunity:deflectionSignal` event is fired in an Aura site when a user is deflected away from creating a customer case. After a user views an article or discussion, they're asked if the interaction was helpful, and whether they want to abandon their case.

Note: We gather data only for those `lightningcommunity:deflectionSignal` events that are triggered by authenticated users.



You can configure the Case Deflection component to fire this event automatically using the component's Deflection Metrics properties in Experience Builder. The Case Deflection component works together with the Contact Support Form to register deflection interactions.



Attributes

The `sourceType` for deflection signals from the Case Deflection component is `caseCreateDeflectionModal`.

The `source` is what the user has typed into the subject field or the description of the Case Create Form. The `destination` is the ID of the Article or Discussion deflection item.

The `payload` is a JavaScript object key-value mapping. The following properties are used for this type of signal.

Payload Property	Type	Description	Supported Values	Required
`deflectionAnswer`	string	The user's answer to the first question, asking whether the deflection item was helpful.	• `YES` • `NO` • `null`—the user didn't vote	No
`confirmationAnswer`	string	The user's answer to the second question, asking whether they wish to stop creating a case.	• `YES` • `NO` • `null`—the user didn't vote	No
`state`	string	The state the popup window was last left in before it was closed.	• ~~MeasureDeflectionState~~—the user didn't answer the first question • ~~ConfirmationQuestionState~~—the user didn't answer the second question • ~~ConfirmationMessageState~~—the user answered both questions	No
`caseCreated`	boolean	Indicates whether the user created a case.	• `true`—the user created a case • `false`—the user didn't create a case	No

Examples

Custom Aura components can listen to this system event and handle it as required. For example, if the user didn't find the content helpful the component can start another process.

Here's a sample component that listens to the system event.

```
<aura:component implements="forceCommunity:availableForAllPageTypes">
    <aura:attribute name="message" type="String" required="false"/>
    <aura:handler event="lightningcommunity:deflectionSignal" action="{!c.handleSignal}"/>

    <lightning:formattedText value="{!v.message}"/>
</aura:component>
```

This client-side controller example handles the system event and checks for failed case deflections. That is, the controller checks for interactions where the user didn't find the deflection item helpful.

```
({
    handleSignal: function(component, event, helper) {
        var signal = event.getParams() || {},
            sourceType = signal.sourceType,
            payload = signal.payload;
        // Process case create deflection signals
        if (sourceType && sourceType === "caseCreateDeflectionModal") {
            if (payload && payload.deflectionAnswer === "NO") {
                component.set("v.message", "Sorry you didn't find that helpful.");
            }
            if (payload && payload.caseCreated === true) {
                component.set("v.message", "We Apologize For The Inconvenience. We'll get
 in touch with you shortly about your case.");
            }
        }
    }
})
```

Custom Aura components that act as case create forms and case deflection components can also fire this event. Given valid parameters, the event is automatically handled and processed for reporting. This example fires a `lightningcommunity:deflectionSignal` event with values from the component attributes.

```
fireCaseDeflectionSignal : function(component, shouldSubmitSourceTypeSignals) {
    var evt = $A.get("e.lightningcommunity:deflectionSignal");
    evt.setParams({
        sourceType: "caseCreateDeflectionModal",
        source: cmp.get("v.deflectionTerm"),
        destinationType: component.get("v.deflectionEntityType"),
        destination: component.get("v.deflectionEntityId"),
        payload: {
            deflectionAnswer: component.get("v.deflectionAnswer"),
            confirmationAnswer: component.get("v.confirmationAnswer"),
            state: component.get("v.deflectionState"),
            caseCreated: component.get("v.caseCreated")
        },
        shouldSubmitSourceTypeSignals: shouldSubmitSourceTypeSignals
    });
    evt.fire();
}
```

A user can successively view multiple deflection items before ultimately deciding whether to create or abandon a case. Each view fires a `lightningcommunity:deflectionSignal` event. If you want to process all the events as a single batch, set `shouldSubmitSourceTypeSignals=true` for the final event in which the user abandons or creates the case. This example fires the last deflection signal event, based on whether the case was created or not.

```
fireCaseCreatedSignal : function(component, caseCreated) {
    // Send all accumulated signals to the server to be processed
    var evt = $A.get("e.lightningcommunity:deflectionSignal");
    evt.setParams({
        sourceType: "caseCreateDeflectionModal",
        payload: {
            caseCreated: caseCreated
```

```
        },
        shouldSubmitSourceTypeSignals: true
    });
    evt.fire();
}
```

CHAPTER 10 Deploy an Experience Cloud Site from Sandbox to Production

In this chapter ...

We recommend creating, customizing, and testing your Experience Cloud site in a test environment, such as a sandbox, before deploying it to your production org. When testing is complete, you can use change sets or Metadata API to migrate your site from one org to another. Deciding whether to use change sets or MD API depends on several factors. Some things to consider are the complexity of the changes that you're migrating, your level of comfort with developer tools, and the application lifecycle management (ALM) model that you're using.

To learn more about the ALM models and development options available to you, check out Determine Which Application Lifecycle Management Model Is Right for You on Trailhead.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Lightning Bolt Solutions aren't suitable for deploying Experience Cloud sites between your orgs. Use a Lightning Bolt Solution to share or sell a solution on AppExchange or implement a site with a turnkey solution or new look.

Change Sets

If you're more comfortable working with point-and-click tools, change sets are your deployment friend. A change set represents a set of customizations in your org (or metadata components) that you can deploy to a connected org.

You can manage your application using declarative tools. You don't have to use a command-line interface or a version control system to meet your customization needs. You use the Setup menu to create changes in a development environment. You then migrate the changes between environments as you work through the ALM steps.

Your release artifact is a set of metadata changes relative to what's in the production org. What gets released is only metadata that has been added or changed—if it doesn't change, it's not in the release.

Metadata API

If you're up to speed on Metadata API and more comfortable in the world of code, use Metadata API to deploy changes programmatically. You can retrieve, deploy, create, update, and delete customization information for your org, such as Experience Cloud sites, custom object definitions, and page layouts.

Using Metadata API is ideal when your changes are complex or when you need a more rigorous change management process and an audit process (or version control system) to manage multiple work streams.

As with the change set process, the release artifact that you create is a set of metadata changes relative to your production org.

Tip: Some Experience Cloud site settings and features aren't yet supported in Metadata API, so you have to migrate them manually between environments. Remember to track these changes so that you don't forget to migrate them.

SEE ALSO:

Trailhead: Build Apps Together with Package Development

Deploy Your Experience Cloud Site with Change Sets

Use change sets to move all or part of your Experience Cloud site between related orgs that have a deployment connection. You can use the Network component type to move any full Experience Cloud site. Or, you can use the Digital Experience component type to move partial site content for enhanced LWR sites.

EDITIONS

Available in: Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, and **Unlimited** Editions

Deploy A Full Experience Cloud Site with Change Sets

Use change sets to move your Experience Cloud site between related orgs that have a deployment connection, such as your sandbox and production orgs. Create, customize, and test your site in your test environment and then migrate the site to production when testing is complete.

Deploy Partial Experience Cloud Site Content with Change Sets

Use change sets to move individual Experience Cloud components and content between related orgs that have a deployment connection, such as your sandbox and production orgs. Create and test changes in your test environment, and then migrate only those changes to production when they're ready.

Considerations for Deploying Experience Cloud Sites with Change Sets

Keep the following considerations and limitations in mind when migrating your Experience Builder or Salesforce Tabs + Visualforce site with change sets.

Deploy A Full Experience Cloud Site with Change Sets

USER PERMISSIONS

To customize or publish an Experience Cloud site:	Create and Set Up Experiences
To edit deployment connections and use inbound change sets:	Deploy Change Sets AND Modify All Data Note: If a user requires access only to metadata for deployments, you can enable the Modify Metadata Through Metadata API Functions permission. This permission gives such users the access they need for deployments without providing access to org data. For details, see "Modify Metadata Through Metadata API Functions Permission" in Salesforce Help.
To use outbound change sets:	Create and Upload Change Sets, Create AppExchange Packages, AND Upload AppExchange Packages

EDITIONS

Available in: Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, and **Unlimited** Editions

Use change sets to move your Experience Cloud site between related orgs that have a deployment connection, such as your sandbox and production orgs. Create, customize, and test your site in your test environment and then migrate the site to production when testing is complete.

You can use change sets to move full Experience Builder and Salesforce Tabs + Visualforce sites using the Network component type.

1. Create and test your site in your preferred test org, such as sandbox.
2. From Setup in your test org, enter `Outbound Change Sets` in the Quick Find box, and then select **Outbound Change Sets**.
3. Create a change set, and click **Add** in the Change Set Components section.
4. Select the **Network** component type, choose your site, and then click **Add to Change Set**.
5. To add dependent items, click **View/Add Dependencies**. We recommend selecting all the dependencies listed.

   Tip:

   - For navigation menus that link to standard objects, custom list views aren't included as dependencies. Manually add the custom list view to your change list.
   - Manually add new or modified profiles or permission sets referenced in **Administration** > **Members**.
   - The list of dependencies has two Site.com items—`MySiteName` and `MySiteName1`. `MySiteName` holds the various Visualforce pages that you can set in Administration in Experience Workspaces. `MySiteName1` includes the pages from Experience Builder.

6. Click **Upload** and select your target org, such as production.

   Make sure that the target org allows inbound connections. The inbound and outbound orgs must have a deployment connection.
7. From Setup, select **Inbound Change Sets** and find the change set that you uploaded from your source org.
8. Validate and deploy the change set to make it available in the target org.

   Warning: When you deploy an inbound change set, it overwrites the site in the target org.
9. Manually reconfigure any unsupported items in the target org site.
10. Add data for your site, and test it to make sure that everything works as expected. Then publish your changes to go live.

SEE ALSO:

Salesforce Help: Change Sets Best Practices

Salesforce Help: Upload Outbound Change Sets

Salesforce Help: Deploy Inbound Change Sets

Deploy Partial Experience Cloud Site Content with Change Sets

USER PERMISSIONS

To customize or publish an Experience Cloud site:	Create and Set Up Experiences
To edit deployment connections and use inbound change sets:	Deploy Change Sets AND Modify All Data If a user requires access only to metadata for deployments, you can enable the Modify Metadata Through Metadata API Functions permission. This permission gives such users the access they need for deployments without providing access to org data. For details, see "Modify Metadata Through

EDITIONS

Available in: Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, and **Unlimited** Editions

	Metadata API Functions Permission" in *Salesforce Help*.
To use outbound change sets:	Create and Upload Change Sets, Create AppExchange Packages, AND Upload AppExchange Packages

Use change sets to move individual Experience Cloud components and content between related orgs that have a deployment connection, such as your sandbox and production orgs. Create and test changes in your test environment, and then migrate only those changes to production when they're ready.

Partial deployment with change sets is available for enhanced LWR sites created in Winter '23 and later.

You can use change sets to move partial content for Experience Builder sites using the Digital Experiences component type.

1. Create and test your site in your preferred test org, such as a sandbox.
2. From Setup in your test org, in the Quick Find box, enter `Outbound Change Sets`, and then select **Outbound Change Sets**.
3. Create a change set, and click **Add** in the Change Set Components section.
4. Select the **Digital Experience** component type.
5. Select the content that you want to deploy from the list of components, and then click **Add To Change Set**.

   Tip:

   - To identify which enhanced LWR site each listed component belongs to, use the Type column. The Type column uses the naming convention site/`MySiteName`.
   - To identify what content each listed component represents, use the Name column. The Name column uses the naming convention sfdc_cms__<contentType>/<contentName>. For example, the name sfdc_cms__brandingSet/Build_Your_Own_LWR represents a branding set named Build Your Own LWR.

6. Click **Upload**, and select your target org, such as production.

   Make sure that the target org allows inbound connections. The inbound and outbound orgs must have a deployment connection.
7. From Setup, select **Inbound Change Sets**, and find the change set that you uploaded from your source org.
8. Validate and deploy the change set to make it available in the target org.

   Warning: When you deploy an inbound change set, it overrides the corresponding site content in the target org.
9. Manually reconfigure any unsupported items in the target org site.
10. To make sure that everything works as expected, test your site. Then publish your changes to go live.

Considerations for Deploying Experience Cloud Sites with Change Sets

Keep the following considerations and limitations in mind when migrating your Experience Builder or Salesforce Tabs + Visualforce site with change sets.

EDITIONS

Available in: Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, and **Unlimited** Editions

General

- When you deploy an inbound change set, it overwrites the Experience Cloud site in the target org. So although you can't use a change set to delete a component, you can delete the pages within an Experience Builder site. For example, let's say you delete pages from an Experience Builder site in sandbox and then create an updated outbound change set. When you redeploy the change set in a target org, such as production, the pages are also deleted there.
- If you update the Experience Cloud site template in the source org, ensure that you also update the template in the target org before deploying the change set.
- You can't deploy to a target org that's using an earlier release version. For example, if your source org is on Summer '19 (API version 46.0), you can't deploy to a target org on Spring '19 (API version 45.0).

Administration

Administration settings are in Experience Workspaces.

- Remember to add any new or modified profiles or permission sets referenced in **Administration** > **Members** to your outbound change set. They're not automatically included as dependencies.
- For Experience Cloud sites created in a sandbox org before the Summer '17 release, you must resave administration settings before migration to transfer them successfully.
- Until you publish your site in the target org, settings for the change password, forgot password, home, self-registration, and login pages appear to return to their default values.
- To update settings in the Members area and the Login & Registration area, you must deploy the changes in separate change sets. First update and deploy the Members area setting, and then update and deploy the Login & Registration settings.

Navigation Menu

The Navigation Menu component is available in Experience Builder sites.

- For menu items that link to objects, list views are reset to the default list view. Also, custom list views for standard objects aren't included as dependencies.
- Deploying the navigation menu with additional menu items deletes any translations applied to existing menu items in the target environment.

Recommendations

- Updates to recommendation names aren't supported. If you change the name of a recommendation in the source org having previously migrated it, the target org treats it as a new recommendation.
- Recommendation images aren't supported.
- When you deploy an inbound change set, it overwrites the target org's scheduled recommendations with recommendations from the source org.

Partial Deployment for Enhanced LWR Sites

- Partial site content deployment is available for enhanced LWR Experience Cloud sites created in Winter '23 or later.
- To deploy partial site content, make sure that the target org contains an existing site with the same name as the source site.
- Adding a Digital Experience component to your outbound change set also adds that component's variations to the change set. For example, adding the Home view component automatically adds all translations for the Home view.

Unsupported Settings and Features

The following items aren't supported. Manually add them after you deploy the inbound change set.

- Navigational and featured topics
- Audience targeting
- Dashboards and engagement
- Recommendation images
- Branding panel images in Experience Builder
- The following Administration settings in Experience Workspaces:
  - The Account field in the Registration section of the Login and Registration area
  - The **Select which login options to display** option in the Login section of the Login and Registration area
  - The Settings area
  - The Rich Publisher Apps area

SEE ALSO:

Salesforce Help: Change Sets Best Practices

Salesforce Help: Change Sets Implementation Tips

Deploy Your Experience Cloud Site with the Metadata API

Use Metadata API to move your Experience Cloud site from one Salesforce org to another. Set up and test your site in your test environment, and then retrieve the site's data and deploy it to your production org.

Depending on the site framework, the following metadata types combine to define the site. To successfully migrate a site, use the Metadata API `retrieve` call to retrieve XML file representations of your org's components.

Network
Represents an Experience Cloud site. Contains administration settings, such as page override, email, and membership configurations.

CustomSite
Contains the domain and page setting information, including `indexPage`, `siteAdmin`, and URL definitions.

DigitalExperienceBundle and DigitalExperienceConfig *or* ExperienceBundle *or* SiteDotCom
The metadata type you require varies depending on the site type. Represents the different settings and components, such as pages, branding sets, and themes, that make up a site.

EDITIONS

Available in: Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Applies to: LWR, Aura, and Visualforce sites

- For enhanced LWR sites, introduced in Winter '23 (API version 56.0), DigitalExperienceBundle and DigitalExperienceConfig combine to provide text-based representations of your site elements and settings. You can retrieve editable site metadata and quickly create, update, publish, and deploy sites programmatically. You can also partially deploy enhanced LWR sites.
- For non-enhanced LWR sites, ExperienceBundle provides text-based representations of the site's settings, pages, and components. You can retrieve editable site metadata and quickly create, update, publish, and deploy sites programmatically.
- For Aura sites, you can choose to use either ExperienceBundle or SiteDotCom, but we recommend using ExperienceBundle. Before Summer '19 (API version 45.0 and earlier), the Network, CustomSite, and SiteDotCom metadata types combined to define an Aura site. However, retrieving the SiteDotCom type produces a binary `.site` file that isn't human readable. See ExperienceBundle for Experience Builder Sites.
- For Visualforce sites, SiteDotCom represents the site.

For additional information on these metadata types and instructions on migrating data, see the Metadata API Developer Guide and the Salesforce CLI Command Reference.

Required Metadata Types at a Glance

The metadata types that you use to deploy a site vary depending on the site type.

Required Metadata Type	Enhanced LWR Site	LWR Site	Aura Site	Visualforce Site
Network	✔	✔	✔	✔
CustomSite	✔	✔	✔	✔
DigitalExperienceBundle	✔			
DigitalExperienceConfig	✔			
ExperienceBundle		✔	ExperienceBundle (recommended) *or* SiteDotCom	
SiteDotCom				✔

Tips and Considerations

- Before migrating data to another org, enable digital experiences in the destination org and enter the same domain name that you used in your sandbox org to avoid getting an error.
- For each Experience Cloud site, the network component has a unique name and URL path prefix. When you retrieve the network component, the generated XML file name is based on the name of the network. When migrating, the API looks at the file name and, if it exists, updates the site. If it doesn't exist, the API creates a site. If someone changes the site name in the sandbox and then tries to migrate, they see an error. The API is trying to create a site with the existing path prefix.
- Examine the XML file for CustomSite to make sure that all dependencies are brought over. If any are missing, explicitly state them in the XML file.
- In addition to the required components described previously, include all the other components required by your site. Components can include such items as custom objects, custom fields, custom Lightning components, and Apex classes.
- To deploy the Network and Profile components using unlocked packages, create a separate unlocked package for each component and deploy them individually.

- When deploying an Aura site with ExperienceBundle, ensure that the SiteDotCom type isn't included in the manifest file.
- If you rename a site in **Administration** > **Settings**, make sure that the source and target sites have matching values for the `picassoSite` and `site` attributes in the `Network` component.
- If there are any changes to the guest user profile, include the profile as part of the site migration.
- When you migrate user profiles, users are added to the site in the production org. Emails are then sent to members in the same way as for any new site.
- During deployment, make sure that the `NavigationMenu` developer name in the target org is the same as the developer name in the source org.
- If the containerType is CommunityTemplateDefinition, you can't update an existing `NavigationMenu` via Metadata API.
- To deploy an Aura site with a custom template, first retrieve and deploy the CommunityTemplateDefinition and the relevant metadata types, such as CommunityThemeDefinition. Then retrieve and deploy ExperienceBundle or SiteDotCom and the relevant metadata types.
- Deploying the navigation menu with additional menu items deletes any translations applied to existing menu items in the target environment.
- To include navigation menus when you move your site, use the NavigationMenu metadata type.
- You can't deploy to a target org that's using an earlier release version. For example, if your source org is on Summer '19 (API version 46.0), you can't deploy to a target org on Spring '19 (API version 45.0).
- `NavigationLinkSet` was deprecated in Winter '20 (API version 47.0) and replaced by `NavigationMenu`.
- If your site includes pages from Site.com Studio, use the SiteDotCom metadata type, because deploying the site using ExperienceBundle permanently deletes the Site.com Studio pages.
- ExperienceBundle doesn't support retrieving and deploying across different API versions. If you're trying to upgrade ExperienceBundle metadata from an earlier API version to a later one—for example, from API version 48.0 to 49.0—take the following steps:
  1. Set the API version in the package.xml manifest file to 48.0 and deploy the package.
  2. Then, set the API version in package.xml to 49.0.
  3. To get the latest ExperienceBundle updates, retrieve the package .
- When deploying a site, you sometimes receive a warning message about invalid ID values. For example: `The topicId property of component 9b8a4e98-e724-4292-bd3c-0813adf9ddc2 references an object with the ID value 0TO4R000000EGPEWA4. Occasionally, when deployed to a destination org, ID values can become invalid—for example, if the referenced ID doesn't exist in the destination org. If you encounter component issues in your destination org, verify that the ID values are correct.`

  In these situations, you can deploy the site successfully despite the warning. However, we recommend verifying in the target org that the object ID referenced in the component is still valid. If the ID is incorrect, manually update the ID to resolve any component issues in the target org. Alternatively, if it's a custom component that you created, consider replacing the object ID with the object's API name instead to avoid the issue in future.

Sample Template

The following sample contains all the fields that you can migrate through the Metadata API.

```
<?xml version="1.0" encoding="UTF-8"?>
<Network xmlns="http://soap.sforce.com/2006/04/metadata">
    <allowInternalUserLogin>true</allowInternalUserLogin>
    <allowMembersToFlag>true</allowMembersToFlag>
```

```
    <allowedExtensions>txt,png,jpg,jpeg,pdf,doc,csv</allowedExtensions>
   <caseCommentEmailTemplate>unfiled$public/ContactFollowUpSAMPLE</caseCommentEmailTemplate>


<changePasswordTemplate>unfiled$public/CommunityChangePasswordEmailTemplate</changePasswordTemplate>

    </communityRoles>
    <disableReputationRecordConversations>true</disableReputationRecordConversations>
    <emailSenderAddress>admin@myorg.com</emailSenderAddress>
    <emailSenderName>MyCommunity</emailSenderName>
    <enableCustomVFErrorPageOverrides>true</enableCustomVFErrorPageOverrides>
    <enableDirectMessages>true</enableDirectMessages>
    <enableGuestChatter>true</enableGuestChatter>
    <enableGuestFileAccess>false</enableGuestFileAccess>
    <enableInvitation>false</enableInvitation>
    <enableKnowledgeable>true</enableKnowledgeable>
    <enableNicknameDisplay>true</enableNicknameDisplay>
    <enablePrivateMessages>false</enablePrivateMessages>
    <enableReputation>true</enableReputation>
    <enableShowAllNetworkSettings>true</enableShowAllNetworkSettings>
    <enableSiteAsContainer>true</enableSiteAsContainer>
    <enableTalkingAboutStats>true</enableTalkingAboutStats>
    <enableTopicAssignmentRules>true</enableTopicAssignmentRules>
    <enableTopicSuggestions>true</enableTopicSuggestions>
    <enableUpDownVote>true</enableUpDownVote>

<forgotPasswordTemplate>unfiled$public/CommunityForgotPasswordEmailTemplate</forgotPasswordTemplate>

    <gatherCustomerSentimentData>false</gatherCustomerSentimentData>
    <lockoutTemplate>unfiled$public/CommunityLockoutEmailTemplate</lockoutTemplate>
    <maxFileSizeKb>51200</maxFileSizeKb>
    <networkMemberGroups>
        <permissionSet>MyCommunity_Permissions</permissionSet>
        <profile>Admin</profile>
    </networkMemberGroups>
    <networkPageOverrides>
       <changePasswordPageOverrideSetting>VisualForce</changePasswordPageOverrideSetting>

        <forgotPasswordPageOverrideSetting>Designer</forgotPasswordPageOverrideSetting>
        <homePageOverrideSetting>Designer</homePageOverrideSetting>
        <loginPageOverrideSetting>Designer</loginPageOverrideSetting>
        <selfRegProfilePageOverrideSetting>Designer</selfRegProfilePageOverrideSetting>
    </networkPageOverrides>
    <picassoSite>MyCommunity1</picassoSite>
    <selfRegistration>true</selfRegistration>
    <sendWelcomeEmail>true</sendWelcomeEmail>
    <site>MyCommunity</site>
    <status>Live</status>
    <tabs>
        <defaultTab>home</defaultTab>
        <standardTab>Chatter</standardTab>
    </tabs>
    <urlPathPrefix>mycommunity</urlPathPrefix>
```

```
    <welcomeTemplate>unfiled$public/CommunityWelcomeEmailTemplate</welcomeTemplate>
</Network>
```

Sample `package.xml` Manifest File

A manifest file defines the components that you're trying to retrieve. The following sample shows a `package.xml` manifest file for retrieving all the components of an Experience Builder site.

```
<?xml version="1.0" encoding="UTF-8"?>
<Package xmlns="http://soap.sforce.com/2006/04/metadata">
    <types>
        <members>*</members>
        <name>Network</name>
    </types>
    <types>
        <members>*</members>
        <name>CustomSite</name>
    </types>
    <types>
        <members>*</members>
        <name>ExperienceBundle</name>
    </types>
    <types>
        <members>*</members>
        <name>CustomTab</name>
    </types>
    <types>
        <members>*</members>
        <name>CustomObject</name>
    </types>
    <types>
        <members>*</members>
        <name>ApexClass</name>
    </types>
    <types>
        <members>*</members>
        <name>ApexPage</name>
    </types>
    <types>
        <members>*</members>
        <name>ApexComponent</name>
    </types>
    <types>
        <members>*</members>
        <name>Portal</name>
    </types>
    <types>
        <members>*</members>
        <name>Profile</name>
    </types>
    <types>
        <members>*</members>
        <name>Document</name>
```

```
    </types>
    <version>46.0</version>
</Package>
```

ExperienceBundle for Experience Builder Sites

The ExperienceBundle metadata type provides text-based representations of the different settings and components, such as pages, branding sets, and themes, that make up an Experience Builder site. Whether it's for your own org or you're a consulting partner or ISV, you can quickly update and deploy sites programmatically using your preferred development tools, including Salesforce Extensions for VS Code, Salesforce CLI, or your favorite IDE or text editor.

Before the Summer '19 release (API version 45.0 and earlier), the Network, CustomSite, and SiteDotCom metadata types combined to define an Experience Builder site. However, retrieving the SiteDotCom type produces a binary `.site` file that isn't human readable. By retrieving the ExperienceBundle type instead of SiteDotCom, you can extract and edit granular site metadata in a human-readable format, contained in a three-level folder structure.

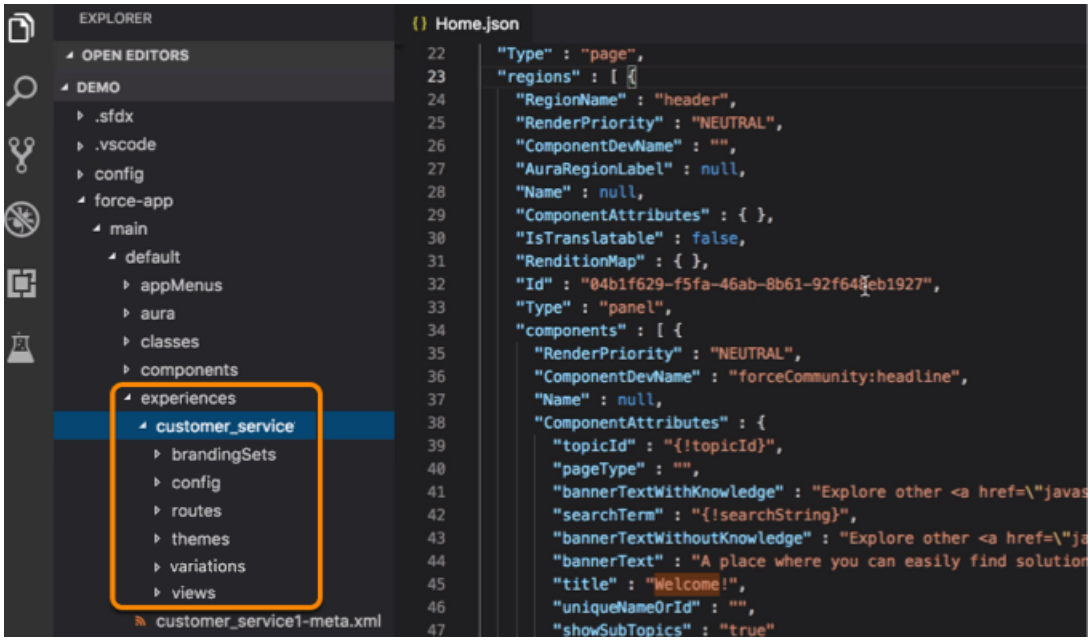
Limitations

- Managed packages aren't supported.

ExperienceBundle Structure

When you retrieve ExperienceBundle, the data is stored in a three-level folder structure.

The `experiences` folder contains a folder for each Experience Builder site in your org. Each *`site_name`* folder—`customer_service` in this example—contains subfolders that define the site and represent the different elements that you access in Experience Builder. Each subfolder has .json files that contain the properties that you can edit on your local machine or scratch org and then deploy.



Let's take a closer look at the files that define each Experience Builder site.

Folder	Contents
brandingSets	*branding_set_name*.json defines the site's branding set properties.
config	• *site_name*.json defines some site settings, such as public access and progressive rendering. • languages.json defines supported languages. • loginAppPage.json and mainAppPage.json are single-page applications (SPA). loginAppPage.json is used for site pages that require a login, and mainAppPage is used for all other pages. An SPA is a web app that loads a single HTML page. Unlike a traditional website, which comprises several pages that the user navigates between, an SPA consists of multiple views that update the page dynamically as the user interacts with it.
routes	Contains one file per page, named *page_name*.json, which defines the URL and other route-related information.
themes	Contains one file per theme, named *theme_name*.json, which defines the theme.
variations	Contains one file per variation, named *experienceVariation_name*.json. You can use an experience variation to change the default behavior of an Experience Builder site based on the audience, such as branding, page variations, component visibility, or component attributes.
views	Contains one file per view, named *view_name*.json. Each file defines an SPA view, which is equivalent to a page to the end user. A view consists of regions that contain other regions or components in the rendered page.

Tip: Before you update the .json files of an Experience Builder site, we recommend making a copy of the site's folder as a backup.

For a complete definition of ExperienceBundle and the files it includes, see the Metadata API Developer Guide.

Enable the ExperienceBundle Metadata Type

After you enable ExperienceBundle for Aura sites, Metadata API calls (retrieve and deploy) and Salesforce DX operations (pull, push, and status) use the ExperienceBundle type instead of SiteDotCom.

If you use change sets to deploy your site, the list of dependencies includes two items of type Site.com—*MySiteName* and *MySiteName*1. *MySiteName*1 now represents ExperienceBundle instead of SiteDotCom.

Note: You don't need to enable the ExperienceBundle metadata type for LWR sites. LWR sites use ExperienceBundle by default.

1. From Setup, enter *Digital Experiences* in the Quick Find box, and then select **Settings**.
2. Select **Enable ExperienceBundle Metadata API**.
3. Save your changes.

Alternatively, you can enable this feature when creating a scratch org using a scratch org definition file. (See the Metadata Coverage report.)

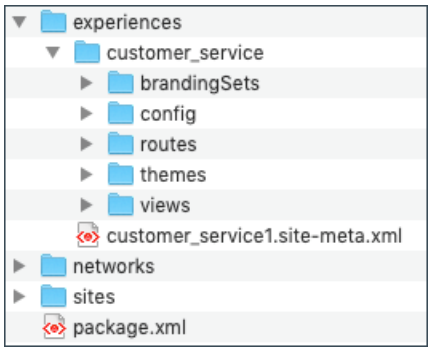
```
{
    "orgName": "Sample Org",
    "edition": "developer",
    "features": [
        "COMMUNITIES"
    ],
    "settings": {
        "experienceBundleSettings": {
            "enableExperienceBundleMetadata": true
        },
        "communitiesSettings": {
            "enableNetworksEnabled": true
        }
    }
}
```

Retrieve and Deploy ExperienceBundle Using Metadata API

In Metadata API, a manifest file defines the components that you're trying to retrieve. This example shows a `package.xml` manifest file for retrieving an Experience Builder site using ExperienceBundle instead of SiteDotCom.

```
<?xml version="1.0" encoding="UTF-8"?>
<Package xmlns="http://soap.sforce.com/2006/04/metadata">
    <types>
        <members>*</members>
        <name>CustomSite</name>
    </types>
    <types>
        <members>*</members>
        <name>ExperienceBundle</name>
    </types>
    <types>
        <members>*</members>
        <name>Network</name>
    </types>
    <version>46.0</version>
</Package>
```

After you retrieve the .zip file, unzip it to access and edit the files.



See Deploying and Retrieving Metadata with the Zip File.

Retrieve and Deploy ExperienceBundle with Salesforce DX

Salesforce Developer Experience (DX) is a set of tools that streamlines the entire development lifecycle. It improves team development and collaboration, facilitates automated testing and continuous integration, and makes the release cycle more efficient and agile.

If you've set up your Salesforce DX environment, you can quickly:

- Retrieve all the Experience Builder sites in your org using `sf project retrieve start`
- Deploy updates using `sf project deploy start`
- Check for conflicts or changes on the server using `sf project deploy preview` or `sf project retrieve preview`
- Retrieve a list of available templates using `sf community list template`
- Create a site using `sf community create`
- Publish an Experience Builder site using `sf community publish`

If you're not familiar with Salesforce DX, check out these great resources.

- Salesforce DX Developer Guide
- Quick Start: Salesforce DX (Trailhead)
- Build Apps Together with Package Development (Trailhead)
- Salesforce CLI Command Reference

SEE ALSO:

Blog Post: ExperienceBundle & Salesforce DX: A Developer's Dream for Coding Lighting Communities

Metadata API Developer Guide: ExperienceBundle

Salesforce CLI Command Reference: community Commands

Avoid Deployment Issues When Moving to Enhanced LWR Sites

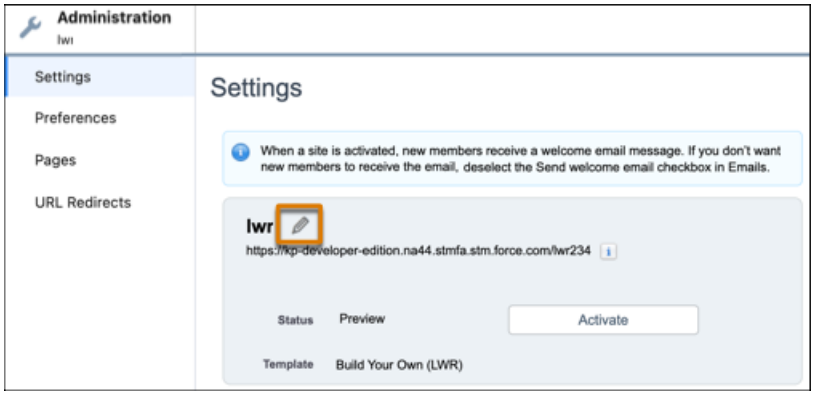
From Winter '24, you can no longer disable the enhanced sites and content platform, which was first introduced in Winter '23. As a result, any site created from an LWR template is now an enhanced LWR site by default. Unlike non-enhanced LWR sites, which use the ExperienceBundle metadata type, enhanced LWR sites use the DigitalExperienceBundle and the DigitalExperienceConfig types. However, if you created a non-enhanced LWR site on a source org such as sandbox before Winter '24, and you now want to deploy the site for the first time to a target org such as production, this difference in metadata types can cause deployment issues.

In this case, instead of creating the site on the target org *prior* to deployment, we recommend using the deployment process to create the site. Otherwise, if you first create the site on the target org, the new site is an enhanced LWR site—meaning it uses the DigitalExperienceBundle and the DigitalExperienceConfig types. And because the non-enhanced LWR site on the source org uses ExperienceBundle, if you then try to deploy it to the target org, the deployment fails due to the metadata type mismatch.

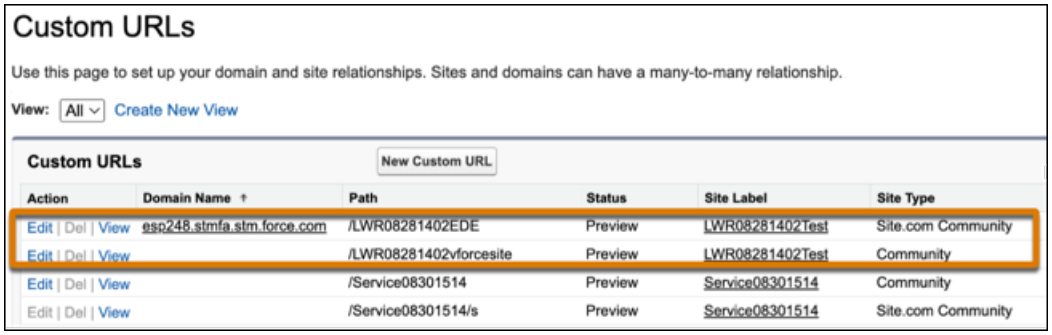
However, let's say that you created the site in the target org prior to deployment. What can you do to resolve deployment errors?

Because you can't delete Experience Cloud sites, we instead recommend renaming the site and updating the site URL in the target org so that they no longer match the values in the source org. This approach frees up the deployment process to recreate the site in the target org using the source org's values.

1. In the target org, on the Settings page of the site's Administration workspace, rename the site so that it differs from the site in the source org.



2. From Setup, in the Quick Find box, enter `Custom URLs`.
3. In Custom URLs, locate the two URLs for the site. Each site includes:
   - A Site.com Community URL that maps to the ExperienceBundle or DigitalExperienceBundle and DigitalExperienceConfig metadata types, as appropriate
   - A Community URL that maps to CustomSite



4. Change both site URLs to ensure that they're no longer the same as the site URLs in the source org.
5. After you update the site name and URL, deploy the site again either with change sets or with Metadata API using your preferred deployment tools.
6. If you're using Metadata API, remember to retrieve the site and include the Network and CustomSite types to allow the system to automatically create the new non-enhanced LWR site in the target org. If you're using change sets, remember to recreate the change set before deploying.

SEE ALSO:

Salesforce Help: What Is the Enhanced Sites and Content Platform?

Metadata API Developer Guide: DigitalExperienceBundle

Considerations for Deploying Authenticated LWR Sites

Beginning in Winter '23, new LWR sites created through Experience Builder or Connect API don't include /s at the end of their URLs. URLs for authenticated LWR sites created before Winter '23 still include /s, and this URL structure update impacts deployment if sandbox and production URLs don't match. Learn which deployment scenarios are supported and how to resolve unsupported deployment errors related to /s.

Note: The described scenarios assume that sandbox and production are on the same version of Salesforce. Deploying a site from a newer version to an older version isn't supported.

EDITIONS

Available in: Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Developer**, **Performance**, and **Unlimited** Editions

Metadata API Deployments

- Creating a site through Metadata API deployment is supported, whether the source site's URL includes /s. If the source site's URL includes /s, the new target site's URL includes /s. If the source site's URL doesn't include /s, the new target site's URL doesn't include /s.
- To update a site with Metadata API deployment, the source site's URL and the target site's URL must match. Both URLs must include /s, or neither URL can include /s.
- To resolve a Metadata API deployment error related to /s, update your metadata bundle to add or remove /s from the source site's URL. Ensure that the source site's URL matches the target site's URL. You can't add /s to or remove /s from the target site's URL.

Change Set Deployments

- Creating a site through change set deployment is supported, whether the source site's URL includes /s. If the source site's URL includes /s, the new target site's URL includes /s. If the source site's URL doesn't include /s, the new target site's URL doesn't include /s.
- To update a site with change set deployment, the source site's URL and the target site's URL must match. Both URLs must include /s, or neither URL can include /s.
- To resolve a change set deployment error related to /s, rename either the source site or the target site through the API or Experience Builder. Renaming one of the sites creates a site instead of updating the target site. You can't add /s to or remove /s from either the source site's URL or the target site's URL.

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