

ARRON HYMAN – CANDIDATE LAB

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PART 1: RELEASE AND REMEDIATE

Scenario:

You are an engineering manager at ABC Company. Your company's competitors seem to be catching up with your company's SaaS solution. As such, executive leadership is pressuring development teams to turn out features faster. One of your company's greatest values is the high quality with which it delivers in software releases. Since quality must remain high, you're tasked with finding a way to deliver features faster without increasing risk. With this in mind, you'll need to figure out a safe way to test your code in production before releasing to your customers. After release, should a bug slip through, you also need a way to quickly rollback the release with minimal to no impact on your customers.

Resolution

Testing in production is necessary as production environments can vary enough from staging and QA to break the code. We also know that customers and bad actors will use the product in ways that it was not designed for. Due to this, ABC needs a way to release code safely.

By utilizing Feature Flags from LaunchDarkly, ABC can safely deploy features, test them, and deactivate problematic code quickly. Feature Flags allow us to push code more frequently while mitigating deployment rollbacks, downtime, and negative customer impact. This allows for Operations and Development to work in tandem without the bottlenecks created by traditional deployment rollouts.

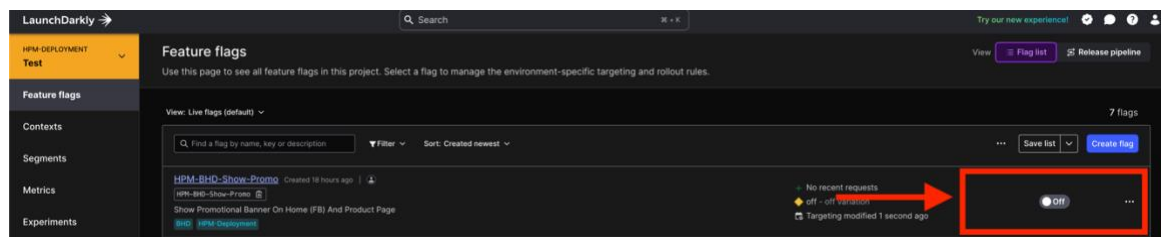
Reasoning

1. Feature Flags allow new code to be released into production in a deactivated state. Thus, mitigating any issues related to that code in production upon deployment. This can significantly decrease development time as the code can be safely tested in production while new features are being developed.
2. Code can be rolled out in predefined segments.
 - a. New code can be released to specific audiences, specific users, location, and other custom variables, allowing for precise targeting for tests.
 - b. Targeting can be used to test out any unknown variables that may occur in production on a small group (internal and/or external) rather than all end users at once, significantly reducing the blast radius of any potential problems.
 - c. Targeting can be used to test out any unknown variables that may occur in production on a small group (internal and/or external) rather than all end users at once, significantly reducing the blast radius of any potential problems.
3. When a feature is considered unfit for production, it can deactivate it with a single click or through automation tools such as Ansible. Developers can then create a patch and push it into the next release without having to rolling back existing code.

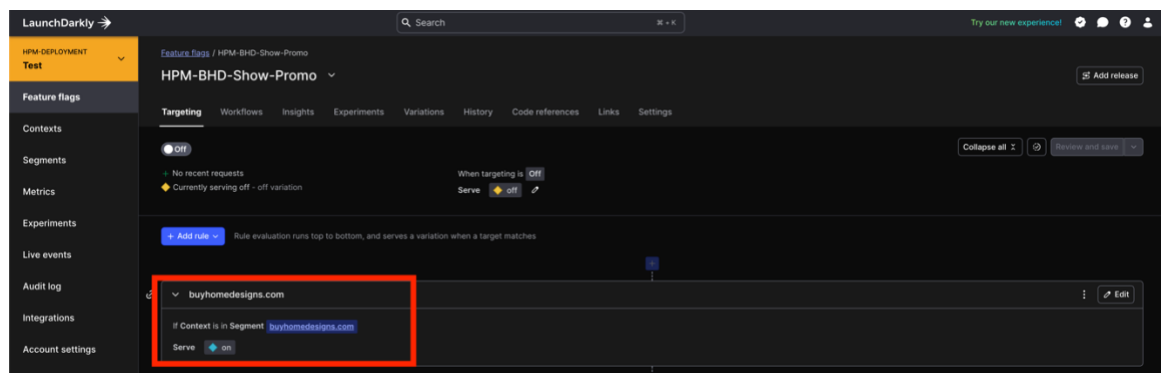
- LaunchDarkly Workflows will help ABC roll out their code to more users on a specific release schedule. This gradual deployment allows for time for bug identification and data analysis that can be used to justify keeping or deactivating the new feature.

HOW TO RUN: RELEASE AND REMEDIATE

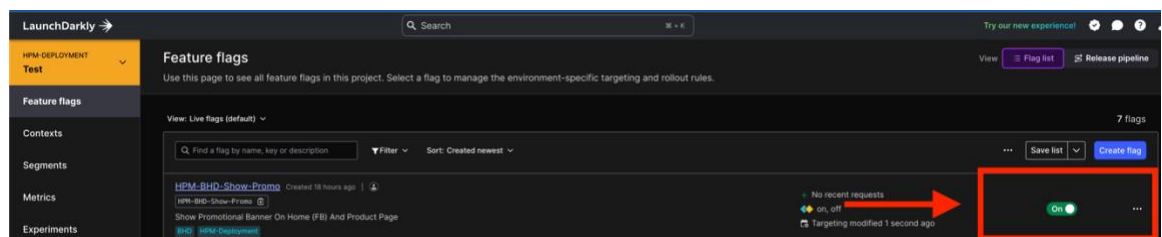
- The promotional banner is tied directly to the “HPM-BHD-Show-Promo” feature flag. When the code is released it is automatically disabled. Which ensures that the code does not disrupt production.



- Additionally the feature flag is tied to a small segment of users on a specific website, so when it is released, the impact of the code is reduced.

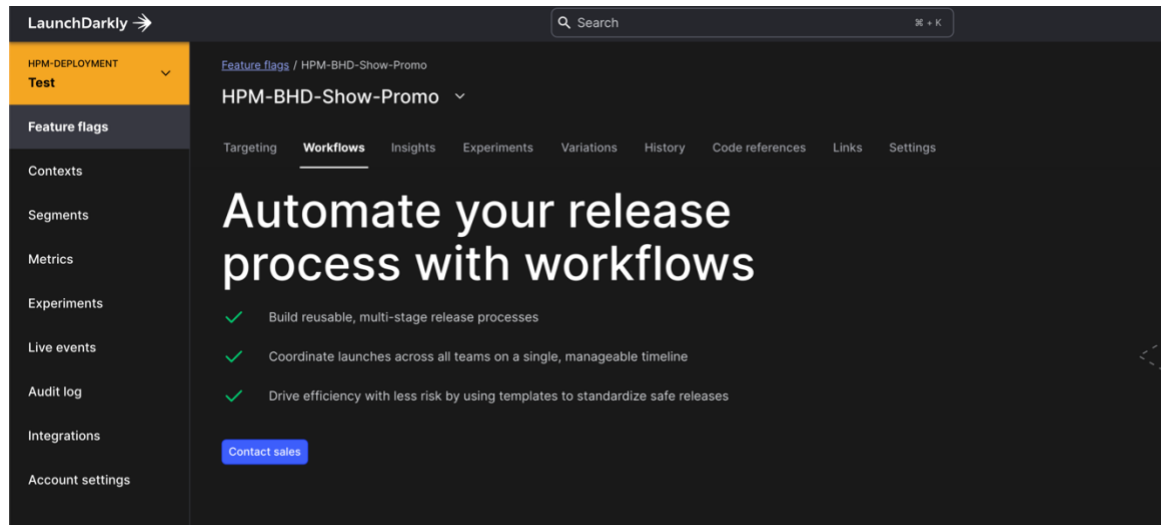


- Once ready to test simply turn the “HPM-BHD-Show-Promo” Feature Flag on and the code becomes active for the buyhomedesigns.com segment.



- If the code is causing problems with the end users, simply toggle it back off and the site is remedied! No need for deployment rollbacks. Diagnostics can then be done, and a patch can be made with very little impact to the end users

5. By enabling Workflows, the code can be rolled out over a scheduled timeframe, allowing for more users to adopt the new feature as operations monitors the impact. More info on Workflows can be [found \[here\]](#).



PART 2: TARGETING

Scenario:

You are a developer at ABC Company. Your organization is working on revamping your landing page. It's a project that spans multiple teams, but you and your team are working on a specific component (for this exercise — of your choosing). The web application has about 40,000 visitors on average each day, so any changes and/or issues would significantly impact the user experience. With that said, this project has a lot of eyes on it, and you want to ensure you are shipping well-tested code. Lucky for you: your organization will be leveraging LaunchDarkly for this project, which will allow you to implement individual and rule-based targeting.

Resolution

ABC's platform is a white-labeled e-commerce platform that gets deployed on many websites. The same centralized code is sent out to each of their B2B customers websites.

ABC believes that sales will increase by having a promotional promo banner on their landing page and product page, but they want to test it on a website they own first before deploying out to their B2B customers websites.

By using Contexts, Segments, and Feature Flags by LaunchDarkly, ABC can test the new modules on a small target audience on their own website, buyhomedesigns.com, without impacting their B2B customers.

Additionally, ABC would like to deploy a temporary notification that online sales are only done for US customers only and out of country sales will need to be done through an email submission until the new checkout is released.

ABC can use Contexts, Segments, And Feature Flags from LaunchDarkly to only display the email submission message to out of country users.

Reasoning

1. Enabling Contexts, Segments, And Feature Flags allows for the code to be pushed to production without being enabled. This drastically decreases the risk of rollbacks and enables granular control of the rollout.
2. Code can be rolled out in predefined segments.
 - a. New code can be released to specific audiences, specific users, location, and other custom variables, allowing for precise targeting for tests.
 - b. Targeting can be used to test out any unknown variables that may occur in production on a small group (internal and/or external) rather than all end users at once, significantly reducing the blast radius of any potential problems.
 - c. Targeting can be used to test out any unknown variables that may occur in production on a small group (internal and/or external) rather than all end users at once, significantly reducing the blast radius of any potential problems.

3. When a feature is considered unfit for production, it can deactivate it with a single click or through automation tools such as Ansible. Developers can then create a patch and push it into the next release without having to rolling back existing code.
4. LaunchDarkly Workflows can be used after testing to release the new feature to additional targeting users over a period of time. This gradual deployment allows for time for bug identification and data analysis that can be used to justify keeping or deactivating the new feature. (No example as I don't have access)

How To Run: Promo Code Modules

1. Go to <https://www.buyhomedesigns.com> (BHD) home page and find the promo module.

Search Home Plans
(reset)

Search By Plan ID [Find By ID >](#)

Choose Style Min Garage Capacity Bedrooms Min Bathrooms

Width (Feet) MIN MAX Depth (Feet) MIN MAX Height (Feet) MIN MAX

Plan Price MIN MAX Square Feet MIN MAX [Search Plans >](#)

Displayed: 32 Found: 3448 Total: 3448

Sort: [Recently Added](#) [Reverse Sort](#) ☐ Photos Only ☐ Hide Details

[Click Here For Promo Code](#)

2. Open a new tab and go to [this product page](#) and find the promo module.

Share Plan: [🔗](#)

Add To Cart

Choose Plan Set:

Select Optional Modifications

☐ Right Reading Reverse \$350.00

☐ Opt-Out ☐ Multiple Use License \$1,525.00

Total : \$0.00 [Add To Cart](#)

Plan Modifications

We can modify most plans to suit your needs and even design you a custom plan. Feel free to [contact us](#) for an estimate.

Price Matching Available

Contact us with the link and we will give you a discount code that beats competitor prices

Please [contact us here](#) to make a purchase outside of the United States

[Click Here For Promo Code](#)

3. Open LaunchDarkly in a new tab and navigate to Feature Flags

LaunchDarkly [🔍](#) Search

Feature flags

Use this page to see all feature flags in this project. Select a flag to manage the environment-specific targeting and rollout rules.

View: Live flags (default)

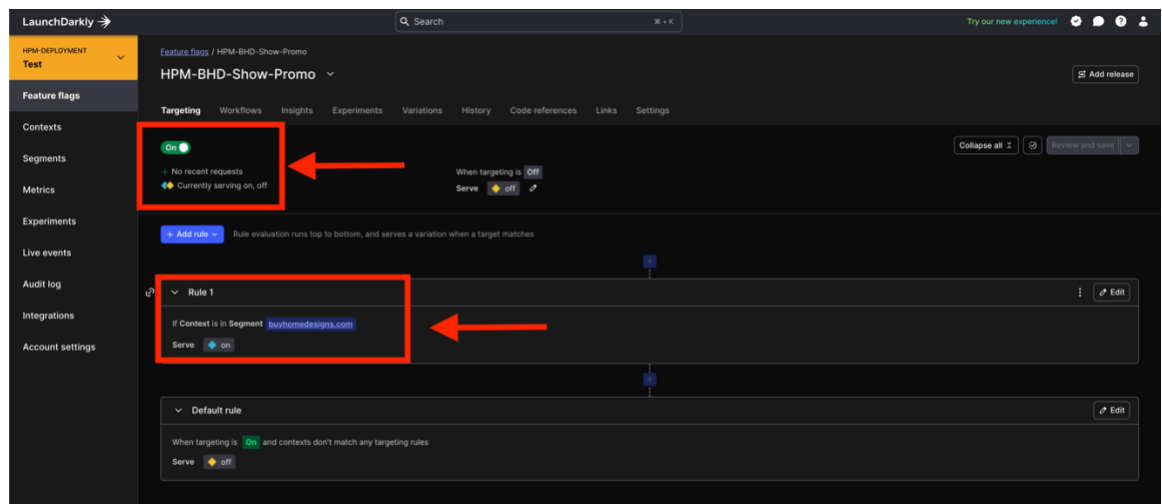
Find a flag by name, key or description Filter Sort: Created newest

4. Enable and Disable “HPM-BHD-Show-Promo”

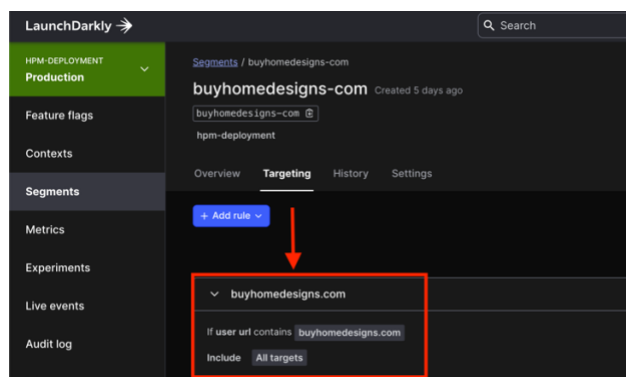
When disabling, the promotional modules will disappear off both pages on buyhomedesigns.com in real-time.

LaunchDarkly Setup: Promo Code Modules

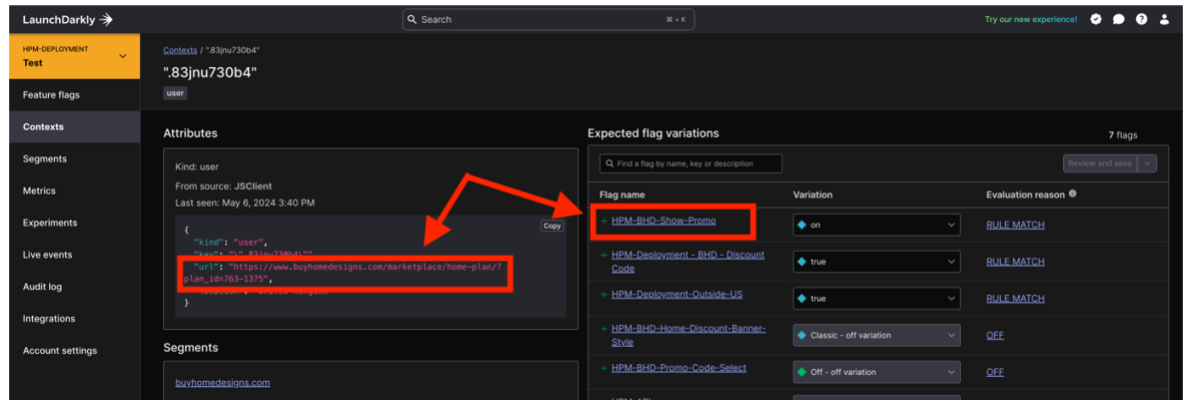
1. Navigate to the “HPM-BHD-Show-Promo” target page and view the isolation rules set to buyhomedesigns.com (Please do not change the rules, it needs to strictly stay on buyhomedesigns.com, as it is live)



2. This rule is tied to the “buyhomedesigns-com” Segment.

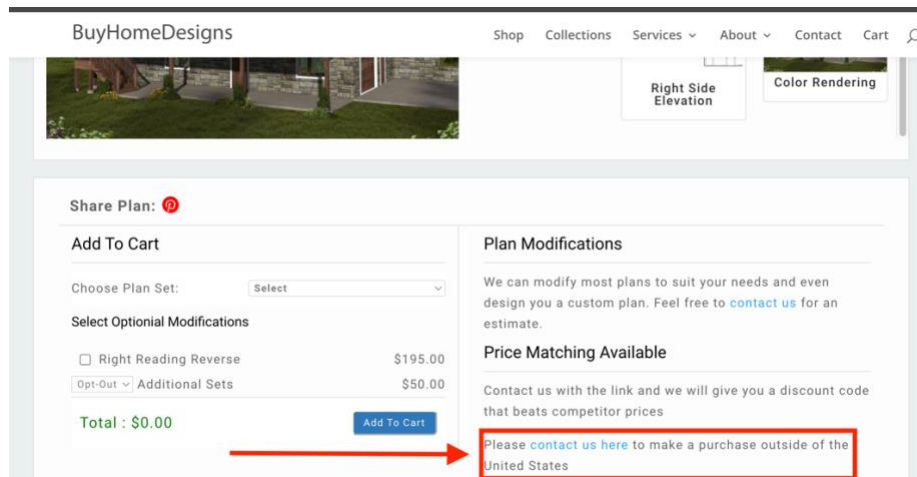


- The “buyhomedesigns-com” Segment ties to the “URL” attribute from the Users context



How To Run: “Out Of Country Notification” (VPN Required)

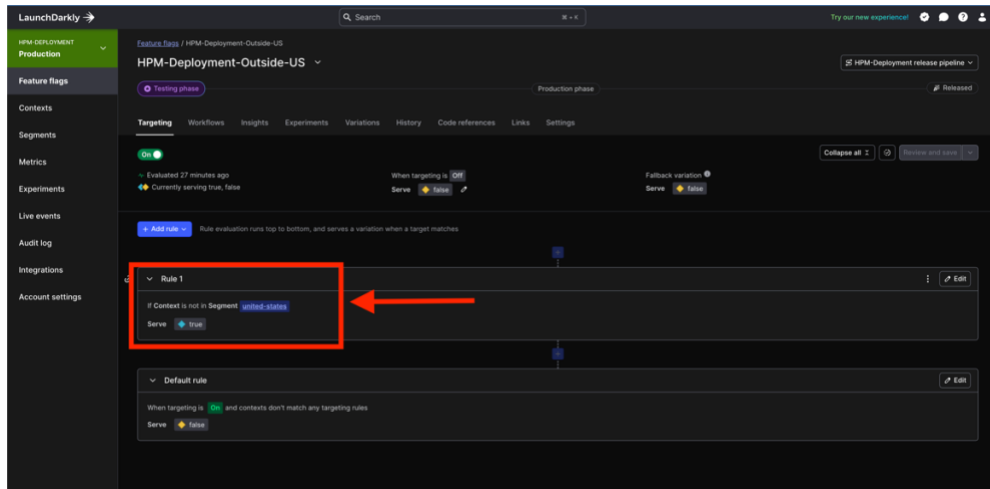
- Set your VPN to any country outside of the United States.
- Navigate to [this product page](#).
- Find the “Outside of the United States” contact us message.



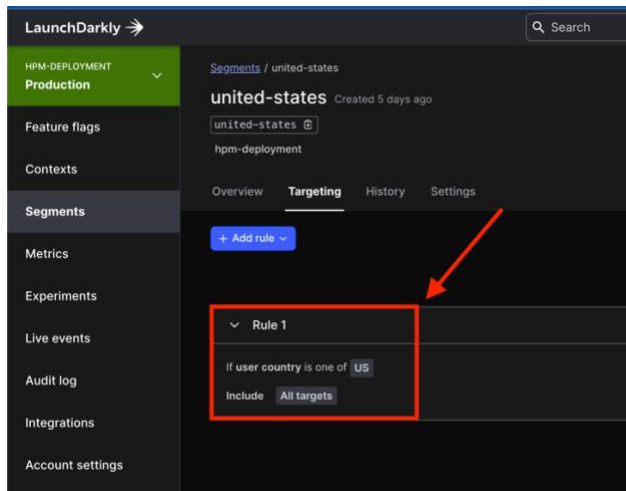
- Go back to the LaunchDarkly Feature Flag Tab
- Enable and Disable “**HPM-Deployment-Outside-US**” Feature Flag. Changes will be directly reflect on the BHD website tin real time.
- Toggle the Feature Flag back to on
- Go back to the BHD website and find the “Outside of the United States” contact us message.
- Set your VPN to the United States and verify that the message disappears in real time.
- This is also noticeable on our B2B clients website Great House Design as this is a universally deployed module.

LaunchDarkly Setup: “Out Of The Country”

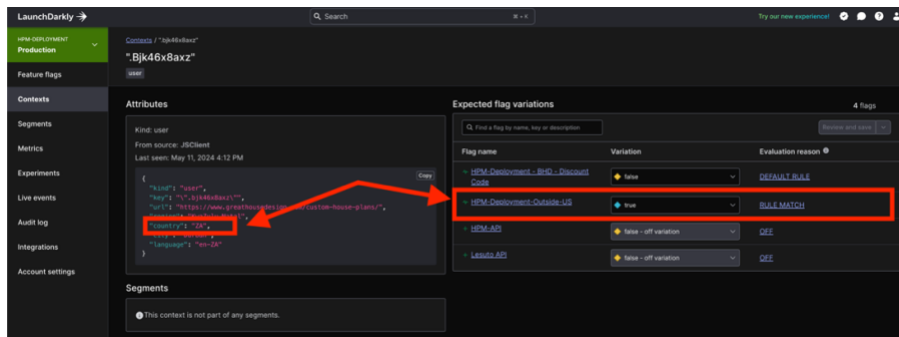
1. Navigate to the “HPM-Deployment-Outside-US” targeting page and view the isolation rules set to buyhomedesigns.com (Please do not change the rules since this is production)



2. This rule is tied to the “united-states” segment



3. The “united-states” Segment ties to the “country” attribute from the Users context



Extra Credit: Experimentation

Scenario:

You are a product manager at ABC Company. Your organization has been working on revamping the landing page, and you have been working with your development team to (implement the feature from the Targeting example). You now need to measure the impact of the new feature since you want to help your organization make decisions informed by accurate data.

Resolution

In addition to Task 2, ABC would like to know how many users engage with the promo module and which page gets the most interactions.

By tying a “Click for Promo” button in the promo modules and tying a click event to a LaunchDarkly Metric, ABC will be able to better understand if end users are interested in the new promotion.

This data will help ABC decide if the users are interactive with the promo modules, if it has the desired effect of increasing sales, if the buttons are designed and placed correctly for maximum effect, and on which page it should be deployed on their customer websites.

Reasoning

1. Experiments and Metrics allow ABC to gather necessary data from their clientele directly pertaining to their releases, whether partial or full.
2. This data can be used on a segment of their audience to test hypothesis about how their release affects end users.
3. This safe form of gathering data allows for critical decisions to be made on the development path of their platform.
4. This easy implementation and setup allows for many experiments to be run directly from the LaunchDarkly UI.

LaunchDarkly Setup: Experimentation

1. The below LaunchDarkly metric setup brings in user data from home page click event.
2. The Target URLs are derived from the pages that contain the click even we want to analyze (buyhomedesigns.com/marketplace, localhost:8000/home-plan)
3. The click event from the CSS selector “#HPMPromoBannerButton” shows the customer the promo code once clicked.
4. By tying the click event we can see how many users click this button on the home page and the product page. We also gain information from their individual contexts, such as region, that enables us to further understand our customer base.

The screenshot shows the LaunchDarkly interface for a metric named "BHD-Home-Page-Promo-Click". The left sidebar contains navigation options: Feature flags, Contexts, Segments, Metrics (selected), Experiments, Live events, Audit log, Integrations, and Account settings. The main content area displays the metric configuration:

- Event information:** EVENT KIND is `CLICK`. CLICK TARGETS is `#HPMPromoBannerButton`. TARGET URLS are `Substring: buyhomedesigns.com/marketplace` and `Substring: localhost:8000/home-plan`.
- Measurement definition:** ANALYZED BY is `mean`. UNIT AGGREGATION METHOD is `Sums individual units`. UNITS WITHOUT EVENTS is `Sets the value for units with no events to zero`.
- Randomization units:** `user`.
- Tags:** `BHD HPMP-Deployment`.

Below the configuration, there is a table with columns: Experiment, Experiment status, Environment, and Metric status. The table shows one experiment: "BHD-Home-Vs-Product-Promo-Click" with status "Not started", environment "Test", and metric status "Experiment has not been started".

At the bottom, there is a "Delete metric" section with a warning: "You cannot delete a metric when your metric has connections".

5. The same steps were used to create the landing page metric

The screenshot shows the LaunchDarkly interface for a metric named "BHD-Product-Page-Promo-Click". The left sidebar contains navigation options: Feature flags, Contexts, Segments, Metrics (selected), Experiments, Live events, Audit log, Integrations, and Account settings. The main content area displays the metric configuration:

- Event information:** EVENT KIND is `CLICK`. CLICK TARGETS is `#HPMATCHPromoBannerButton`. TARGET URLS are `Simple match: https://www.buyhomedesigns.com/marketplace/home-plan` and `Simple match: https://localhost:8000/home-plan`.
- Measurement definition:** ANALYZED BY is `mean`. UNIT AGGREGATION METHOD is `Sums individual units`. UNITS WITHOUT EVENTS is `Sets the value for units with no events to zero`.
- Randomization units:** `user`.
- Tags:** `BHD HPMP-Deployment`.

Below the configuration, there is a table with columns: Experiment, Experiment status, Environment, and Metric status. The table shows one experiment: "BHD-Home-Vs-Product-Promo-Click" with status "Not started", environment "Test", and metric status "Experiment has not been started".

At the bottom, there is a "Delete metric" section with a warning: "You cannot delete a metric when your metric has connections".

6. Once that is complete, we can tie this into an experiment. In which variations were provided to tell us further into what banner would increase click behavior on the home page.

The screenshot displays the LaunchDarkly web interface for an experiment titled "BHD-Home-Vs-Product-Promo-Click". The interface is in a dark theme. On the left is a sidebar with navigation options: Feature flags, Contexts, Segments, Metrics, Experiments (selected), Live events, Audit log, Integrations, and Account settings. The main content area shows the experiment design details. At the top, a status bar indicates "Not started" and "Experiment design is complete." Below this, a message states "Your access to experimentation has ended. You cannot start this experiment. Contact us to upgrade your plan." The "Experiment design" section includes:

- Experiment details:**
 - HYPOTHESIS:** The product page will drive more traction in promotional interest.
 - EXPERIMENT TYPE:** Feature change.
- Randomization unit and attributes:**
 - RANDOMIZATION UNIT:** user
 - ATTRIBUTES:** location
- Metrics:**
 - BHD-Home-Page-Promo-Click (Click)
 - BHD-Product-Page-Promo-Click (Click)
- Variations:**

These variations are based on the flag: + HPM-BHD-Home-Promo-Banner-Style (On)

Variation	Value	Name	Description
Variation 1	[Image placeholder]	Classic	None
Variation 2	[JSON snippet: {"background": "linear-gradient(to right, #142058, #0070C0)", "button": {"background": "linear-gradient(to right, #163774, #00839F)", "color": "white"}}, {"background": "white", "color": "black"}]	HPM Theme Blue	None
Variation 3	[JSON snippet: {"background": "linear-gradient(to right, #163774, #00839F)", "button": {"background": "white", "color": "black"}}, {"background": "white", "color": "black"}]	Attention Green HPM Theme	None
Variation 4	[JSON snippet: {"background": "linear-gradient(to right, #163774, #00839F)", "button": {"background": "white", "color": "black"}}, {"background": "white", "color": "black"}]	Christmas	None
- Allocation:**
 - TARGETING RULE:** Default rule. Any traffic that does not match other targeting rules for the feature flag.
 - TRAFFIC ALLOCATION:** A horizontal bar chart showing 100% of user contexts will be in the experiment. The remaining 0% of user contexts will be served by the control. The allocation is split equally (25% each) among the four variations: Classic, HPM Theme Blue, Attention Green HPM Theme, and Christmas.

At the bottom left, a "Professional trial" badge indicates "3 days left in trial" and a "Select a plan" button is visible.

EXTRA CREDIT: INTEGRATIONS

Scenario:

As part of any of these scenarios, you may find it interesting or helpful to explore any of LaunchDarkly's many [integrations](#). This is not necessary to produce a top-tier exercise but may offer deeper insight into the product and opportunities for a more compelling demo.

Teams at ABC needs to be notified upon changes to the LaunchDarkly environment within their dedicated slack channels.

Resolution

LaunchDarkly has over 70 integrations that will help ABC get notified and share data to different teams and programs. These include messengers such as slack, observability platforms such as DataDog, webhooks and many more.

Reasoning

1. The Slack integration will help ensure that when changes are made to any Feature Flag, the proper teams will be notified. This will help ensure that no problematic changes are made blindly.

Set Up: Slack Integration

1. Login to Slack
2. Install the [LaunchDarkly App](#)
3. Review the overview [found here](#)
4. Follow the setup "[Setting Up Slack Accounts and Permissions](#)" documentation.

BONUS USE CASE: EXPAND TO MARKETING AND VISUAL DESIGN TEAMS

Scenario:

ABC provides promo codes to customers on special occasions to boost sales and modifies the page theme in dedicated areas to match the promotion.

Currently, ABC has the promo codes and layouts hard coded into the platform which requires a change-request to enable, change, and disable promo codes and themes. These change requests can take weeks to complete.

They would like to be able to safely modify the promo codes and layout on the fly. Once more, they would like to be able to run different promotions with different target segments based on location, user information, and custom variables.

ABC has considered developing their own portal for marketing, but the cost is too high, and it would pull engineers from developing key feature releases. They realized that creating a portal, modifying their existing database schema, and coding in new calls to support this new functionality is too cumbersome and costly to develop.

Resolution

Using LaunchDarkly, ABC can create a Feature Flag to enable/disable the promotional banner, a feature flag to set styling, and create an additional feature flag that defines which promo code should be displayed.

With this, they can assign a user group to handle the changes and assign feature flags that will enable marketing and the visual design team to make changes to promotions within seconds, instead of weeks.

Custom variations within feature flags allow for the storage and quick activation of promo codes without a page reload. As well, as rolling back changes that did not have the desired impact.

By utilizing targeting, segments and contexts, teams can run multiple promotions directly from the LaunchDarkly UI.

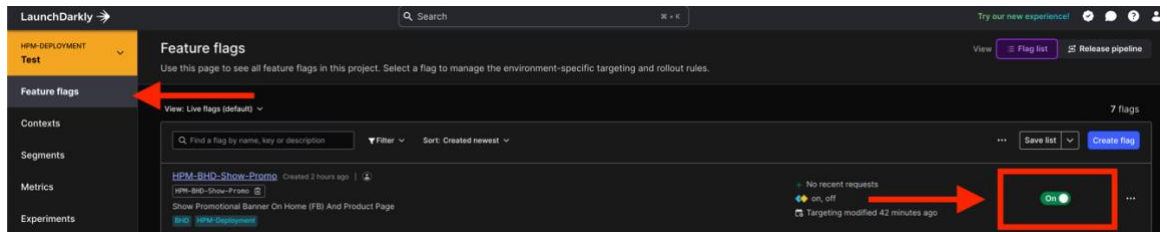
Reasoning

1. Allow teams to quickly define and change promotions on the fly through the LaunchDarkly UI.
2. Teams gain flexibility to run different promotions based on targets such as location, user type, and custom variables.
3. Allow developers to focus on feature development rather than minor design changes by letting other qualified teams work on it.
4. Changes will still go through an approval process through test and production via the LaunchDarkly UI. Ensuring quality control.
5. Qualified teams can take control of graphic design changes without waiting for the next sprint to complete. This rapidly speeds up visual change times and frees up developers.
6. Strings, JSON objects, and Boolean variables allow for a wide variety of changes to be done within safeguards defined by the developers.

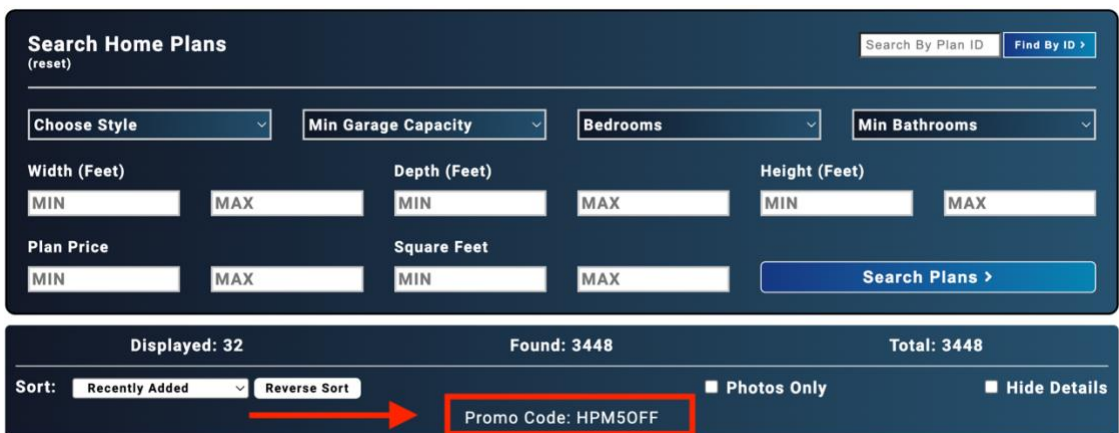
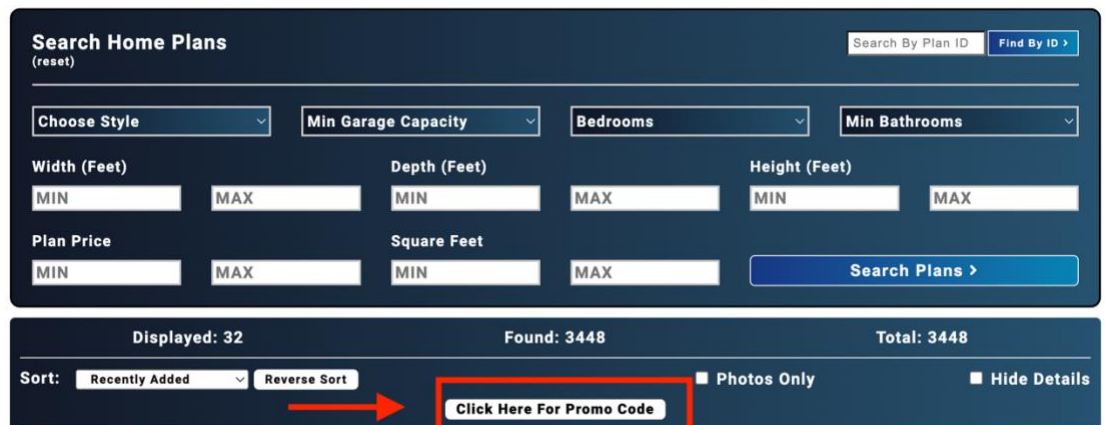
7. Changes can be quickly reversed if they do not meet expectations.

How to Run: “HPM-BHD-Promo-Code-Select”

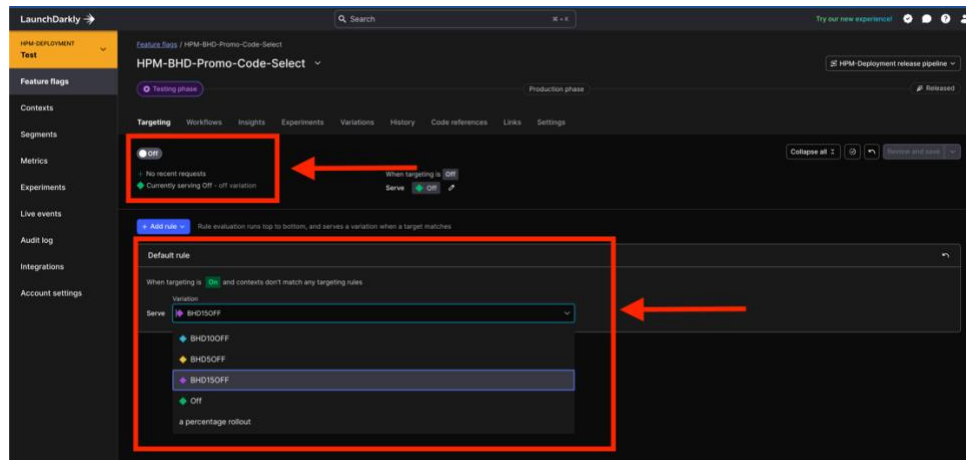
1. On LaunchDarkly enable the “HPM-BHD-Show-Promo” Feature Flag



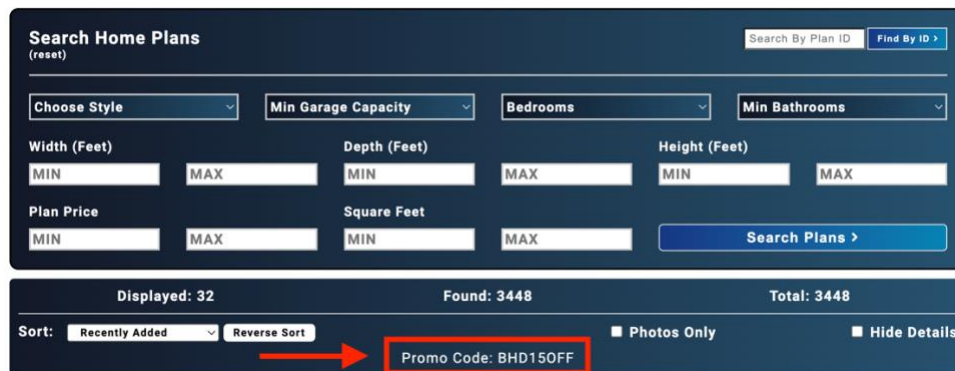
2. Go to the BHD website using [this link](#) and find the promo banner and click the “promo code” button to view the current promo code.



- On LaunchDarkly go to the “[HPM-BHD-Promo-Code-Select](#)” Target Page
- Edit the “Default Rule”, select a promo code, turn on, and save.

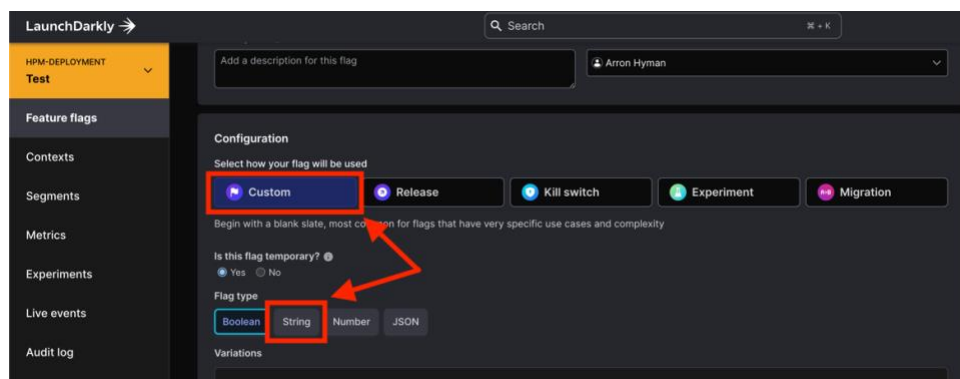


- Back on the BHD website, the promo code has updated to your selection.

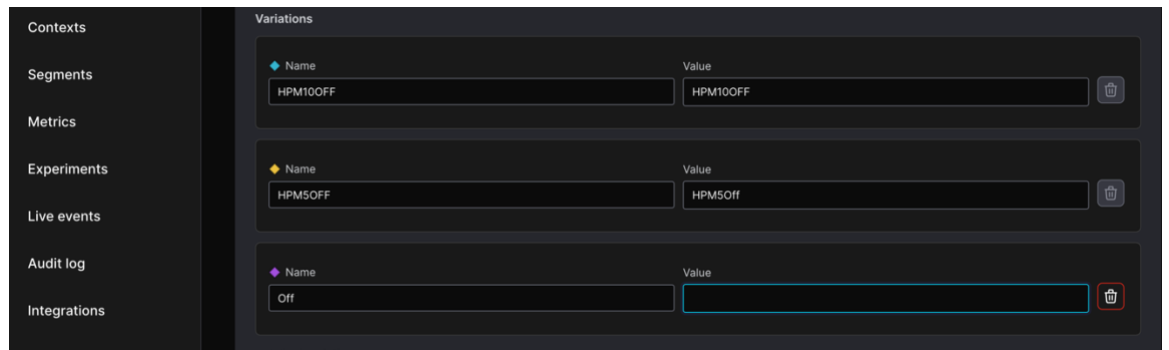


LaunchDarkly Setup: Promo Code Modules

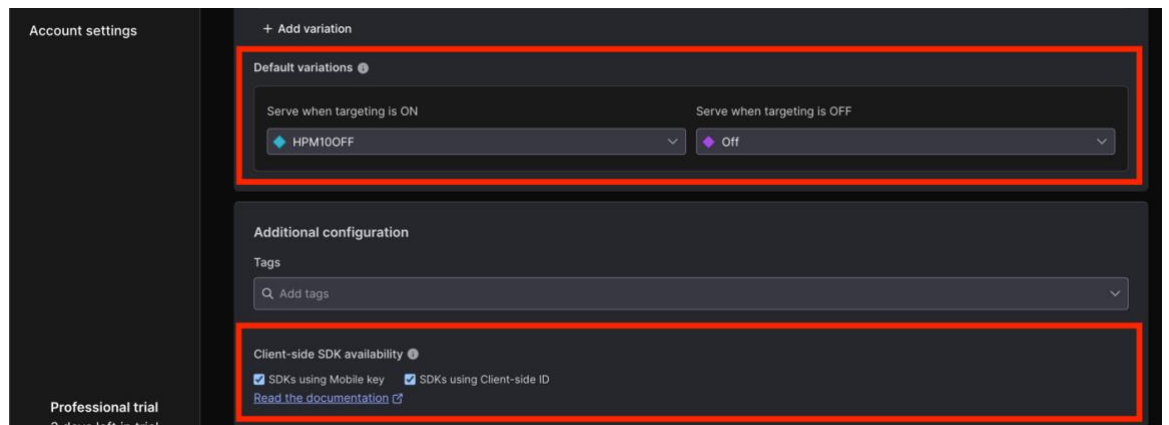
- Create a new feature flag, fill out the name and description.
- Define a “custom” configuration with the flag type “string”.



3. Create the promo codes in the variations section with the final variation set to name to “off” and leave the value empty.



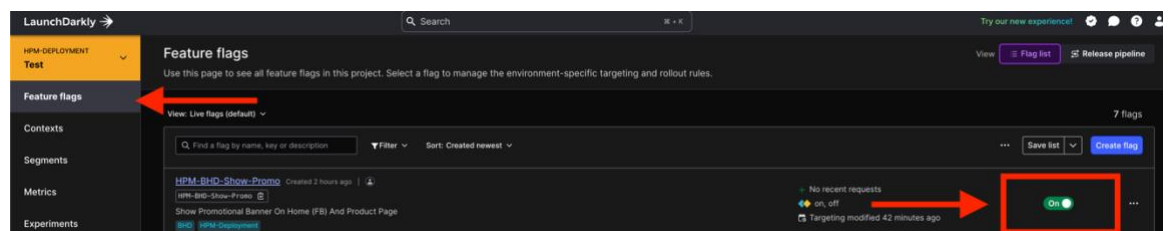
4. Set Targeting on to a promo code and set default to “off”. Check the mobile and client SDK keys and add preferred tags.



5. Now the promo code will be sent to the backend for processing as a “string” object.

How to Run: “HPM-BHD-Home-Promo-Banner-Style”

1. On LaunchDarkly enable the “HPM-BHD-Show-Promo” Feature Flag.



- Go to the BHD website using [this link](#) and find the promo banner.

Search Home Plans
(reset)

Search By Plan ID Find By ID >

Choose Style Min Garage Capacity Bedrooms Min Bathrooms

Width (Feet) Depth (Feet) Height (Feet)

MIN MAX MIN MAX MIN MAX

Plan Price Square Feet

MIN MAX MIN MAX Search Plans >

Displayed: 32 Found: 3448 Total: 3448

Sort: Recently Added Reverse Sort

Click Here For Promo Code

Photos Only Hide Details

- On LaunchDarkly, go to the [HPM-BHD-Home-Promo-Banner-Style](#) target page
- Edit the default rule and select the banner theme, enable the flag, and click save.

LaunchDarkly

HPM-DEPLOYMENT

Test

Feature flag

Contexts

Segments

Metrics

Experiments

Live events

Audit log

Integrations

Account settings

HPM-BHD-Home-Promo-Banner-Style

Targeting Workflows Insights Experiments Variations History Code references Links Settings

On

No recent requests

Currently serving HPM Theme Blue

When targeting is Off

Serve Classic

Add rule

Rule evaluation runs top to bottom, and serves a variation when a target matches

Default rule

When targeting is On and contexts don't match any targeting rules

Variation

Serve

Classic

HPM Theme Blue

Attention Green HPM Theme

Christmas

a percentage rollout

- Go back to the BHD website using [this link](#) and find the promo banner with the theme changed.

Search Home Plans
(reset)

Search By Plan ID Find By ID >

Choose Style Min Garage Capacity Bedrooms Min Bathrooms

Width (Feet) Depth (Feet) Height (Feet)

MIN MAX MIN MAX MIN MAX

Plan Price Square Feet

MIN MAX MIN MAX Search Plans >

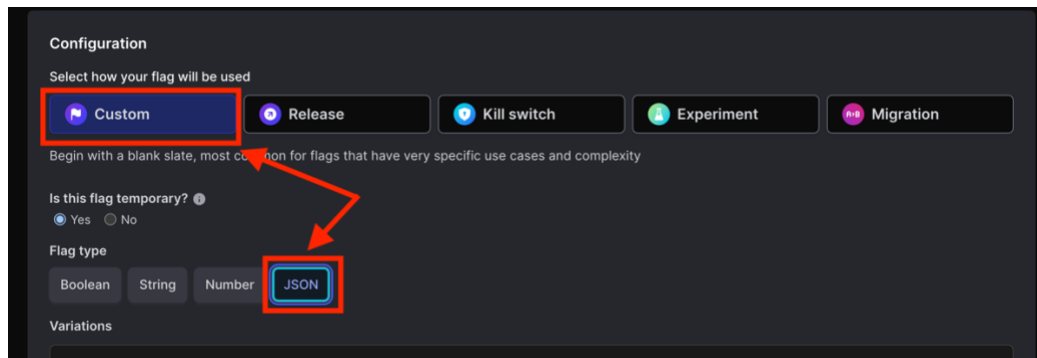
Sort: Recently Added Reverse Sort

Click Here For Promo Code

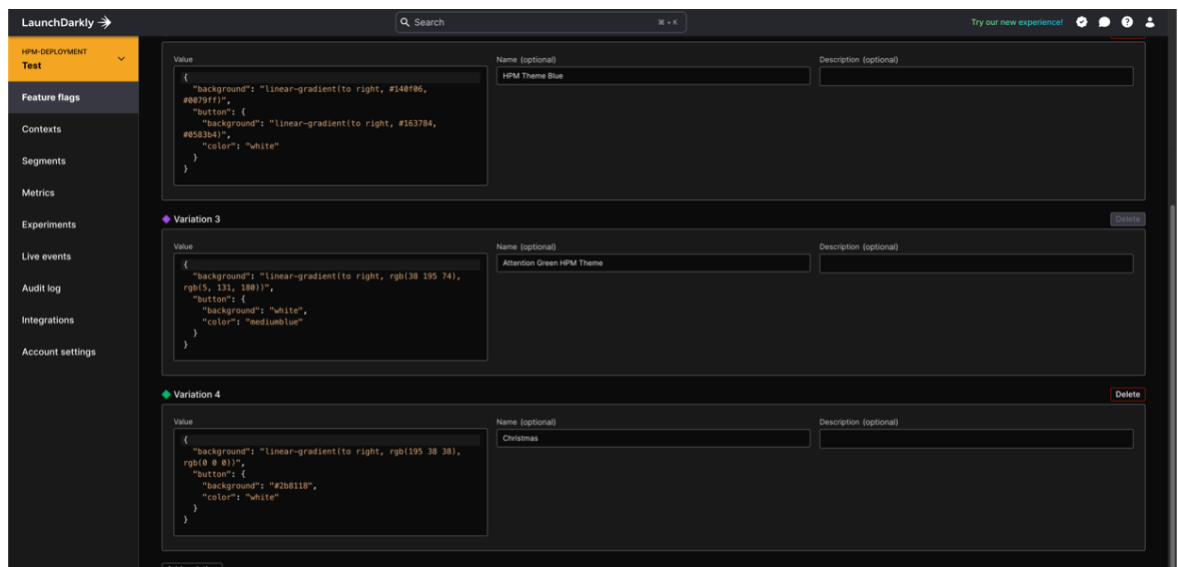
Photos Only Hide Details

LaunchDarkly Setup: “HPM-BHD-Home-Promo-Banner-Style”

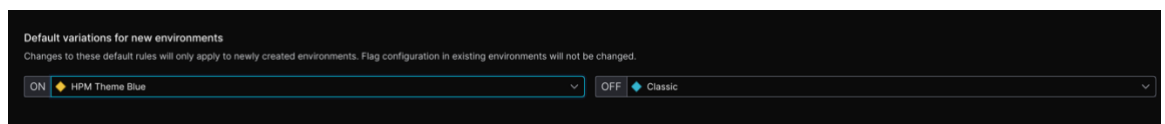
1. Create a new feature flag, fill out the name and description.
2. Define a “custom” configuration with the flag type “JSON”.

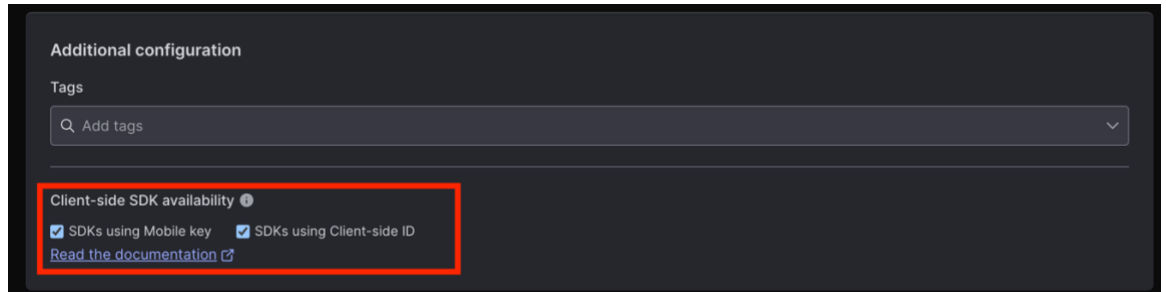


3. Create the JSON objects that define the style of the promo banner. In this case we are changing the banner background and button styles. We also left an empty JSON named “classic” for the default styling set by the initial release.



4. Set the targeting on for the “HPM Theme Blue” variation and the default to the “classic” variation. Also select the appropriate SDK’s. In this case mobile and the client side SDK.





5. Click save. Now when activated, the JSON object for “HPM Theme Blue” variation will be sent to the backend to process. Now Segments can be used, as show in Part 2, to set up promotional targeting based on location, user information, and custom variables.

PROJECT CODE

The code provided here is in reference to the code available online. Links are provided to the code that is running on the live website.

hpmDeployment.js (Master) [\(File Link\)](#)

hpmDeployment.js is the master file in which all the other JavaScript are generated and pull from. This is where I pull in the LaunchDarkly library, assign it to the HPM global variable (HPM.LD), create the “user” context, and initialize it.

```
self.launchDarklyBoot = function () {  
  //Set LD Global Variable  
  self.LD = {};  
  
  //GetUser Data  
  self.getUserData().then(function(userData){  
    //Define and set LD User Variables  
    var city = (userData && userData.city) ? userData.city : "";  
    var language = self.getLang();  
    var region = (userData && userData.region) ? userData.region : "";  
    var country = (userData && userData.region) ? userData.country : "";  
  
    //Grab the user key from the HPMLDUserKey cookie  
    const lduserkey = Cookies.get("HPMLDUserKey");  
  
    //If the user key does not exist, create user key and set it to the HPMLDUserKey cookie  
    if(!lduserkey) Cookies.set("HPMLDUserKey", '' + (Math.random() + 1).toString(36).substring(1) + '',);  
  
    //Set clientSideID to your LaunchDarkly client-side ID (True [41 Test], False [42 Live])  
    const clientSideID = (HPM.dev) ? '663150d604ea160f25cfbb41' : '663150d604ea160f25cfbb42';  
  
    //Define user context  
    const context = {  
      kind: 'user',  
      key: lduserkey,  
      city: city,  
      country: country,  
      region: region,  
      url: $(location).attr('href'),  
      language: language  
    };  
  
    //Initialize the LDClient  
    self.LD.ldclient = LDClient.initialize(clientSideID, context);  
    self.LD.ldclient.on('initialized', () => {});  
    self.LD.ldclient.on('failed', (err) => {console.log(err)});  
  });  
};  
  
//Get User Location Details  
self.getUserData = async function(){  
  try{  
    return $.get("https://ipinfo.io", function (response) {  
      return response;  
    }, "jsonp");  
  }  
  catch(err){return err};  
}  
  
//Get User Language  
self.getLang = function getLang() {  
  if (navigator.languages != undefined)  
    return navigator.languages[0];  
  return navigator.language;  
}
```

AddToCart.js (File Link)

AddToCart.js pulls from the HPM.LD (LaunchDarkly) object created in the HPMDeployment.JS file. This module is responsible for the “Out of Country” message along with the product page promo code button.

```
self.loadLDFlags = function(){
  self.LD = {};
  //If HPM.LD.ldclient is ready renderLD()
  if(HPM.LD.ldclient) self.renderLD();

  //Render changes on ready and change
  //On Render eva
  HPM.LD.ldclient.on('ready', self.renderLD);

  //On change evaluate variables
  HPM.LD.ldclient.on('change', self.renderLD);

  //Inititalize Promo Button Click
  self.promoButtonClick();
}

self.renderLD = function(){
  //Set Variables
  var code = "";

  //Assign LD Flag Variables
  HPM.LD.outsideUS = HPM.LD.ldclient.variation('HPM-Deployment', false);
  HPM.LD.HPMBHDShowPromo = HPM.LD.ldclient.variation('HPM-BHD-Show-Promo', false);
  HPM.LD.BHDPromoCode = HPM.LD.ldclient.variation('HPM-BHD-Promo-Code-Select', false);

  //Show/Hide Promotion Based Of The "HPM-BHD-Show-Promo" feature flag
  if(HPM.LD.HPMBHDShowPromo) {document.getElementById("HPMATCPromoContainer").style.display = "block";}
  else document.getElementById("HPMATCPromoContainer").style.display = "none";

  //Show/Hide outside US purchase message based on the "HPM-Deployment" LD Feature Flag
  if(HPM.LD.outsideUS) {document.getElementById("HPMATCUserOutsideUSA").style.display = "block";}
  else document.getElementById("HPMATCUserOutsideUSA").style.display = "none";

  //Set Promo Code Based On The "HPM-BHD-Promo-Code-Select" Feature Flag
  code = (HPM.LD.BHDPromoCode) ? HPM.LD.BHDPromoCode : "HPM50FF";
  document.getElementById("HPMATCPromoMessage").innerHTML = "Promo Code: " + code;
}

self.promoButtonClick = function(){
  $('#HPMATCPromoBannerButton').click(()=>{
    //Define Default Discount Or Import From Launch Darkly
    var code = (HPM.LD.HPMBHDShowPromo) ? HPM.LD.BHDPromoCode : "HPM50FF";

    //Hide button
    document.getElementById("HPMATCPromoBannerButton").style.display = "none"

    //Show Promo Code
    document.getElementById("HPMATCPromoMessage").style.display = "block"

    //Set Promo Code
    document.getElementById("HPMATCPromoMessage").innerHTML = "Promo Code: " + code;
  });
}
```

FilterBox.js (File Link)

FilterBox.js is responsible for providing the search page (home page) promo code button, promo code, and the promo code banner. This, like AddToCart.js, pulls the LD object from the HPM object that was created in HPMDeployment.js. You may notice duplicate code from AddToCart.js but this is intentional as each module is independent from one another and has its own way of running.

```
self.loadLDFlags = function(){
  //If HPM.LD.ldclient is ready renderLD()
  if(HPM.LD.ldclient) self.renderLD();

  //On Render run self.renderLD
  HPM.LD.ldclient.on('ready', self.renderLD);

  //On change run self.renderLD
  HPM.LD.ldclient.on('change', self.renderLD);

  //Set PromoButtonClick
  self.promoButtonClick();
}

self.renderLD = function(){
  //Define Variables
  var code = "";

  //Assign LD Flag Variables
  HPM.LD.BHDShowPromo = HPM.LD.ldclient.variation('HPM-BHD-Show-Promo', false);
  HPM.LD.BHDPromoCode = HPM.LD.ldclient.variation('HPM-BHD-Promo-Code-Select', false);
  HPM.LD.BHDBannerStyle = HPM.LD.ldclient.variation('HPM-BHD-Home-Discount-Banner-Style', false);

  //Show/hide banner based on the "HPM-BHD-Show-Promo" feature flag
  if(HPM.LD.BHDShowPromo) {document.getElementById("HPMPromoBannerContainer").style.display = "block";}
  else document.getElementById("HPMPromoBannerContainer").style.display = "none";

  // Change style if styles are included
  if(HPM.LD.BHDBannerStyle){
    //Set styling based on the "HPM-BHD-Home-Promo-Banner-Style" feature flag otherwise leave stock
    if(HPM.LD.BHDBannerStyle.background) document.getElementById("HPMPromoBanner").style.background = HPM.LD.BHDBannerStyle.background;

    //If LD button styles exist apply styles
    if(HPM.LD.BHDBannerStyle.button){
      //Set button styling otherwise leave stock
      if(HPM.LD.BHDBannerStyle.button.background)
        $("#HPMPromoBannerButton").attr("style", "background: " + HPM.LD.BHDBannerStyle.button.background + " !important");
      if(HPM.LD.BHDBannerStyle.button.color)
        document.getElementById("HPMPromoBannerButton").style.color = HPM.LD.BHDBannerStyle.button.color;
    }
  }

  //Set Promo Code
  code = (HPM.LD.BHDPromoCode) ? HPM.LD.BHDPromoCode : "HPM50FF";
  document.getElementById("HPMPromoBannerCode").innerHTML = "Promo Code: " + code;
}

self.promoButtonClick = function(){
  $('#HPMPromoBannerButton').click(()=>{
    //Define Default Discount Or Import From Launch Darkly
    var code = (HPM.LD.BHDPromoCode) ? HPM.LD.BHDPromoCode : "HPM50FF";

    //Hide button
    document.getElementById("HPMPromoBanner").style.display = "none"

    //Show Promo Code
    document.getElementById("HPMPromoBannerCode").style.display = "block"

    //Set Promo Code
    document.getElementById("HPMPromoBannerCode").innerHTML = "Promo Code: " + code;
  });
}
```

FilterBoxV1.html ([File Link](#))

FilterBox.html functions similar to ATCV1.html but provides the banner customizability through LaunchDarkly and does not provide the “out of country message.” Most html pages are dynamically loaded.

```
<div id="HPMPromoBannerContainer" class="HPM-row">
  <div class="HPM-col-md-12 HPM-col-sm-12">
    <div id="HPMPromoBanner"><button id="HPMPromoBannerButton">Click Here For Promo Code</button></div>
    <div id="HPMPromoBannerCode"></div>
  </div>
</div>
```