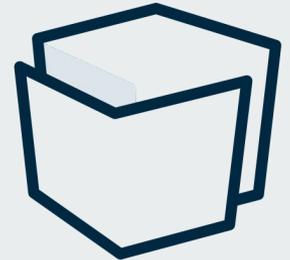




# Drupal Camp Asheville 2023: **Google Analytics 4 Tips & Tricks for Drupal 9 & 10**

July 8, 2023



**designHAMMER**  
BUILDING SMARTER WEBSITES



# Overview

- Intro
- Google Analytics 4 in 5 minutes
- Basic GA4 for Drupal
- GA4 Gaps (and how to fill them)
- Conclusion

---

# Intro

# Stephen Pashby

- DesignHammer Account Manager
- Over a decade experience in Google Analytics
- Oversee analytics implementations for most clients





# Who are you?

- Role?
- Freelance, Agency, or In-house?
- How would you rate your comfort or experience with Google Analytics (1-5)?
- Who has installed Google Analytics 4?
- Who users Google Tag Manager?



## Let's level set:

- I'm not a developer, so you may have technical questions that are more in-depth than I can answer
- I will be showing you a way to address issues we have run into, but there are likely other viable approaches
- I'm assuming you have some level of familiarity with Google Analytics and Drupal
- I'm assuming you have already created a Google Analytics 4 property and potentially installed GA4 on a Drupal site

---

# Google Analytics 4 in 5 Minutes



# Google Analytics Overview

- Free web analytics service offered by Google
- Implemented through adding provided JavaScript to website pages
- Was developed from Urchin on Demand, a previously popular analysis service
- Original Google service was released in 2005
- Subsequent major versions were released in 2009 (Asynchronous), 2012 (Universal Analytics), and 2020 (Google Analytics 4)
- Google Analytics is currently used by 85.9% of websites whose traffic analytics tool could be identified ( [w3techs](#) )



# Universal Analytics (Google Analytics 3)

- Initially released in October 2012
- A refinement of the base Urchin on Demand technology (from 1998)
- Since UA leveraged a decades old data model, historical data was largely compatible with previous versions so upgrades were fairly seamless
- Universal Analytics stopped tracking new data on **July 1, 2023**
- Google has only committed to support access to Universal Analytics data through **December 2023**
- **After December 2023**, it is unknown if Google will allow access to hosted Universal Analytics data

**How can Google cut me off  
from my years of UA Data?**

**If you aren't paying for the  
service, you are the service.**

---

**If you have sites that were using UA and GA4 is not in place, you are no longer tracking analytics data!**

---



# Google Analytics 4

- Released in October 2020
- Entirely new model for tracking and analysis
- ***Incompatible with Universal Analytics (or earlier models)***
- No direct method for migrating historic data from Universal Analytics or exact historical comparison of Google Analytics 4 data with Universal Analytics data



# Key Metrics in Google Analytics 4

- **Engaged Session** – Count of sessions that lasted longer than 10 seconds, had a conversion event, or had 2 or more screen or page views.
- **Average Engagement Time Per Session** – User engagement duration per session. Shows the amount of time the user is actually engaging with the page (e.g., clicking, scrolling, etc) while the page is the primary window being viewed on the screen.
- **Engagement Rate** – The ratio of Engaged Sessions relative to total Sessions. If you had 1,000 total sessions and 130 of them qualified as Engaged Sessions (as defined above), the Engagement rate would be 13%.

*Google Analytics 4 key metrics operate under the assumption that specific user interactions (scroll, click, file download, etc.) are more relevant measures of engagement than the number of pages viewed or the length of time a user interacts with a website (e.g. bounce rate, etc.).*



# Events in Google Analytics 4

- Events fuel GA4's engagement metrics.
- GA4 provides several included Enhanced Measurement events (<https://support.google.com/analytics/answer/9216061?hl=en>), including:
  - file\_download
  - scroll
  - video\_start
  - video\_progress
- Recommended Events (<https://support.google.com/analytics/answer/9267735?hl=en>) serve as blueprints for common events that are not preconfigured.
- Additional Custom Events can be configured with desired Parameters.



# Goals & Conversions in Google Analytics 4

- Conversions directly replace Goals in Universal Analytics (UA).
- While UA provided 4 models of Goals (including funnel tracking), only specific Events can be marked as Conversions in GA4.
- GA4 does not currently provide a built-in mechanism for Destination (funnel) based conversions.



# Reporting in Google Analytics 4

- Universal Analytics provided over 100 pre-defined reports, but many were deprecated or no longer reported relevant data. Most of the best known reports are tuned for reporting pageviews, bounces, etc. which are not core to the GA4 model.
- Google Analytics 4 provides less than 20 pre-defined reports. GA4 reports focus on engagement and which events are engaging users. Custom reporting is more visible and expected (either through GA4 Explorations or Google Looker Studio).
- Is this a good or bad thing? It depends on your point of view.
  - More isn't always better! It was easy for users to get overwhelmed by UA reporting.
  - Many of the UA reports aren't supported by GA4's data and privacy models.
  - GA4 reports are more easily customizable and the Explorations custom reporting is more robust than UA.
  - If you have been reporting on UA reports, you may need to shift due to lack of equivalent GA4 reports.



# Properties and Multiple Sites in GA4

- Universal Analytics had a model of an assumed one to one relationships of a single UA Property to a single website or app. Frequently multiple views were configured on a property to allow analysis exclusion of some traffic for targeted analysis (e.g. internal traffic, blog traffic only, etc.). Combined cross-site tracking was possible, but difficult to setup and somewhat error prone.
- GA4 Properties support multiple Data Streams in a single property, with the aim of allowing for providing a 360 degree view of user behavior across multiple interconnected websites and apps.
- GA4 properties do not support multiple views for a single property, but a robust audience and segmentation system allows for similar targeted analysis.

---

# Basic GA4 for Drupal



# Google Analytics 4 Directly

Google supports several methods for adding for adding GA4 tracking code to a website:

- Step-by-step instructions on adding to many popular platforms using common modules (including Drupal\*)
- Google Analytics module: [https://www.drupal.org/project/google\\_analytics](https://www.drupal.org/project/google_analytics)
- Google Tag module: [https://www.drupal.org/project/google\\_tag](https://www.drupal.org/project/google_tag)
- Tracking code to add manually
- Via a tag manager such as Google Tag Manager

\* *Instructions for Drupal are installing and using the Google Analytics module*



# Google Analytics module

Supports configuration of a GA4 stream ID directly in Drupal (the module adds the necessary GA4 tracking code).

Allows configuration of where the GA4 tracking code will be added to the site (for certain user roles, for certain pages, etc).

Supports some configuration of GA4 events, dimensions, and metrics directly in Drupal via the module.

*If you are using the Google Analytics module, you may need to update to the most recent version to ensure support of GA4.*



# Google Tag module

Supports configuration of both GA4 and GTM IDs (as well as UA, Floodlight, and Adwords IDs). Supports the configuration of multiple IDs and tracking codes.

Supports certain Recommended GA4 events (generate\_lead, etc.).

Supports some custom dimensions and metrics.

Supports including GTM module on certain content types, for certain user roles, etc.

Google Tag module is supported by Google and Acquia, so if choosing a module based GA4/GTM implementation, it is recommended.



# Google Tag Manager

Google Tag Manager (GTM) is a free marketing tag service that supports adding Google, third-party, and custom marketing and analytics tags and triggers.

For Google Analytics 4, GTM is an easy, non-code way to extend GA4 for implementing and extending GA4 Events (Enhanced Measurement events, Recommended events and custom events).

*GTM is not required to implement GA4, but I will be using it in several examples as I think it's easier to convey concepts via GTM than directly in GA4/JavaScript.*



# Google Tag Manager and Drupal

Google supports several methods for adding for adding GA4 tracking code to a website:

- GoogleTag Manager module: <https://www.drupal.org/project/gtm>
- Google Tag module: [https://www.drupal.org/project/google\\_tag](https://www.drupal.org/project/google_tag)
- Directly to template

\* There is at least one case (covered later) where adding a GTM container directly to Drupal templates is required. Stay tuned!

**GA4 does more out of the box than UA, but there are still gaps that require some extra work to address!**

—

---

# GA4 Gaps (and how to fill them)



# GA4 Gaps

GA4 does a lot more than UA out of the box, but some common gaps we have run into are:

- Useful Webform submission tracking
- Embedded YouTube tracking
- Improved scroll depth tracking
- Scalable GA4 management of multiple websites



# Useful Contact Form Submission Tracking

Enhanced Measurement events include **form\_start** and **form\_submit** events which track appropriate interactions with Drupal Webforms.

However, if a site has multiple Webforms, the Enhanced Measurement form events the HTML form ID (from the DOM) is not useful for analytics reporting and analysis.

As an example, “webform-submission-long-contact-form-node-6-add-form” isn’t the best for reporting and analysis.



# Useful Form Submission Tracking

More complete form submission tracking can be accomplished using the **generate\_lead** Recommended event and a GTM Lookup table to match Webform IDs to human intelligible names. Our earlier example, “webform-submission-long-contact-form-node-6-add-form” would be more intelligible if it was “Long Contact Form.”

It is a best practice to use Google’s Recommended events, where applicable. If Google elects to extend GA4 reporting or other functionality for a Recommended event you have implemented, you will already have historic data in place for these events. Google has said that it is fine to extend Recommended events with properties to suit your organizational needs.

We will create a **generate\_lead** event using the GA4 Event tag in GTM, but in order to create this event, we need to do a few things first.



# Useful Form Submission Tracking

We want to add a `form_id` parameter to the `generate_lead` event, but will need a way to populate this `form_id` parameter for each `generate_lead` event.

In order to do this, we need to enable GTM's built in Form ID Data Layer Variable. This built in Form ID will be populated by the Form ID in the DOM (not useful for reporting).

We will configure a GTM Lookup Table to map specific Form IDs (or specific Form ID patterns) to useful names for reporting. You may need to use GTM preview mode or your web browser inspector to identify the specific Form IDs (or Form ID patterns, depending on how your Webforms are added to your content). If you have to work with Form ID patterns, you can use a GTM Regex Table instead.

We will use this Lookup Table to populate a `form_id` parameter on our `generate lead` event.

## Built-In Variables ⓘ

[Configure](#)

Name ↑	Type
<a href="#">Click Classes</a>	Data Layer Variable
<a href="#">Click Element</a>	Data Layer Variable
<a href="#">Click ID</a>	Data Layer Variable
<a href="#">Click Target</a>	Data Layer Variable
<a href="#">Click Text</a>	Auto-Event Variable
<a href="#">Click URL</a>	Data Layer Variable
<a href="#">Event</a>	Custom Event
<a href="#">Form Element</a>	Data Layer Variable
<a href="#">Form ID</a>	Data Layer Variable
<a href="#">Form Target</a>	Data Layer Variable
<a href="#">Form URL</a>	Data Layer Variable
<a href="#">Page Hostname</a>	URL
<a href="#">Page Path</a>	URL

### Variable Configuration

Variable Type

 RegEx Table

Input Variable 

{{Form ID}} 

RegEx Table 

Pattern

webform-submission-contact-staff-member.+

webform-submission-long-contact-form.+

webform-submission-short-contact-form-.+

Output

staff contact

long contact

short contact

### References to this Variable

 GA4 - Generate Lead  
Tag



# Useful Form Submission Tracking

Now that we have our Lookup Table configured, we are ready to create our **generate\_lead** GA4 Event Tag.

Create a new GA4 Event Tag. Select your GA4 Configuration Tag (which references your GA4 ID). Name your Event “**generate\_lead**”. Add a parameter for “**form\_id**” and select your Lookup table to populate this parameter.

Add a Trigger for Some Form Submissions that excludes form submissions for your user login or site search forms.

Save both your Trigger and Tag, test in GTM’s Preview mode, then publish.

### Tag Configuration

Tag Type

 **Google Analytics: GA4 Event**  
Google Marketing Platform

Configuration Tag [?](#)

GA4 - Configuration Tag

Event Name [?](#)  
generate\_lead

### Event Parameters

Parameter Name  
form\_ID

Value  
{{lookup - regex - name}}

### Triggering

Firing Triggers

 **Contact Form Submission**  
Form Submission



### Trigger Configuration

Trigger Type



Form Submission

This trigger fires on

Form ID does not contain search

Form ID does not contain publication

### References to this Trigger



GA4 - Generate Lead

Tag



# Useful Form Submission Tracking

Now you have a **generate\_lead** GA4 event that will be sent to your GA4 property when your Webforms are submitted. At this point, you may want to mark your **generate\_lead** events as Conversions in GA4.

In order to interact with the `form_id` parameter of your **generate\_lead** event, you will need to register it as a Custom Dimension in GA4.

In GA4, go to Admin > Custom Definitions > Create custom dimensions. Enter a dimension name (for GA4 reporting), a scope (Event), a description, and enter “**form\_id**” as your event parameter (this must match the parameter you entered in GTM exactly).

About 24 hrs after you save, you should start to be able to see your custom dimension in GA4 reporting. I recommend using GA4’s data explorations or Google Looker Studio to expose this in useful reporting.

## Custom definitions

[Quota information](#)[Custom dimensions](#)[Custom metrics](#)[Create custom dimensions](#)

Dimension name ↑	Description	Scope	User Property/Parameter	Last changed	
form_id	ID of contact form submitted for generate_lead event	Event	form_ID	May 16, 2023	⋮
Percent Scrolled	25%, 50%, 75%, 90%, or 100% scroll depth	Event	percent_scrolled	Mar 23, 2023	⋮
Site Search Term		Event	search_term	Nov 30, 2022	⋮

Items per page:  1 - 3 of 3 [|<](#) [<](#) [>](#) [>|](#)



## Edit custom dimension

Save

Dimension name <sup>?</sup>

form\_id

Scope <sup>?</sup>

Event

Description <sup>?</sup>

ID of contact form submitted for generate\_lead event

Event parameter <sup>?</sup>

form\_ID



# Embedded YouTube Tracking

YouTube videos that are embedded via the Media module that use OEmbed Lazyload are (in many circumstances) not visible to GA4 and GTM native video tracking if the GA4 code or the GTM Container are in the normal page template (or implemented using the Google Tag module. There may also be other instances where this behavior manifests, so we felt this technique may be valuable to share.

The OEmbed Lazyload documentation

(<https://www.drupal.org/docs/contributed-modules/oembed-lazyload/analytics-support>) includes a workaround of injecting the GTM Container code into the media-oembed-iframe.html.twig template.



# Embedded YouTube tracking

However, we cannot simply include the existing GTM container in the template, as that would result in double counting with the existing tags!

To address this, we will need to create a second data stream in our GA4 property and a second GTM container.

To create a second (Video) Data Stream, go to Admin > Data Streams > Add stream > Web and fill in the details for the new Stream. For this Stream, we don't want all Enhanced Measurements enabled, just Video engagement Enhanced Measurements. Under Web stream details, click on the gear icon and toggle off everything except for Video engagement.

## Data Streams

All

iOS

Android

Web

Add stream ▾



**https://www.rtihs.org/**  
https://www.rtihs.org

2798489678

Receiving traffic in past 48 hours.



**Video Stream**  
https://www.rtihs.org/

4812250768

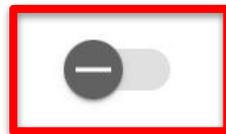
Receiving traffic in past 48 hours.





### Form interactions

Capture a form interaction event each time a visitor interacts with a form on your website.



### Video engagement

Capture video play, progress, and complete events as visitors view embedded videos on your site. By default, video events will be automatically fired for YouTube videos embedded on your site with [JS API support](#) enabled.



### File downloads

Capture a file download event each time a link is clicked with a common document, compressed file, application, video, or audio extension.



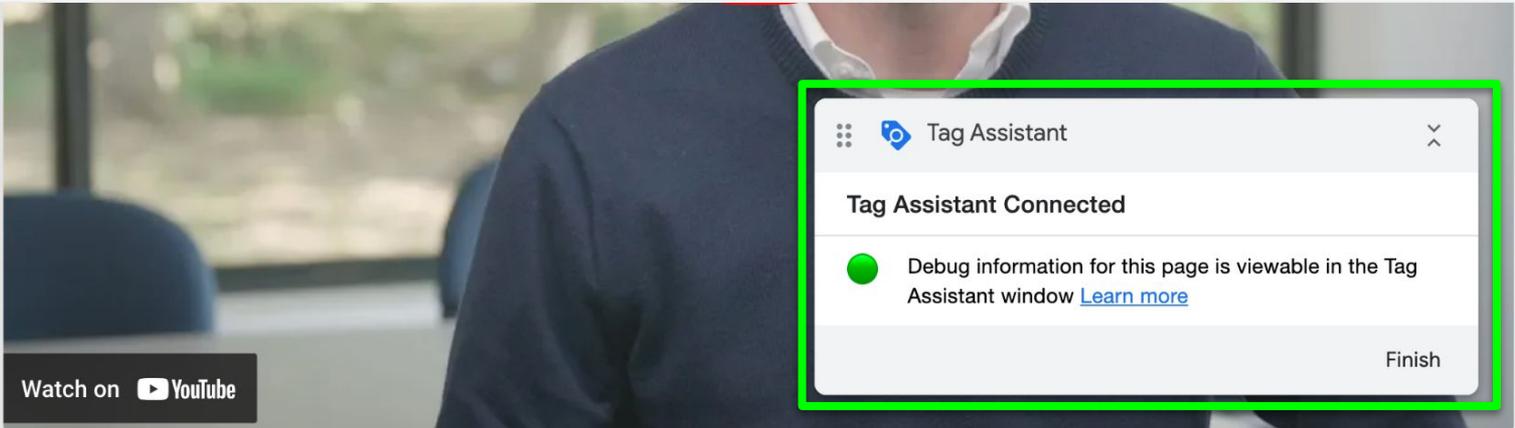


# Embedded YouTube tracking

Once you have your Video Data Stream configured, you will need to create a new Video GTM container. The basic Google Configuration Tag with the Video Data Stream ID and a default All Pages Trigger is all that is required on the GTM site.

Once you have created your new GTM container, you will need to add it to the `media-oembed-iframe.html.twig` template in order to test. The Google Tag module does not support adding a GTM container to a specific template, so the template approach must be done in this instance (thought it should work fine in conjunction with using the Google Tag module for the main GTM container).

Note: You must publish an initial version of the GTM container before attempting to test. If a GTM container has never been published, GTM preview mode will not connect.



☰ Tag Assistant ✕

**Tag Assistant Connected**

● Debug information for this page is viewable in the Tag Assistant window [Learn more](#)

Finish

☰ Tag Assistant ✕

**Tag Assistant Connected**

■ Debug information for this page is viewable in the Tag Assistant window [Learn more](#)

Finish

## Our Experts

Meet a few of our top experts in this service area.

4 Google tags found

GTM-ND4D3XM

G-T5ND07SFL4

GTM-W9LLPPF

G-PPS7KT6FYB

Summary



Summary

embed

Health Economics | RTI Hea

20 Timer

19 Scroll Depth

18 Scroll Depth

17 Window Loaded

16 DOM Ready

15 Demandbase\_Loaded

14 Message

13 Container Loaded

12 Initialization

11 Consent Initialization

Output of GTM-ND4D3XM

Pages Tagged: 2/4 pages

Tags

Variables

Data Layer

Consent

Errors

Tags Fired

UA - Page View

Google Analytics: Universal Analytics - Fired 2 time(s)

Adwords Retargeting

Google Ads Remarketing - Fired 2 time(s)

LinkedIn Insight

LinkedIn Insight - Fired 2 time(s)

GA4 - Configuration Tag

Google Analytics: GA4 Configuration - Fired 2 time(s)

GA4 - Custom Scroll Depth Tracking

Google Analytics: GA4 Event - Fired 3 time(s)

cHTML - AddThis Listener

Custom HTML - Fired 2 time(s)

Tags Not Fired

UA - YouTube Videos

Google Analytics: Universal Analytics

UA - Mail To Link Clicks

Google Analytics: Universal Analytics

UA - Downloads

Google Analytics: Universal Analytics

UA - Outbound Links

Google Analytics: Universal Analytics



# Embedded YouTube tracking

Once you have confirmed that the new Video GTM container is firing appropriate Video engagement Events, you may wish to disable your Enhanced Measurement Video events for cleanliness.

NOTE: If a site also implements embedded videos through other (non-Media module) means, you will wish to leave your Enhanced Measurement Video events enabled.



# Improved Scroll Depth Tracking

The GA4 Enhanced Measurement scroll event fires at a page threshold of 90%, which Google considers appropriate as a signal of user engagement. This default configuration does not provide an appropriate degree of granularity for reporting on sites with multiple long pages to determine whether users are viewing content "below the fold" or at another specific page depth that isn't the bottom of the page.

Similarly to Recommended events, Enhanced Measurement events can have their usefulness extended by creating compatible custom events. We will create an equivalent, extended scroll event in Google Tag Manager that will fire at multiple scroll depths. We will also disable the built in Enhanced Measurement scroll event to prevent double counting on scroll events.



# Improved Scroll Depth Tracking

First we will need to enable the built in Google Tag Manager variable: Scroll Depth Threshold.

Then, create a new GA4 Event Tag with the event name "scroll". Create a new Scroll Depth Trigger for Vertical Scroll Depths set for 25%, 50%, 75%, and 90%. It's not typically helpful to set the trigger for 100% since its common user behavior for users to not scroll fully to the bottom of a page footer, even if they have ready the entire page content.

**NOTE: Scroll Depth is poorly named, as it really a percentage of page visibility trigger. If 50% or 75% page depth is visible on page load, the trigger will fire, even if the user does not scroll.**

Page Hostname	URL
Page Path	URL
Page URL	URL
Percent Visible	Data Layer Variable
Referrer	HTTP Referrer
Scroll Depth Threshold	Data Layer Variable
Scroll Depth Units	Data Layer Variable
Scroll Direction	Data Layer Variable
Video Current Time	Data Layer Variable
Video Duration	Data Layer Variable
Video Percent	Data Layer Variable
Video Provider	Data Layer Variable

### Tag Configuration

Tag Type



Google Analytics: GA4 Event  
Google Marketing Platform

Configuration Tag ?

GA4 - Configuration Tag

Event Name ?

scroll

### Event Parameters

Parameter Name

percent\_scrolled

Value

{{Scroll Depth Threshold}}

### Triggering

Firing Triggers



Scroll depth trigger  
Scroll Depth

### Trigger Configuration

Trigger Type

 **Scroll Depth**

**Vertical Scroll Depths**    
Percentages  
25, 50, 75, 90, 100 percent

This trigger fires on  
All Pages

### References to this Trigger

 **GA4 - Custom Scroll Depth Tracking**  
Tag



# Improved Scroll Depth Tracking

Save the Trigger and enter the `percent_scrolled` as a parameter with a value of `{{Scroll Depth Threshold}}` in the event Tag.

Save the Tag and test in GTM Preview mode to confirm the Event tag is firing as desired.



# Improved Scroll Depth Tracking

Before publishing the changes to the GTM Container, it is recommended to disable the built in Enhanced Measurement scroll event in GA4 (to avoid duplicate GA4 events). Go to Admin > Data Streams > Select the appropriate Stream > “Gear” icon under Enhanced Measurement and toggle off the Enhanced Measurement scroll event.

Once the Enhanced Measurement scroll event has been disabled, you can publish the GTM container and your new scroll event will begin tracking.

After it is published and tracking, don't forget to register a custom dimension for the **percent\_scrolled** parameter you created.



## Edit custom dimension

Save

Dimension name <sup>?</sup>

Percent Scrolled

Scope <sup>?</sup>

Event

Description <sup>?</sup>

25%, 50%, 75%, 90%, or 100% scroll depth

Event parameter <sup>?</sup>

percent\_scrolled



# Scalable GA4 management

Given GA4's flexibility, customizing and iterating upon a single website GA4 implementation can be fairly straightforward process.

However, if you need to maintain and extend a consistent GA4 implementation across many sites (say a large Drupal multisite), adding sites, rolling out new events, or adjusting existing events at scale can be time-intensive and error prone.

However, given the modularity of the GA4 Stream ID (per site), it is possible to create a lookup table based on hostname to allow a single GTM container to be used on many sites, each site tracking GA4 data to their own GA4 property.



# Scalable GA4 management

First, ensure that the Built In Google Tag Manager variable: Page Hostname is enabled in your container.

Then create a Lookup Table with **{{Page Hostname}}** as the input and add complete hostname inputs and corresponding GA4 Stream IDs for all websites that the container needs to support.

Note: Be sure to include the full hostname (e.g. [www.google.com](http://www.google.com)). If you need to account for some variability, a Regex Table should also work adequately in this application.

Once this is completed, substitute the Lookup Table for the GA4 Stream ID. The Lookup Table will substitute the appropriate GA4 Stream ID when GA4 tags fire based upon the Page Hostname.



### Variable Configuration

Variable Type



Lookup Table

Input Variable

{Page Hostname}



Lookup Table

Input

www.titlecenterofindiana.com

itms-tci.invttitle.com

d9-itms-tci.invttitle.com

www.bsscr.com

itms-bsscr.invttitle.com

d9-itms-bsscr.invttitle.com

www.bsssouthwestpa.com

itms-bssswnpa.invttitle.com

d9-itms-bssswnpa.invttitle.com

Output

G-1Z96NJ3ZW0

G-1Z96NJ3ZW0

G-1Z96NJ3ZW0

G-C0JPDXM0DH

G-C0JPDXM0DH

G-C0JPDXM0DH

G-CJC29CHY5W

G-CJC29CHY5W

G-CJC29CHY5W

### Tag Configuration

Tag Type



**Google Analytics: GA4 Configuration**  
Google Marketing Platform

Measurement ID [?](#)

{{lookup - GA4 Stream ID}}

### Triggering

Firing Triggers



**All Pages**  
Page View

---

# Conclusion



# Conclusion

- Drupal continues to be a great platform for a variety of websites
- Google Analytics 4 is a significant evolution of Universal Analytics
- However, Google Analytics 4 is limited out of the box
- Make sure you take your GA4 instances to the next level so you can best optimized your Drupal website

---

# Questions?



Thank you DCA 2023!

