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GOOGLE ANALYTICS AND GOOGLE TAG MANAGER

Tabatha Farney

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Google Analytics and Google Tag Manager

Tabatha Farney



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American Library Association

50 East Huron St.
Chicago, IL 60611-2795 USA
alatechsource.org
800-545-2433, ext. 4299
312-944-6780
312-280-5275 (fax)

Advertising Representative

Samantha Imburgia
simburgia@ala.org
312-280-3244

Editor

Patrick Hogan
phogan@ala.org
312-280-3240

Copy Editor

Judith Lauber

Production

Tim Clifford and Samantha Imburgia

Cover Design

Alejandra Diaz

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About the Author

Tabatha Farney is the Director of Web Services and Emerging Technologies for the Kraemer Family Library at the University of Colorado Colorado Springs. She coauthored the LITA Guide *Web Analytics Strategies for Information Professionals*. Her daily activities involve developing and maintaining various web tools to support library services, and her research focuses on digital and web analytics to improve the user experience.

Farney authored the first five chapters of this issue of *Library Technology Reports* and served as editor for the final two chapters, which were written by colleagues in the field.

Abstract

Libraries are actively using Google Analytics to monitor the usage of their various websites and online tools. This issue of *Library Technology Reports* (vol. 52, no. 7), "Google Analytics and Google Tag Manager," recommends several Google Analytics features, including the useful Google Tag Manager that all libraries should be using. It also tackles the challenge of enhancing Google Analytics' tracking ability for a variety of library-specific online tools, including link resolvers, online catalogs and discovery services, Springshare's LibGuides, digital repositories, and social media websites. These best practices will optimize your Google Analytics to provide you with better data for improved website assessment.

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Getting the Best Google Analytics Data for Your Library

Google Analytics is over ten years old,¹ and it has proved to be a major player in the digital analytics market. Although Google has not released the exact number of websites using Google Analytics, one marketing publication estimates that over 30 million websites use it worldwide.² Google Analytics is just as prevalent in the library world. This issue of *Library Technology Reports* focuses on implementing Google Analytics on a series of library-specific online tools and platforms. The tools covered include

- journal search tools and link resolvers
- online catalogs or discovery services
- Springshare's LibGuides
- digital repositories
- social media

These tools are discussed in later chapters. Each chapter highlights Google Analytics features to produce the best data for these tools.

Before we talk about features, we must talk about common best practices for implementing and utilizing Google Analytics for any website. This first chapter discusses three Google Analytics customizations all libraries should use for any website or online tool. The second chapter will talk solely about the increasingly popular Google Tag Manager and how it greatly

simplifies implementing some of these features. Overall, the goal is simple—making Google Analytics give you better data for your various library online tools for improved assessment and decision making.

Google Tag Manager

<http://tagmanager.google.com>

Best Practices for Google Analytics Tracking

Out of the box, Google Analytics is a useful tool for tracking website usage, but any library can improve how Google Analytics collects and reports data by implementing three additional features: spam filters, event tracking, and conversions. These are essential features to optimize Google Analytics' data collection ability and are worth the time to implement. These features are disabled by default, and most require administrative-level permissions within the Google Analytics account to enable them. If you do not have administrative permissions for your library's Google Analytics accounts, talk to the people that do. They can enable these features or give you the permission to do so.

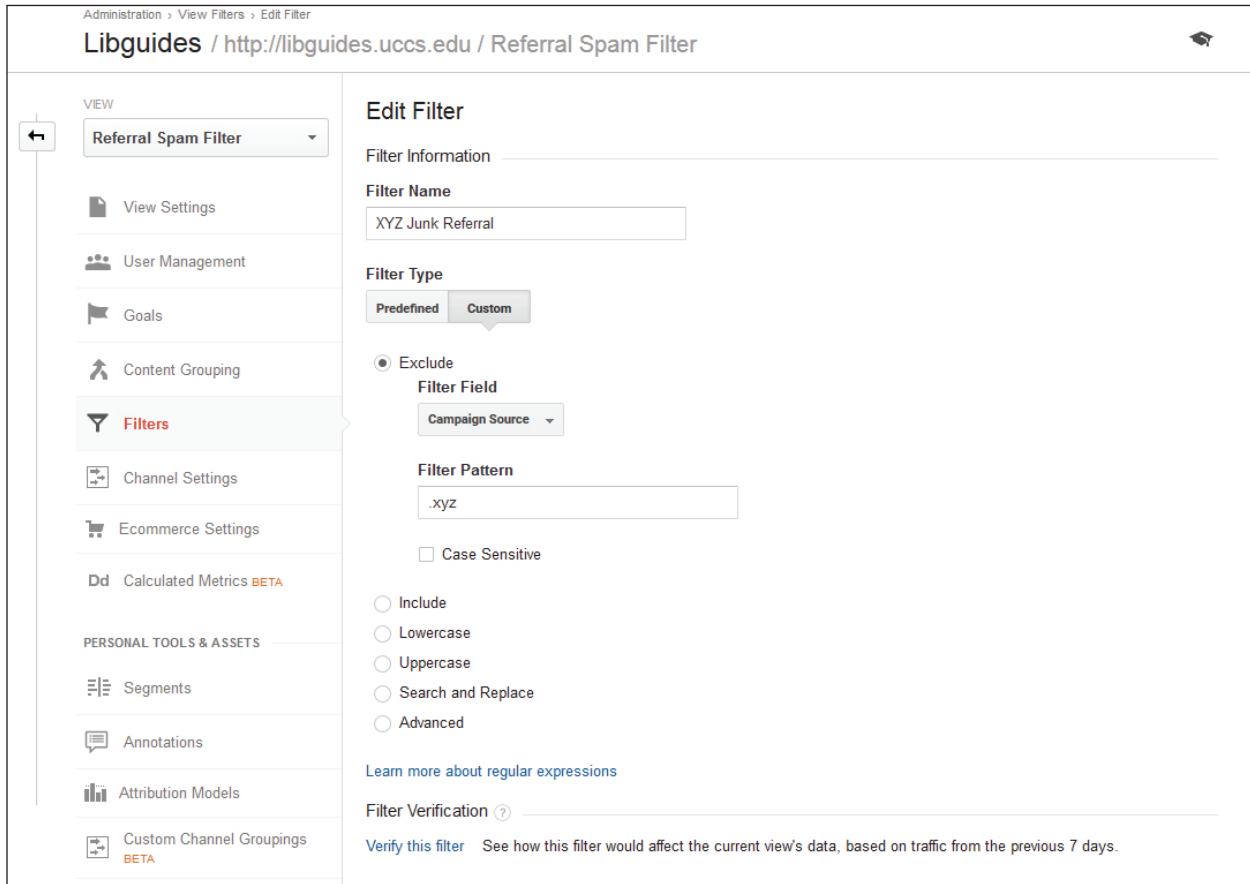


Figure 1.1
Junk referral filter, Google Analytics, University of Colorado Colorado Springs

Dealing with Spam Traffic

All web analytics tools are susceptible to junk traffic created by spambots or spamming websites. Google Analytics is no exception. The problem is that spam traffic will visit your website, and Google Analytics will report that session data like any other website user. Data from spam traffic is not just annoying in your usage reports, but is also very deceiving because it tends to inflate negative metrics such as bounce rate.

How can you tell actual user-driven data from junk data? It is not always apparent because in many Google Analytics reports, the junk data is automatically incorporated, making it difficult to discern the useful from the crud. You could go the route of blocking known spammers from your website if you have access to the `.htaccess` or `robots.txt` files on the site's web server,³ but this solution does not work for any website that is not locally hosted. Instead, you can tell Google Analytics not to collect data from known spam traffic by opting into the Bot Filtering feature. To do this, log in to your Google Analytics account and go to the website's View Settings area within the Admin interface. Checkmark the Bot Filtering option, and save your changes.

Enabling Bot Filtering is the first step. The next step is to monitor Google Analytics Referral report (under Acquisition section) for any suspicious referral traffic. Recent popular offenders are sites that end in `.xyz`, such as `share-buttons.xyz`. This is a legit top-level domain, but this spammer only drives junk traffic to my website. New spammers are popping up all the time, so it pays to monitor your referral traffic regularly for new spammer sites. Once you identify those spammers, you can create a filter within your Google Analytics account to tell it to not collect any session data from those types of websites. This does not remove past spam traffic from your account, but it does block future data from those spammers.

To create a filter, head over to the Filter option under your website's View section in Google Analytics' Admin area. Click the Add Filter button and name your filter. To filter referral traffic, select Custom for Filter Type and select Campaign Source as the Filter Field because it is the best option to remove those spammers. Next add the unique identifier for the spam traffic as a regular expression. In my example (figure 1.1), I remove all traffic that contains the string `.xyz` in the Campaign Source field. Filters can

also remove multiple referral sources at once—simply use a regular expression (RegEx)⁴ to list them all. You can verify your filter before saving it.

Use filters cautiously because you could accidentally remove good data. I recommend creating a new Google Analytics View for your website before adding a filter. Keep one unfiltered View that has all usage data and another View to apply the filter. This is a safety precaution in case you ever want to review all the data in the unfiltered View to ensure you are not accidentally removing actual user content.

Event Tracking

If you are unfamiliar with event tracking, then there is a good chance your Google Analytics is collecting only a portion of your website's activity because out of the box, Google Analytics can track only data associated with a pageview—when a web page loads in a browser. What does this leave out? A lot! Think links that navigate users away from the website's domain (outbound links), document downloads, embedded media, and other script-based elements. This is particularly frustrating for libraries because many of our websites are designed to navigate users to a wide variety of sources outside of our library website domain. To counter this, Google Analytics offers event tracking.⁵ Event tracking is not a Google Analytics administrative feature, but it does require you to edit your website by adding the special event-tracking code for whatever you want Google Analytics to recognize and track as an event. Google Tag Manager seamlessly integrates event-tracking functionality within its interface, which allows you to create and delete events at any time without ever directly touching your website's code. Google Tag Manager makes event tracking incredibly easy, and the next chapter will demonstrate how to use it.

Event tracking allows you to gather more comprehensive data about your website's usage so you can tell not just what web pages users visit, but what users do on those pages. All of this data is available in Google Analytics Event reports, which are empty until you start event tracking. The more strategic you are about tracking events, the more useful the data you collect will be.

Conversions

Conversions are one of the most powerful web analytics metrics available because they can measure the success of a site. Within Google Analytics, conversions are often used interchangeably with goals, but it is important to understand that a conversion is the metric to measure a desired action or response on a website. Conversions are intended to measure your website's goals (or reasons for existing). By nature,

conversions are custom metrics that you must define because they tend to be unique to the website. For example, a link resolver's main goal is to help users find full text of some electronic resource. The desired action would be for the user to find a full-text link to that content. In conversion terms, this could be measured by a conversion that tracks when users click on that full-text link. The major benefit of tracking this action as a conversion is that it tells you how often this desired action occurs on your website.

Sounds simple enough, yet you want to be conservative with your conversions because you are limited to twenty conversions per Google Analytics View. Additionally, conversions cannot be deleted. Once they are implemented, they may be edited or turned off, but they cannot be removed. Focus on the conversions that align with the website's goals and purpose. Several chapters in this issue of *Library Technology Reports* suggest potential conversions for different online tools in your own library.

To track a conversion, you must tell Google Analytics how to identify the conversion and when to track it. Google Analytics simplifies this process by guiding you through the steps. To create or manage your conversions, go to the Goals section for your site's View found in Google Analytics' Admin area. Click on the New Goal button to create a goal. Name your Goal and select your Goal Slot, as this will help you organize your conversions. Next, select your goal Type—the most useful two are Destination and Event. A Destination goal is for a conversion where the desired action is a user viewing a specific web page. The Event goal is much more robust because it is used for conversions based on some type of user action. As long as that action is tracked as an event, it can be used to define a conversion. If this does not entice you to join the event-tracking bandwagon, then nothing will because this means any user action can be tracked as a conversion.

Using the link resolver example again, you would track that conversion as an Event goal because full-text links are most likely outbound links; event tracking is required to monitor when users click on those links to navigate away from the link resolver website to the electronic resource's website. Once you select an Event goal, add the event category or other event descriptors to identify that specific outbound link event, as shown in figure 1.2 on the following page. You can verify the goal to test it before saving it.

Once you save your first goal, you will need to wait twelve to twenty-four hours for any conversion data to populate the various conversion and goal reports. Conversions can also be powerful segments that can be applied to most Google Analytics reports. This can help you understand not only the total number of conversions and where these conversions occur, but also identify the group of users that complete these desired actions.

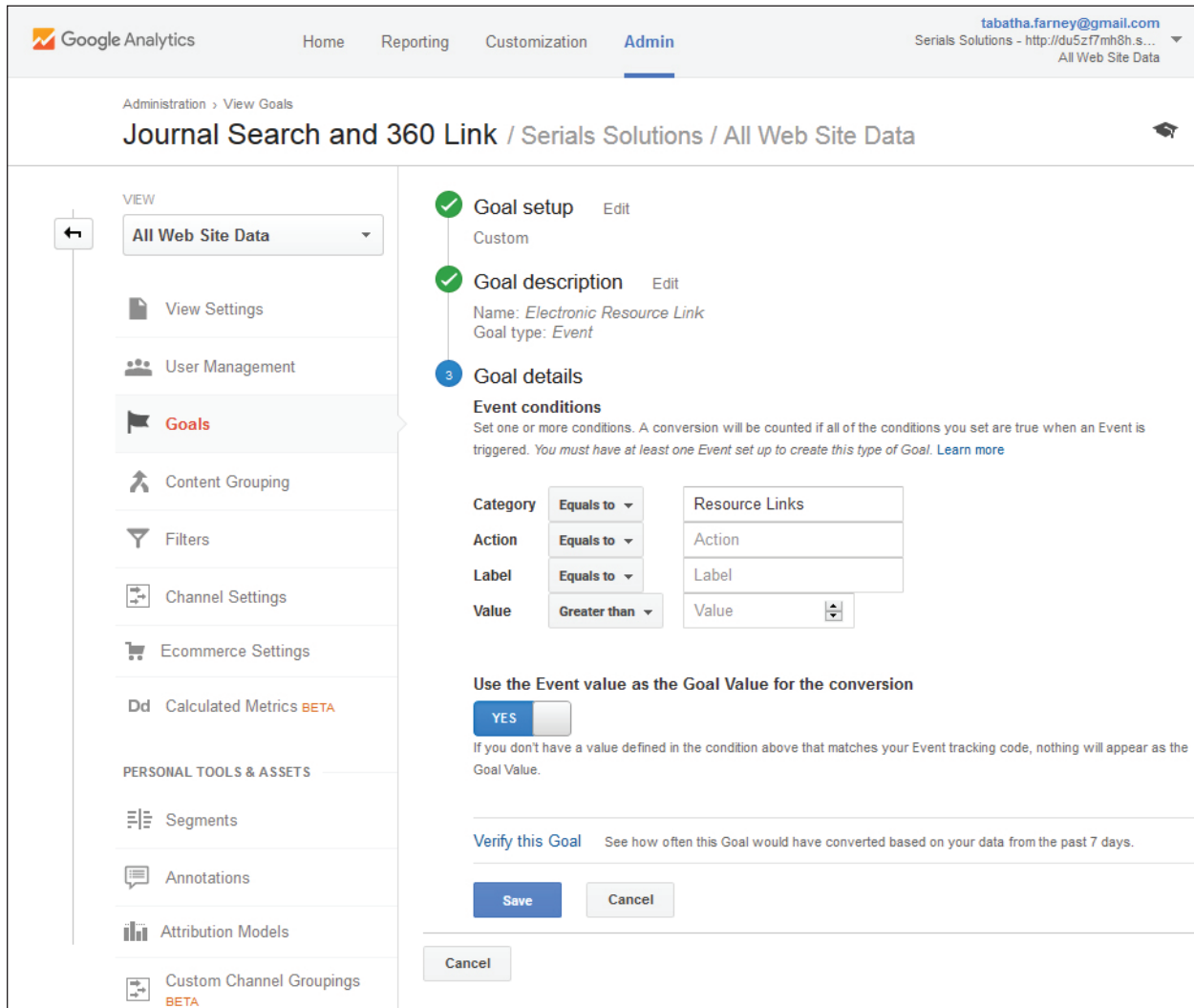


Figure 1.2
Resource link goal configurations, Google Analytics, University of Colorado Colorado Springs

Conclusion

Hopefully this introduction inspired you to improve how Google Analytics tracks your website regardless of whether it is your library website, catalog, link resolver, or whatever tool you are tracking. The next chapter will focus on Google Tag Manager and how to use it for event tracking to make it even easier for libraries to optimize their Google Analytics tracking and reporting abilities.

Notes

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Using Google Tag Manager in Your Library

Google Tag Manager, abbreviated GTM, launched in 2012 and revolutionized how Google Analytics tracks website data.¹ GTM is a separate Google platform that uses a tag-based system to tell Google Analytics (and various other data-tracking products) what data gets tracked and how. You do not have to use GTM to add Google Analytics to a website, but it does greatly simplify several custom tracking options such as event tracking. All of the case studies in this issue of *Library Technology Reports* recommend GTM and will provide advice on creating custom tags in the GTM interface for the different online library tools and platforms. This chapter introduces GTM to help you decide if it is time to implement it for your library.

Getting Started with Google Tag Manager

Since GTM is an additional Google product, you will need both a Google Analytics account and a Google Tag Manager account. Google Analytics still tracks, collects, and reports your website use data while GTM tells Google Analytics how to function. Libraries with existing Google Analytics accounts need to create only a GTM account.

Google Analytics
<https://analytics.google.com>

Google Tag Manager
<https://tagmanager.google.com>

After creating a GTM account, you have access to the GTM web administrative interface, where you

can create new accounts and containers. An account is a way to organize the various websites and mobile applications you track. The container is an individual website or app that you are tracking. When you create a new container, a GTM tracking number and tracking code (referred to as the container snippet) are automatically generated. The GTM container snippet must get added to every web page you want to track. If your website already has Google Analytics tracking code on it, that code must be removed as you add the new GTM container snippet, or you will accidentally track your website's data twice in your Google Analytics account.

Ideally, the GTM container snippet should be placed at the opening of the body tag (<body>) within a web page for best data collection,² but this is not always possible if you do not have direct access to the website's code. The container snippet may be added to another section of a web page, but it may miss some data if users leave a web page before the script has the opportunity to fully load.³ Later chapters in this issue of *Library Technology Reports* will discuss implementing GTM on different online tools to demonstrate the best option for placing the container snippet for that specific tool. Once you add the container snippet, almost all other customizations occur in the GTM administrative interface—so no additional code needs to be added to the online tool itself.

Creating Your First Tag in Google Tag Manager

Once you create your first container, you are taken to that container's administrative interface to add any tags, triggers, and variables that tell GTM how to function. A tag is script that runs on a web page and is usually based on a specific product like Google Analytics,

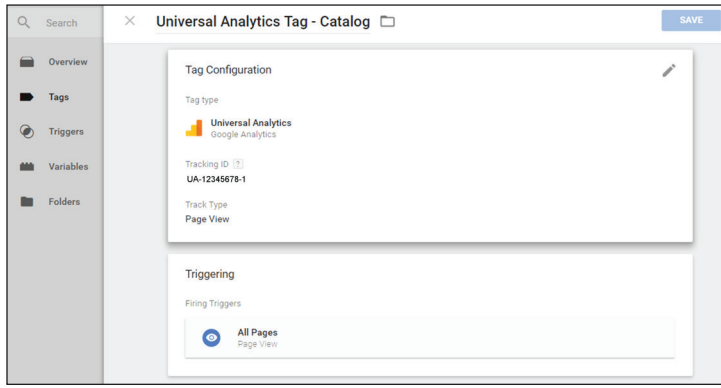


Figure 2.1
Universal analytics tag, Google Tag Manager, University of Colorado Colorado Springs

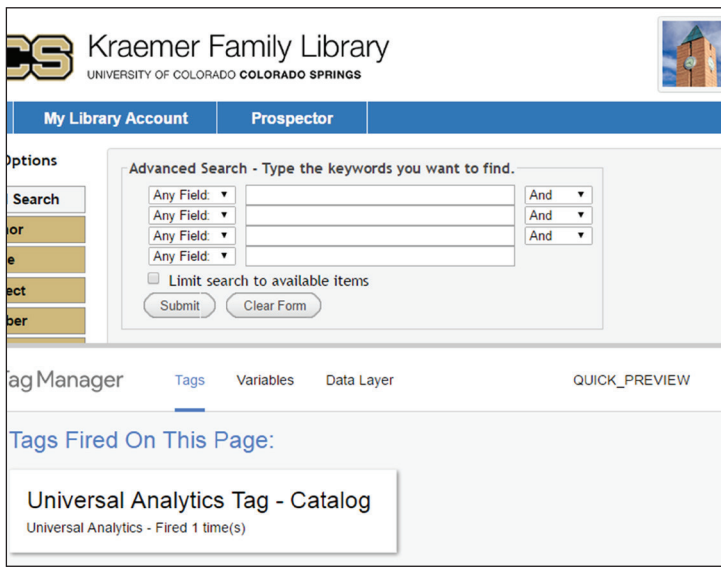


Figure 2.2
Google Tag Manager debug window, Google Tag Manager, University of Colorado Colorado Springs

but you can also create and add your own custom scripts. The trigger tells the tag it should fire (or run) on a specific web page or action based on if the variable (some value) is true. This may sound complicated, but the GTM administrative interface is fairly easy, with a point-and-click functionality that walks you through the entire process. All you have to know is what you want to track and when you want to track it.

No matter what type of online tool you are tracking, the first tag you should always create is a Google Analytics tag to sync your Google Analytics account to your GTM container. This connects GTM to your Google Analytics account. To do this, go the Tags area within your GTM container and click on the New button. Once on the new tag screen, name your tag to help organize your tags. Use whatever naming convention makes sense for your library.

Next, select Google Analytics as your product. This will give you an option to choose either Universal Analytics (`analytics.js`) or Classic Google Analytics (`ga.js`). By now, you should be using Universal Analytics because it has more advanced features and reports than its predecessor. Select Universal Analytics and click Continue. Add your Google Analytics Tracking ID number. It should look like UA-xxxxxxx-x (figure 2.1). If you do not have it memorized, you can easily find this information within your Google Analytics account. You will be using this Tracking ID number a lot, so I recommend creating a custom GTM variable to store this number for reuse.⁴

Select Page View for Track Type, and you can ignore display advertising features, more settings, and advanced settings for this tag. Click Continue, and you will reach the Fire On section, which contains the trigger options that tells the tag when to run. Since we are adding the Google Analytics tracking code, you will most likely want to track every web page on which the GTM container snippet appears, so select All Pages for this tag.

And you are done! Click the Create Tag button and relax . . . but not for too long because you still need to publish this change to your GTM container before it takes effect. GTM is a tag management system, so you edit, test and debug, and save different versions of your containers all within the GTM site.

Click on the Publish button within the GTM interface to publish your container. If you already added the container snippet to your website, publishing the container automatically pushes those updates to your web-

site so that Google Analytics tag is now live. If you are using a newly created Google Analytics Tracking ID number, it will take Google Analytics roughly twenty-four hours to start displaying data in its reports.

Additionally, you can click the down arrow next to the Publish button to select the Preview and Debug option to determine if your tags work as expected. Simply select this option and open your website in the same web browser. As your browser loads your website's web page, the GTM debug window (shown in figure 2.2) will open at the bottom of the screen and list the tags that fired and the ones that did not. Again, the GTM container snippet must already be added to your website in order for this to work. Your newly created tag should be firing, so can you publish your changes knowing it is working.

Creating Events in Google Tag Manager

You successfully created your first GTM tag to sync your Google Analytics to your website! Next, you should focus on tags for those useful Google Analytics events.⁵ Recall that an event is any user action that cannot be automatically tracked by Google Analytics. Common events are clicks on outbound links (links that navigate users away from the website), document downloads, and other script-based features. Previously, if you wanted to collect data associated with these events, you needed to add Google Analytics' event-tracking script to each event you wanted to track. GTM replaces this tedious process with a simple event tag—no direct editing of your website's code required. Before you create an event tag, you should have a good understanding of how GTM triggers and variables function so you can leverage their full capability.

Triggers

Triggers tell the GTM tag when to fire and collect data. Currently, GTM allows for seven types of triggers: Page View, Click, Form Submission, History Change, Custom Event, JavaScript Error, and Timer.⁶ For example, a Page View trigger is useful when a tag needs to be fired as a user loads a specific web page. To create a trigger, select the trigger type and add the conditions to make the trigger fire. In the case of the Page View trigger, you can select all web pages, or you can define the web page or web pages based on the unique identifier within the page's URL. If you are not familiar with regular expressions (Regex), this is a good time to learn because it is an excellent method for defining unique strings for the different trigger types. I recommend LunaMetrics' *Regular Expressions for Google Analytics* as a great starting place.⁷

System and User-Defined Variables

Recall that variables are just pieces of data that are stored or collected by GTM. GTM variables are easy to identify because they always use double curly brackets to indicate a variable (e.g., {{variable name}}). GTM comes with a series of built-in system variables you can enable in the container's Variables section. For example, {{Click URL}} is a system variable that has GTM collect the URL of the web link a user clicked and this URL will be displayed in your Google Analytics reports. Another useful system variable is {{Click Text}}, which collects the web link's text when a user clicks on it. Google provides excellent documentation for all its system variables,⁸ but GTM can send Google Analytics even more data with User-Defined (custom) variables. With a little bit of scripting knowledge,

you can capture any data point on your site you can uniquely identify.

Creating an Outbound Link Event Tag

Creating an event tag takes only a few minutes if you know what event you want to track and how you want to track it. In the Tag section of your GTM container, follow these steps to create an outbound link event tag:

1. Click on the New button in the Tag section of your GTM container.
2. Name the new tag. For this example, I am creating an outbound link event, so I name this tag Outbound Link Event.
3. Under the Choose a Product section, select Google Analytics. As with your first tag, select Universal Analytics. Click the Continue button.
4. Add your website's Tracking ID number. This might seem redundant since you already created the tag to sync your Google Analytics account to the GTM container, but you will repeat this process with each new event tag because it connects the event data back to your Google Analytics account.
5. Since this is an event tag, change the Track Type from Page View to Event. This will display the event tracking parameters where you can add information for the event's category, action, and label.
6. You can ignore most of the other event options, but you should fill in the event's Category, Action, and Label boxes as shown in figure 2.3 on the following page. Both the category and action are names I chose to describe those options, while the label uses the GTM system variable {{Click URL}}. Each time this event tag is fired, it will report these data points in Google Analytics Event reports.
7. Under the Fire On section, select the Click option because this tag requires a Click-based trigger to fire only on clicks to outbound links.
8. Select the New button on the Click Triggers pop-up window.
9. Name your new Click trigger. I called mine Outbound Link.
10. Under Configure Trigger, select Just Links as the Targets. This will look only at clicks on web links rather than any element on the web page.
11. Deselect Wait for Tags and Check Validation options—these are useful for testing but increase web page load time as it waits for the tags to load.
12. Under the Fire On options, select Some Clicks because this tag should fire only on clicks to outbound links.
13. Finally, you get to define an outbound link for this trigger. I define an outbound link as any link not within the website I am tracking. In this example, my library website is <http://www.uccs.edu/library>. Any site that does not contain the string

uccs.edu/library in its URL is considered a separate website. In GTM, this translates to the system variable {{Click URL}} Does Not Contain uccs.edu/library as shown in figure 2.4. I also removed mailto (e-mail) links as those are tracked in a separate event tag.

14. Click the Create Trigger button to create and save the new trigger in the GTM container.
15. This takes you back to your Outbound Link Event tag with the Outbound Link trigger added to it. Click the Save Tag button to finish this process.

You will repeat this process with different event parameters and triggers for each event you want to track on a website.

Testing Your Tags

I have witnessed individuals using great GTM tags but bypassing the testing phase only to find out later that some tags were not working as planned. One setting could be off in a variable or trigger that causes the tag to track the wrong data, which leads to bad data in your Google Analytics reports. This is unfortunate because it is not possible to delete specific data within your Google Analytics account. Rather than suffer needlessly, take the time to test your tags! I recommend a two-step process: first to determine if the tag is firing properly, and another test to ensure it is collecting the correct data.

The first test was already mentioned—use GTM’s preview mode before publishing the new container version. This will tell you if the tag is firing as planned. After you ensure your tags are firing properly, open up the Real-Time reports in your Google Analytics account. For event tag testing, you can use the Real-Time Event report to see what data your event is collecting while still in the Preview and Debug mode. This minimizes the potential of collecting wrong data. If you are happy with your event data, you can confidently publish the changes to your GTM container. Within twelve to twenty-four hours, that new data will be available in your Google Analytics reports.

Conclusion

Before you start tracking events in GTM, you should create a list of events you want to track for each

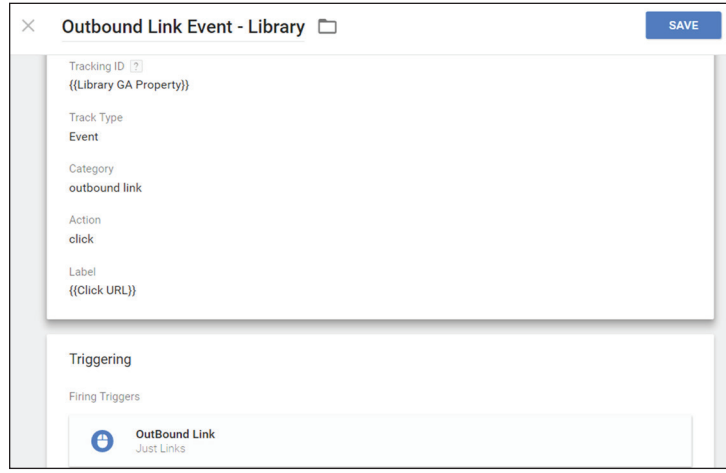


Figure 2.3
Outbound link tag, Google Tag Manager, University of Colorado Colorado Springs

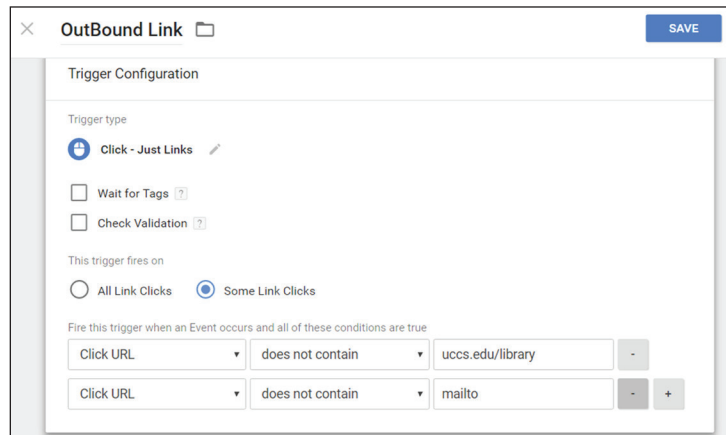


Figure 2.4
Outbound link trigger, Google Tag Manager, University of Colorado Colorado Springs

website. New event tags can be added at any time in the GTM container, but planning will help you standardize the naming convention for your event categories, actions, and labels, which will keep your data reports cleaner. It will also help you think strategically about what insights you want to gain from the data.

Notes

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Other Resources

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- “Welcome to the Google Tag Manager Help Center,” Google Tag Manager Help, accessed February 29, 2016, <https://support.google.com/tagmanager>.

Improving Google Analytics for Journal Search and Link Resolver Tools

Journal search tools and link resolvers (OpenURL resolvers) are widely used online library tools that connect searchers to electronic content such as journal articles, e-books, and streaming media. Typically, these are considered two separate services: a journal search tool allows users to search or browse a library's online journal collection, while a link resolver connects users to the full text of a specific item. Although they are two different tools, understanding how users interact with your library's link resolver and journal search reveals how your users find full-text content and helps identify potential problems in the search process. It makes sense to add Google Analytics to track the usage of these tools. This chapter highlights how to install Google Analytics using Google Tag Manager (GTM) for journal search and link resolver tools and recommends useful Google Analytics features to enhance the data collection process.

Why Install Google Analytics?

Installing Google Analytics on a journal search tool is just as useful as tracking the use of any other search tool, such as the library catalog. You can see how users search and find journals. The advantage of adding Google Analytics to your link resolver may not be as obvious since some link resolvers automatically take users from a vendor database to the full-text source without ever seeing an intermediary link resolver web page. But your link resolver does more than just connect users to full text. If the link resolver fails to find a full-text option, it may

send the user to a web page where the user can use alternative solutions to obtain full text. You can use Google Analytics to measure the effectiveness of your link resolver web page in connecting users to other full-text options.

Installing Google Tag Manager on Your Link Resolver or Journal Search

Adding the GTM container snippet depends on your journal search/link resolver platform. If you can edit the templates to customize the tool's interface, you should be able to add the GTM container snippet. This chapter is too brief to discuss installing GTM on every platform, so I will demonstrate this process using ProQuest's (Serials Solutions) 360 Link and E-Journal Portal (360 Core).

You must have administrative access to your library's account in the Serials Solutions Client Center to add the GTM container snippet. Once you log in to the Client Center, go to the Administration Console for your 360 Link. For the original 360 Link, select the Branding Options under the 360 Link tab and add the GTM container snippet to the Header section. This Header section places the code right after the opening of the body tag (<body>), which is the ideal location for GTM installation.¹ For libraries using Link 2.0, go to the Link 2.0 tab and select the Non-Sidebar Pages Branding Options, which controls the web page displayed when the link resolver fails to find full text or if your library uses the 360 Link results page. Currently, adding the GTM container

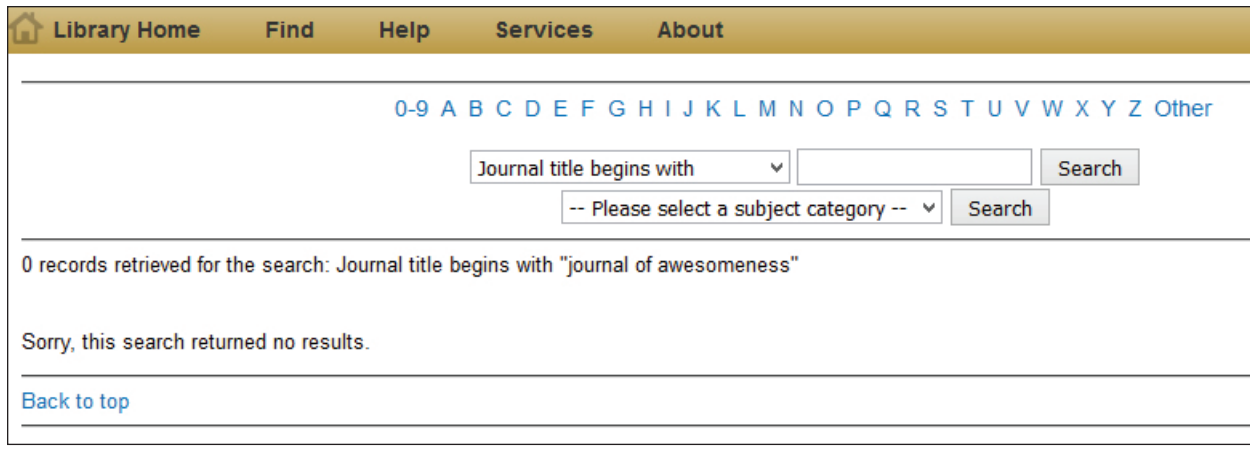


Figure 3.1
No results page, Journal Search, University of Colorado Colorado Springs

snippet to the Non-Sidebar Pages Header box is the best option, but not perfect because it places the tracking code in a div tag (<div>) near the top of the web page. While it is not ideal, I have found this still works fairly well.

Serials Solutions Client Center

<https://clientcenter.serialsolutions.com/CC/Login/Default.aspx>

Adding the GTM container snippet to ProQuest’s E-Journal Portal is fairly easy—just go to the Administration Console under the 360 Core section in the Client Center. Select Branding Options and add the GTM container snippet to the Header box to add the code right after the opening body tag. Libraries using the E-Journal Portal 2.0 can either add the container snippet to the Header box under Branding Options or load it using an external JavaScript file.

Potential Events to Track Using Google Tag Manager

Event tracking allows you to collect data on user actions not automatically tracked by Google Analytics—think outbound links, forms, and script-based features on a website.² Tracking clicks on outbound links is particularly important for journal search tools and link resolvers because their purpose is to connect the user with electronic content that libraries subscribe to through various content providers. These tools push users to click on outbound links to get full-text content. The previous chapter describes how to create a GTM outbound link event tag. You can follow those steps, but you may want to organize outbound links into different event categories to separate

resource links (outbound links to electronic resource providers) from other outbound links to library services (help or interlibrary loan services). It depends on how you want to analyze your data. Each new event category will have its own GTM event tag.

Zero Results Search Event

While outbound links should be the first event you track on your journal search or link resolver, there are other useful events to track, such as searches that return zero results. Creating a zero results search event is extremely useful because Google Analytics reveals what users do when this issue occurs. Do they exit the site, or do they continue to search?

Tracking a “zero results” event is possible in GTM as long as you can identify when a search has zero results. Figure 3.1 shows a no results message from my library’s journal search. The only indicator that no results were found is within the web page’s text, which states: “0 records retrieved for the search” or “Sorry, this search returned no results.” In GTM, you will need to create an event tag that fires when that error message is displayed. This requires two tags: one to track the event, and the other to recognize the event occurred.³

First, you need to create a new custom variable that will read the text of the results web page as outlined in these steps:

1. In your GTM container, go to the Variables section and select the New button under the User-Defined Variables.
2. Select the DOM Element option. This allows GTM to search through the actual code on your site to identify specific content.
3. Name the new variable, and remember it for later because you will use it again. I called mine ResultsPageText.

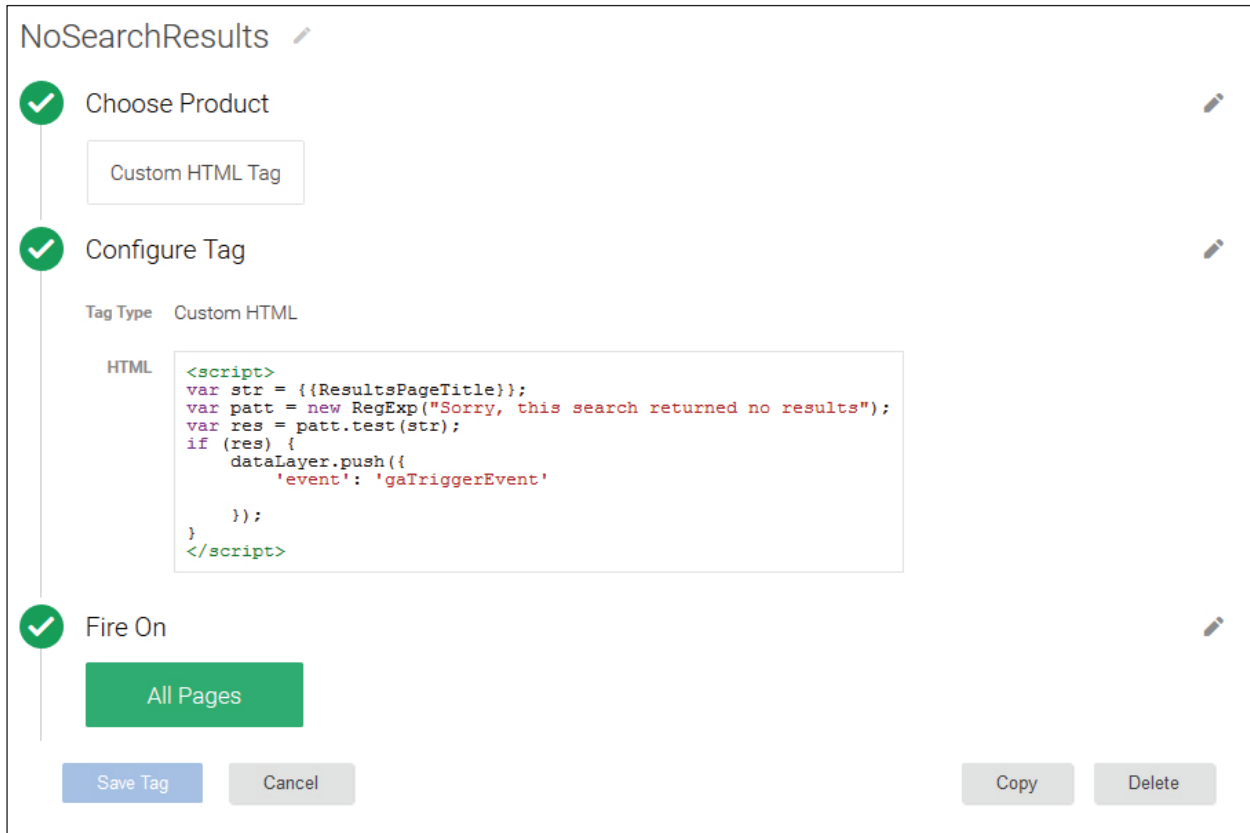


Figure 3.2 NoSearchResults custom HTML tag, Google Tag Manager, University of Colorado Colorado Springs

4. For the Selection Method, choose ID.
5. Enter the Element ID. This is the unique ID attribute used to identify where the error message text is located within the web page's HTML code. In my example, the error message was found in a div tag with the ID attribute bodycopy (<div id="bodycopy">).
6. Skip the Attribute Name and save the variable.

Next, create a Custom HTML tag to monitor for the event. Go to the Tags section in your GTM container and follow the steps below:

1. Click the New Tag button and name the tag. I named mine No Search Results.
2. Select the Show More option and choose the Custom HTML Tag. This is a versatile option that allows you to add any script to your GTM container.
3. Next, you need to add a script that recognizes when the error message "Sorry, this search returned no results" appears on the page. Figure 3.2 shares the script I used that searches for the error message (a text string) in the Dom Element variable (ResultsPageText) that we just created. If the

error message is found within the site's text, the script pushes the event name (gaTriggerEvent) into the data layer for GTM to recognize and capture additional data points.⁴ The data layer is a powerful, advanced GTM feature, and for more details see Google's Analytics Academy's Google Tag Manager course.⁵

4. Have this tag fire on All Pages and click Save.

The last step in the process of tracking a zero result search event is to create the event tag to record the event data! To do this:

1. Click the New Tag button and name the tag. I named mine No Journal Results Event (figure 3.3).
2. Select Universal Analytics and enter your Universal Analytics Tracking ID number.
3. Select Event as Track Type and enter the desired event category, action, and label.
4. For the Trigger, select the More button and choose Custom Event.
5. Name the Custom Event Trigger.
6. Add the event name you pushed into the data layer in your Custom HTML tag. I called mine gaTriggerEvent so I will use it again here.

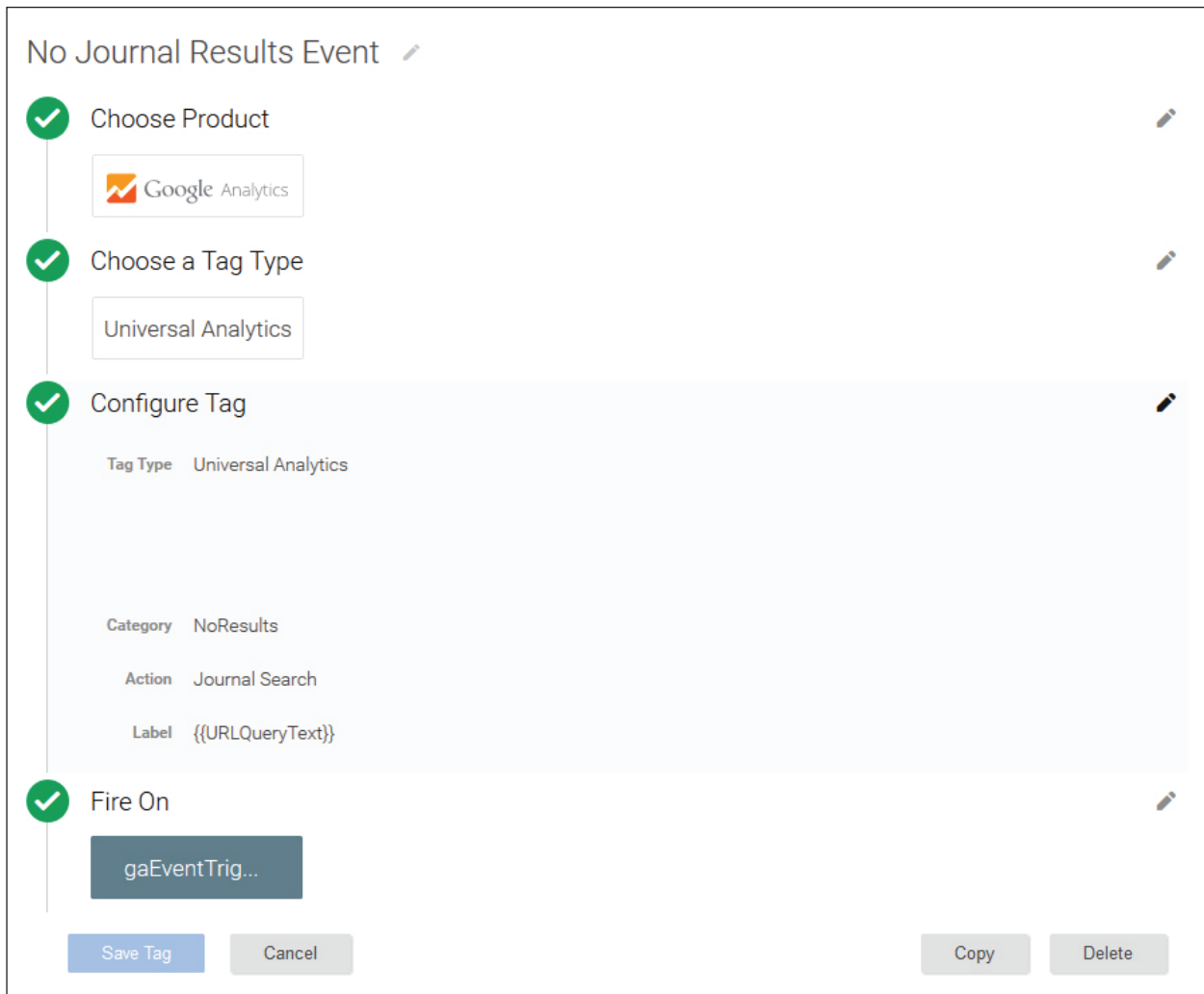


Figure 3.3
No journal results event tag, Google Tag Manager, University of Colorado Colorado Springs

7. The trigger will be: Event equals `gaTrigger-Event` (or whatever event name you used) as shown in figure 3.4 on the following page.
8. Save the new trigger.
9. Save the new event tag.

Before you publish your changes to the GTM container, use the GTM Preview and Debug mode and Google Analytics Real-Time reports to test if your changes are working properly. Publish the container when you are ready.

Configuring GTM to track a zero results search event was a complicated process, but it pays off within twelve to twenty-four hours when that useful data is available in Google Analytics Events reports. The Top Events report will show the number of times users get the zero results error message, and the Events Flow report will reveal how often the no results page is the last page users see before exiting the site. I found that

over half of my journal search users who see that no search results message leave the site after hitting that wall!

Enhancing Google Analytics Data for Your Journal Search or Link Resolver

So far all of our customizations were made in the GTM container, but there are still a few features, including site search and conversions, that you should enable in your Google Analytics account to provide you with even more useful data. You must be an administrator in your Google Analytics account to enable these features.

Google Analytics
<https://analytics.google.com>

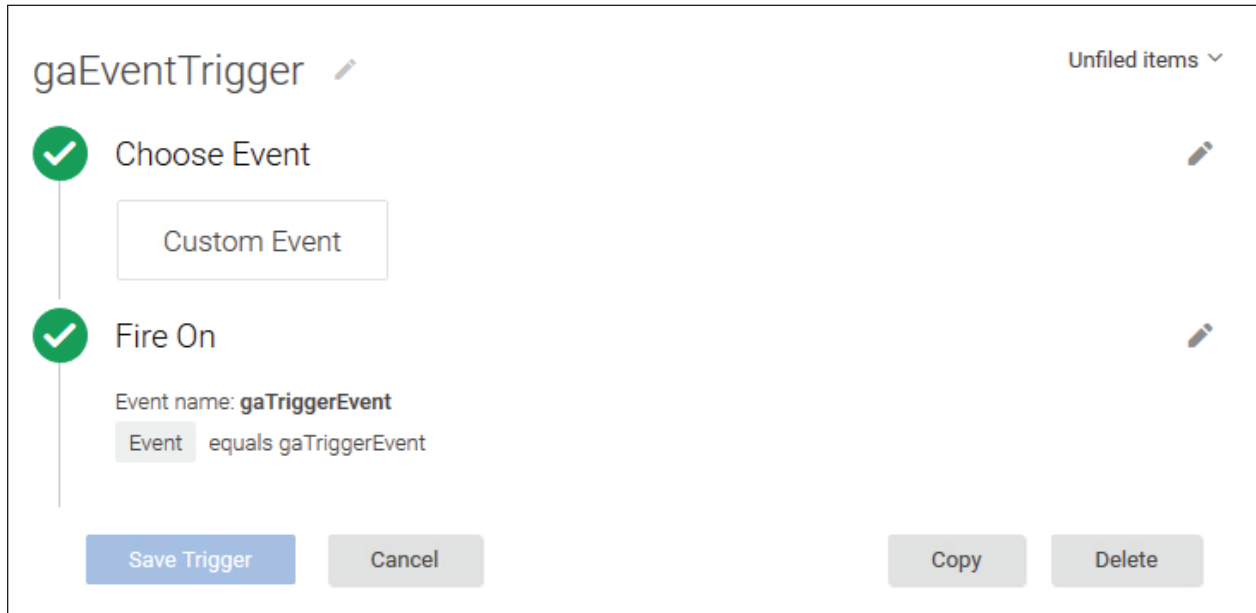


Figure 3.4
gaEventTrigger Trigger, Google Tag Manager, University of Colorado Colorado Springs

Site Search

Site Search is a Google Analytics feature that tracks the use of a website's search box and reports the number of searches, the search terms entered, and other search-related data from that site. By default, site search is disabled, but you can turn on Site Search Tracking found in the View Settings option in Google Analytics' Admin area. Next, enter your site's Query Parameter, which is the unique identifier your website uses to indicate a search. The easiest way to find your site's Query Parameter is to do a quick search on your website and analyze the results web page's URL. Using my library's journal search tool, I did a quick search on the word *biology*, and here's the results web page's URL:

```
http://du5zf7mh8h.search.
serialssolutions.com/?V=1.0&N=100&L
=DU5ZF7MH8H&S=AC_T_B&C=biology
```

Notice that my search term (*biology*) in the URL? If I isolate that parameter segment, it looks like `C=biology`, so my site's Query Parameter is `C`. Now any search terms in the `C` parameter will be collected and reported as search terms in my Site Search reports.

You can also turn on Site Search Categories to add category parameters that records when users use different search types or facets. My library's journal search offers four search types: *title begins with*, *title equals*, *title keyword*, and an ISSN search. Each of these search types is different, and Google Analytics can report their usage if you provide the Category Parameter that identifies them. Again, you can find this unique parameter by doing a search on your

website. Here are the two resulting web page URLs for a search on *biology*, but the first URL is a *title begins with* search and the second one is a *title equals* search:

```
http://du5zf7mh8h.search.
serialssolutions.com/?V=1.0&N=100&L
=DU5ZF7MH8H&S=AC_T_B&C=biology

http://du5zf7mh8h.search.
serialssolutions.com/?V=1.0&N=100&L
=DU5ZF7MH8H&S=AC_T_M&C=biology
```

They are nearly identical except in one area: `S=AC_T_B` versus `S=AC_T_M`. In this case, `S` is the Category Parameter, and the two other variables indicate the search types: *title begins with* (`AC_T_B`) and *title equals* (`AC_T_M`). You can add multiple Category Parameters if your journal search has more facets for users to refine their search. To identify those, use the various facets in a search and again analyze the results web page's URLs to find what makes those searches unique and add those Category Parameters to the Site Search Tracking options.

After enabling Site Search, data will start to appear in the Site Search reports found under the Behavior section within twelve to twenty-four hours. Site Search reports provide great user data including the average number of search results' pages viewed after a search and average time users spend exploring the results pages. It also provides search terms and search types (if you added Category Parameters). Using Site Search, I found that 20 percent of searches on my library's journal search tool failed because the

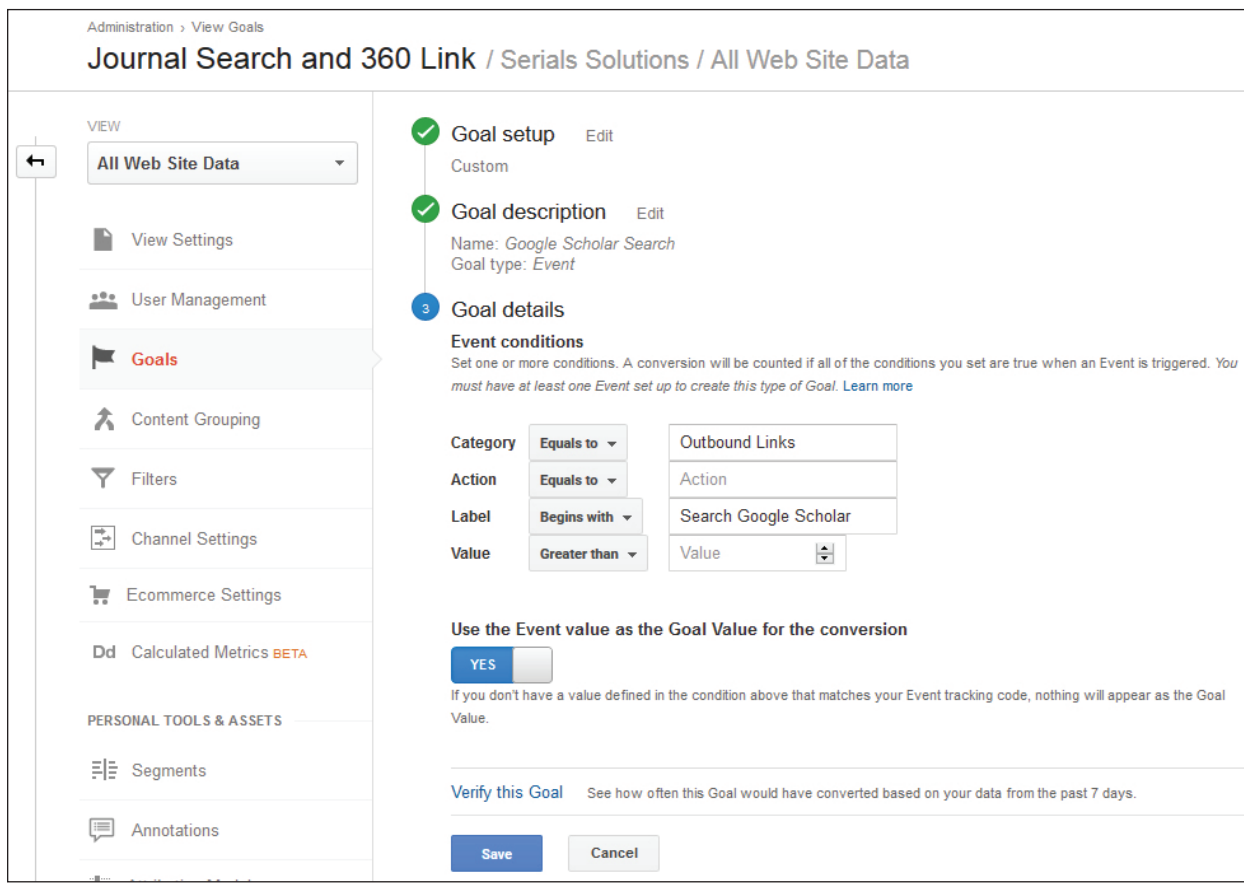


Figure 3.5 Google Scholar conversion configuration, Google Analytics, University of Colorado Colorado Springs

user entered a journal article title rather than the journal name. That is definitely a usability concern!

Conversions

Conversions are those powerful metrics that measure the desired actions on a website and help measure the success of your website. Overall, the main purpose of a journal search or link resolver website is to connect users to electronic resources, so the primary conversion is a user clicking on an outbound link to an electronic resource. To create this conversion, go to the Goals section in Google Analytics' Admin area and create a new goal. Since you should be tracking any outbound link as an event, you can create an event goal type and use the electronic resources outbound link event details (category, action, or label) to identify that specific outbound link. This example is demonstrated in figure 1.3 in chapter 1 of this issue of *Library Technology Reports*.

Another useful conversion is tracking if the user selects an alternative solution when the link resolver

fails to find full text. In my library, the link resolver's no results web page offers users an option to request the full text via interlibrary loan or search Google Scholar. Both of these options have the potential to assist the user in finding full text, which also accomplishes the site's purpose. Since both the interlibrary loan and Google Scholar options are still outbound links, they are tracked as events using the same GTM event tag, but I use the GTM system variable `{{Click Text}}` for the event label, so the two options are easily distinguishable! To configure this event type goal, I used the event label to identify Google Scholar outbound link events in this conversion (figure 3.5).

After implementing, it takes twelve to twenty-four hours for conversion data to appear in Google Analytics Goal reports found under the Conversions section. For example, I can see that nearly 75 percent of my journal search sessions contain a click on an electronic resource outbound link, 6 percent use Google Scholar, and 4 percent use interlibrary loan. That accounts for nearly 85 percent of sessions, which indicates a high rate of search success.

Conclusion

Having Google Analytics track link resolver and journal search tools provides additional user search data so you can better understand how users interact with these tools. Taking the extra step to track essential events, enable site search, and configure conversions requires you to be more intentional about the data you want to collect, but overall gives you a robust data set to help your library better understand searcher behavior.

Notes

1. “Quick Start Guide,” Google Tag Manager, accessed February 29, 2016, <https://developers.google.com/tag-manager/quickstart>.
2. “About Events,” Google Analytics Help, accessed February 29, 2016, <https://support.google.com/analytics/answer/1033068?hl=en>.
3. This method is based on Chris Berkley, “How to Track Site Searches with No Results Using Tag Manager,” *DragonSearch* blog, June 10, 2015, <https://www.dragonsearch.com/blog/site-searches-no-results-tag-manager>.
4. “Reference,” Google Tag Manager for Web Tracking, accessed March 17, 2016, <https://developers.google.com/tag-manager/reference>.
5. “Google Tag Manager Fundamentals,” Google Analytics Academy, accessed February 29, 2016, <https://analyticsacademy.withgoogle.com/course05>.

Customizing Google Analytics for the Library Catalog or Discovery Service

Libraries invest in their online library catalogs and discovery services because they are websites designed to help users search and locate library resources. Adding Google Analytics to these online tools is not a new concept, but as they become more complex, it becomes more important to customize Google Analytics to collect the data needed to evaluate these platforms. This chapter discusses implementing Google Tag Manager (GTM) on a library catalog or discovery service and recommends a few other Google Analytics customizations for improved data collection.

Why Add Google Analytics to Library Catalogs and Discovery Services?

Many online library catalogs and discovery services come with their own internal usage tools that report types of searches and other useful data, so why bother adding Google Analytics at all? I never recommend adding Google Analytics on any website to simply replicate data you can already gather from another source. Instead, you should utilize Google Analytics to expand on that data. Google Analytics specializes in providing user behavior data (how users interact with a website) and offers sophisticated custom features to allow you to track the data you find valuable. Adding Google Analytics to a library catalog or discovery service should enhance those internal usage reports.

Implementing Google Tag Manager on a Library Catalog or Discovery Service

Chapter 2 of this issue of *Library Technology Reports* discusses the benefits of implementing GTM to any website. This section highlights installing the GTM container snippet on your online catalog or discovery service, which depends on the functionality of your system. Most online catalogs or discovery services have an administrative back end where you add the GTM container snippet to either a specific template web page or a setting option, but check your tool's documentation for the best place to install GTM. For example, Innovative Interfaces' Millennium and Sierra systems use a template-based system where you can add the GTM container snippet directly into the banner section of the catalog's website using the `toplogo.html` template. Placing the GTM container snippet at the beginning of that template will inject the GTM container snippet in the ideal location—right after the opening of the body tag (`<body>`).

If your online catalog or discovery service has no direct access to the website's code, you may have to be more creative on implementing GTM. For example, ProQuest's Summon product has an administration console that manages the tool's interface and settings. While Summon supports adding Google Analytics, it offers only a text box for the Google Analytics Tracking ID number within the administration console.

Currently, there is no direct option to add the GTM container snippet. However, Summon allows you to add a single external script to your Summon site. You can use this option to load other scripts, including the GTM container snippet, to Summon. I used this option to add a script that loads the GTM container snippet right after the opening body tag on my library's Summon website. While this solved how to install GTM on Summon, it introduced another issue—getting GTM to work on a dynamically generated site.

Google Tag Manager and Dynamically Generated Sites

Websites that use a script to dynamically generate content may not automatically work with GTM. Not sure how your catalog or discovery service loads content? Add the GTM container snippet to your catalog or discovery website. Next, create your Universal Analytics tag in your GTM container to sync your Google Analytics to your GTM container. Enter GTM's Preview and Debug mode and open your catalog or discovery service website in the same web browser. If your Universal Analytics tag fires when you enter the site, but not when you go to a different web page, then your website is most likely dynamically loading content.

Don't panic! Many web applications do not generate static web pages, and ProQuest's Summon is an excellent example of a discovery service that dynamically loads content. A 2014 article discusses how Summon (version 2.0) uses AngularJS to dynamically generate its content and suggests how you can add your own script to customize its interface.¹ The trick is to understand how the discovery service loads content so you can optimize GTM to track it. Summon does not load a new web page as users search or navigate through the system. Instead, it dynamically generates the content with each search, and it creates a new URL string (sometimes referred to as a new URL fragment) to mimic a new web page load. Simo Ahava recommends using GTM's History Change trigger to track these URL fragments as virtual pageviews.²

Virtual pageviews got a bad reputation many years ago because they were used to track outbound links—those should be tracked as events to avoid pageview inflation in your Google Analytics reports! However, using virtual pageviews to track web pages makes perfect sense because it collects “pageview” data for dynamic website applications such as Summon. Virtual pageview data can be used in various Google Analytics reports making it the ideal solution.

Implementing the virtual pageview method in GTM is very easy as you just create a virtual pageview tag and a history change trigger.³ To do this, go into your GTM container, create a new tag, and

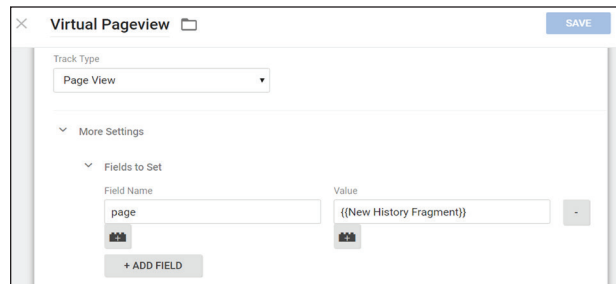


Figure 4.1

Virtual pageview tag, Google Tag Manager, University of Colorado Colorado Springs

1. Name the tag. I called mine Virtual Pageview.
2. Select Google Analytics as the Product and add your Universal Analytics tracking code number.
3. Select Page View for your Track Type.
4. Expand the More Settings option. Under More Settings, expand Fields to Set and click the Add Field button. This area allows you to capture a different data point for Google Analytics' Page metric.
5. In the Field Name text box, you must add a metric or dimension that Google Analytics can recognize. In this case, type in the word *page*. Page is Google Analytics metric for a web page's URL.
6. In the Value text box, add `{{New History Fragment}}`, which is the GTM system variable to capture the URL fragment. If you do not see `{{New History Fragment}}` as an option, you will need to enable it in the GTM Variables area. This tells GTM to collect the URL fragment as Google Analytics' Page metric.
7. Click the Continue button to add a trigger.
8. Under the Fire On options, choose More.
9. Click the New button to create a new trigger.
10. Select the History Change option.
11. Under the Fire On options, select the Some History Change option.
12. Since you want this tag to fire only when the URL fragment changes, you should configure the trigger to fire when the History Source matches RegEx `popstate|hashchange`. This configuration allows the History Source to be either set as `popstate`, which is recognized by most modern web browsers, or `hashchange`, which is used for Internet Explorer browsers.⁴
13. Name and save the trigger to automatically add it to your tag.
14. Save your virtual pageview tag (figure 4.1).

Test the changes to your GTM container in the Preview and Debug Mode and in Google Analytics Real-Time reports to ensure the tag captures the correct data and then publish your container. This tag will fire only when the URL fragment changes in Summon, so it does not track every single “pageview.” For

example, this tag will not collect the session's first pageview because no change history event takes place when the user enters the website. A regular GTM Google Analytics tag will capture that data.

Events to Track for Your Catalog or Discovery Service

Using GTM on your catalog or discovery service simplifies how you track Google Analytics events.⁵ There are many actions you can track as events on online catalogs or discovery services including:

- **Outbound links**—Probably the most useful event because it shows when users connect to content outside of the catalog or discovery service, such as clicking on a link to an e-book.
- **Zero search results**—This event tracks when users get no results in their search. You can see how often it happens and what users do from there.
- **Search facets or limiters**—Use an event to track which search facets are more likely to get used.
- **Request or hold buttons**—You can track when users click on specific buttons (or links) as events.
- **Additional features**—You can set up event tracking for any script-based feature such as chat widgets, text/sms exports, citation generators, e-mail options, permalink creator, browsing shelf widget, and whatever else your catalog or discovery layer contains.

If you feel overwhelmed with all the potential events to track, start with tracking the events that are critical in measuring the success of your online catalog or discovery service. In my library, we consider outbound links to library resources (e-books, streaming videos, or other online content) as one measure for a successful search, but we also consider requests to hold a specific physical item as another indicator. The previous chapters of this issue of *Library Technology Reports* discussed configuring an outbound link event tag and zero search results event tag in GTM. This section will focus on creating an event tag for tracking the clicks on a request or hold button.

Request a Hold Event in III's Sierra

Similar to any library catalog or discovery service, placing a hold on an item in Innovative Interfaces' (III) Sierra online catalog requires the searcher to locate the item in the catalog, click on a request/hold button (or link) for that item, and log into their patron account to associate the request with a user account. The Request a Hold GTM event tag that I propose

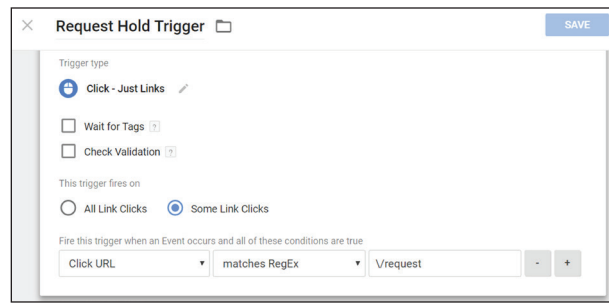


Figure 4.2
Request hold trigger, Google Tag Manager, University of Colorado Colorado Springs

tracks when a user clicks on the request button in my library's online catalog to start the request process. Here are the steps:

1. In your GTM container, create a new tag and name it. I named mine Request a Hold event.
2. Select Google Analytics as the Product and add your Universal Analytics tracking code ID number.
3. Under Track Type, select Event.
4. Add your event category, action, and label. I named mine:
 - category: Request a Hold
 - action: submit
 - label: {{Click URL}} (GTM system variable that records the URL of the request button)
5. Under the Fire On options, select the Click option to create a click trigger and name that new trigger. I named mine Request Hold Trigger. See figure 4.2.
6. Select Just Links for Targets, and deselect Wait for Tags and Check Validation, which are useful for testing tags but can also slow down web page response time.
7. Select Some Links.
8. Enter the unique identifiers for that request button. In my library's catalog, we have two locations for hold buttons: item record and in the search results. Each button functions the same but has a slightly different link, so I created a RegEx statement to include both options based on a unique element in their URL.⁶ My FireOn statement looks like this: Click URL matches RegEx \\/request (figure 4.2).
9. Save the new trigger and save the event tag.

Test your new tag and publish the changes in a new GTM container version. Your new event data will start populating the Google Analytics Event reports within twelve to twenty-four hours. These reports show the total number of request hold events started, where users found that request button, and the items users are interested in requesting.

Enhancing Google Analytics Data for the Catalog or Discovery Service

Within your Google Analytics account, there are a few additional features such as site search, content groups, and conversions you should configure to improve Google Analytics' ability to provide you with great data. You must be an administrator for your Google Analytics account to enable these options.

Site Search

The online catalog or discovery service is designed to help users to search for something. Google Analytics' Site Search tracks when users search your catalog or discovery service website and provides additional user search data not typically included in those internal search reports.⁷ Chapter 3 of this issue of *Library Technology Reports* demonstrates how to enable Site Search, so apply those methods to your catalog/discovery service.

Content Groups

If you already use Google Analytics to track your library catalog or discovery service, you may feel overwhelmed with the Site Content reports because they show every single web page a user views while searching. It is a massive amount of data and difficult to analyze. To manage the chaos, you can use Google Analytics' Content Grouping feature to identify a set of web pages and organize them as a group.⁸ This does not impact how the data is collected, but rather organizes your web pages into useful categories for further analysis. For catalogs and discovery services, Content Grouping can sort web pages into categories such as search types or result pages versus item-level pages. Each Google Analytics' View is limited to five content groupings, but each content group can have as many categories as desired. Also note that groups cannot be deleted in Google Analytics. They can only be turned on and off, so be strategic in how you use them.

In this example, I will create a new content group for the different search types in my library catalog. This data is displayed in the content group report, providing you with more comprehensive search type data.

To create a search type content group, go to the Content Grouping section under the View information in Google Analytics' Admin interface and follow these steps:

1. Click on the New Content Grouping button and name your content group. My example is called Search Types.

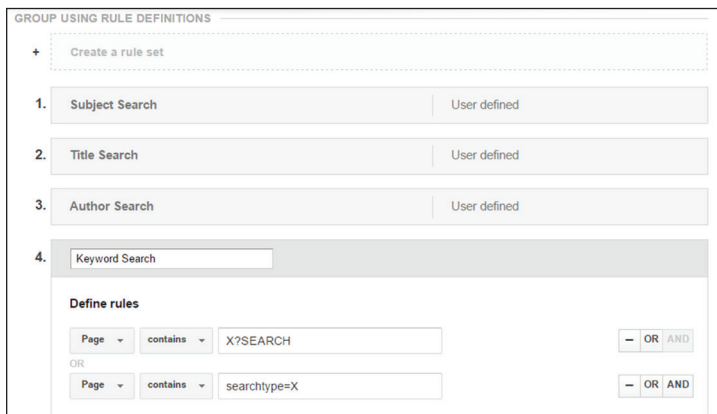


Figure 4.3 Keyword content group configurations, Google Tag Manager, University of Colorado Colorado Springs

2. Click on the Create New Rule Set button. You can group your content using three methods: tracking code, extraction, and rule definitions. I recommend rule definitions because you can identify the desired web pages by their URLs.
3. Name the rule.
4. Define the rules by using elements in the URL, such as the search category parameter unique to that specific search. For example, web pages for keyword searches in my library catalog contain `X?SEARCH` or `searchtype=X` in their URLs. I used those two URL strings to identify keyword related searches as shown in figure 4.3.
5. Click the Done button and repeat steps 2 through 4 for each different search type you want to group. Overall, I created four definitions for my catalog's primary search types: keyword, title, author, and subject. However, you could include any search type your catalog allows.
6. Once you are done adding the search types, save the Content Group.

It takes about twelve to twenty-four hours for the content grouping data to appear in the Google Analytics Content Reports. Once it is available, go to the All Pages report and select the content group as the primary dimension to display the data.

Conversions

Conversions are an essential Google Analytics metric for measuring the success of any online tool.⁹ Library catalogs and discovery services tend to have a similar main purpose: connect users to library resources. How do you measure this? Most likely using those useful events to track various user actions! My library uses specific events such as electronic resource outbound links, holds on physical items, and even exporting

information via e-mail or a citation tool as indicators for a successful search. All of these actions are tracked using GTM event tags for both our catalog and discovery service, so it was easy to create an event type goal (conversion). Need help configuring conversions? The first chapter of this issue of *Library Technology Reports* talks about Google Analytics conversions and goals.

Conclusion

Google Analytics provides a wealth of additional usage data for any catalog or discovery service website, but it depends on how much time you invest to optimize Google Analytics' ability to track these tools. Not only do you need to know what data you want to track, but you should have a good understanding of how your catalog or discovery service website displays content. With this knowledge you can leverage Google Analytics to collect the data you need.

Notes

1. Godmar Back and Annette Bailey, "Hacking Summon 2.0 the Elegant Way," *Code4Lib Journal*, no. 26 (2014), <http://journal.code4lib.org/articles/10018>.
2. Simo Ahava, "#GTMtips: Track URL Fragments as Pageviews," *Simo Ahava's Blog*, October 3, 2015, www.simoahava.com/gtm-tips/track-url-fragments-as-pageviews.
3. "History Change," Google Tag Manager, accessed February 29, 2016, <https://support.google.com/tagmanager/answer/6106961#HistoryChange>.
4. "Popstate," Mozilla Developer Network, accessed March 17, 2016, <https://developer.mozilla.org/en-US/docs/Web/Events/popstate>; "Hashchange," Mozilla Developer Network, accessed March 17, 2016, <https://developer.mozilla.org/en-US/docs/Web/Events/hashchange>.
5. "About Events," Google Analytics Help, accessed February 29, 2016, <https://support.google.com/analytics/answer/1033068?hl=en>.
6. LunaMetrics, "About Regular Expressions," Google Analytics Help, last updated March 8, 2008, <https://support.google.com/analytics/answer/1034324?hl=en>.
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Optimizing Google Analytics for LibGuides

Springshare's LibGuides system is a popular solution for libraries to empower content creators to publish online guides for classes, disciplines or subjects, and other various help topics. Although LibGuides makes it easier to create guides, that does not automatically imply it is easier for the end user to find information. You should assess the use of these guides like any other library website. Adding Google Analytics to your LibGuides provides robust user metrics so that you can better understand guide usage, but it is not without its challenges. This chapter discusses your options for installing Google Analytics on LibGuides and how it impacts assessing data at the individual guide level.

Why Install Google Analytics Anyway?

The standalone LibGuides (version 2) platform has an internal statistics tool within its editor/admin interface that provides basic usage statistics such as pageviews and clicks on certain link types (assets only) at the guide level. The LibGuides CMS platform provides additional metrics for sessions, web browsers, and searches for the entire website. What's missing in the internal LibGuides statistics tool? Basic user engagement metrics, including number of users (versus number of pageviews), time on guide, pageviews per session, and so much more. It also misses how users navigate through your guide and user retention data—do your guide users return to use this guide or use other guides? Additionally, you can track user actions on elements beyond what LibGuides defines as assets.¹ These data points provide a more complete picture of what users do on your guides.

Adding Google Tag Manager to LibGuides

Springshare provides documentation on how to install Google Analytics on various Springshare platforms, including LibGuides. Adding Google Analytics is an admin feature, so if you are a guide editor without admin-level permissions, you will have to work with your LibGuides' admin for this process. However, adding Google Analytics is only a two-step process:

1. Create the Google Analytics account and generate the tracking code.
2. Add the Google Analytics tracking code to the Custom Analytics tab in the Systems Setting area under the Admin menu.

This method works if you want just to add the Google Analytics tracking code, but if you want to use Google Tag Manager (GTM) to add your Google Analytics, there are a few more considerations. The GTM container snippet is designed to be added right after the opening body tag (`<body>`), but the Custom Analytics tab renders that code in either the head tag (`<head>`) section or right before the closing of the body tag. This option works, but you run the risk of missing some data.²

For the data purists that want to maximize GTM's ability to collect data, another option is to add the GTM container snippet to the individual Page Layout Templates found under the Look & Feel section in the Admin area. LibGuides has six web page template types (Guide, Homepage, Search, Subject, Profile, and A-Z) that control how each of those pages display. You can add the GTM container snippet right after the body tag in each of these templates.

Useful Events to Track with Google Tag Manager

Event tracking with GTM is introduced in chapter 2 of this issue of *Library Technology Reports*, so this section suggests specific events to track for a LibGuides website such as:

- outbound links
- e-mail links
- document downloads
- tabbed boxes
- search widgets
- multimedia widgets

This is not a comprehensive list, but it accounts for most LibGuides features you can track with GTM event tags. Outbound link event tags are discussed in chapter 2 of this issue of *Library Technology Reports*, and document downloads will be covered in chapter 6. This chapter will describe how to track the use of tabbed boxes and suggest an easy way to track embedded YouTube videos.

Tabbed Boxes

Tabbed boxes is a LibGuides (version 2) feature that allows content creators to create multiple “pages” of content in one box. This is great for the content creators that love to fill their guides with a lot of content, but it raises the question: do users find and use the content hidden in those tabbed boxes? Tabbed boxes can be tracked as an event to answer that question. This requires a new GTM tag and trigger to track clicks on the tabs. Log into your GTM container and

1. In the Tag section, click on the New button to create the new tag.
2. Name your new tag. For this example, I called it the Tabbed Box Event Tag.
3. Add your Universal Analytics tracking ID number and select Event as your track type.
4. Add the category, action, and label information. In this example, I use
 - category: Tabbed Box
 - action: view
 - label: {{Click Text}} (GTM system variable)
5. For the tag firing options, select Once Per Event to track the click on the tab.
6. Under the Fire On section, choose the Click option to create a new click trigger for this tag so that it fires only when users click on a tab in a tabbed box.
7. Give the new trigger a name. I called mine Tabbed Box Trigger.
8. Select Just Links since the tabs are links.
9. In the Fire On section, select {{Click URL}}, which is a GTM system variable that collects

the URL of the link being clicked. Next, select Contains from the dropdown options and then add #s-lib-ctab- into the text box. Why #s-lib-ctab-? Currently all LibGuides tab links use a similar text string (#s-lib-ctab-) in their anchored links, so this was the easiest way to identify just those tab links.

10. Click the Save Trigger button to go back to your Tabbed Box Event Tag.
11. Click the Save Tag button.

Google Tag Manager

<http://tagmanager.google.com/?hl=en>

Test your new event tag using the GTM Preview and Debug option. If your tag fires as planned, publish the changes to your GTM container to complete the process.

Embedded Media Widgets

Embedded media widgets can be onerous to track as events in GTM because guide editors can use several services, such as YouTube, Vimeo, SoundCloud, or your library’s streaming server, to grab media content to embed in their guides. Currently there is not one seamless method to track all embedded media services in GTM. Instead, you need to understand how the media is embedded and determine how to best capture that data in GTM.

Fortunately, the major media providers are widely supported in GTM. For example, there are many solutions to implement event tracking on YouTube videos. LunaMetrics has a useful plugin you can add to your GTM container to automatically generate the necessary user-defined variables, triggers, and tags that enables event tracking on YouTube videos on your website.³ No additional coding is required on your LibGuides website—just add your Google Analytics ID number to one of the newly created event tags and published your GTM container. It is an easy and robust solution for libraries to adopt.

For libraries that still want to create their own GTM event tags to track YouTube videos, the Cardinal Path website also has a step-by-step guide to walk you through the process.⁴ This is ideal for anyone who wants to learn how GTM actually functions, and it will give you an idea of how to track different embedded widgets from other media providers.

Potential Problems

All of these events rely on knowing the specific code used to identify these events. If this code ever changes (which it most definitely will as Springshare further

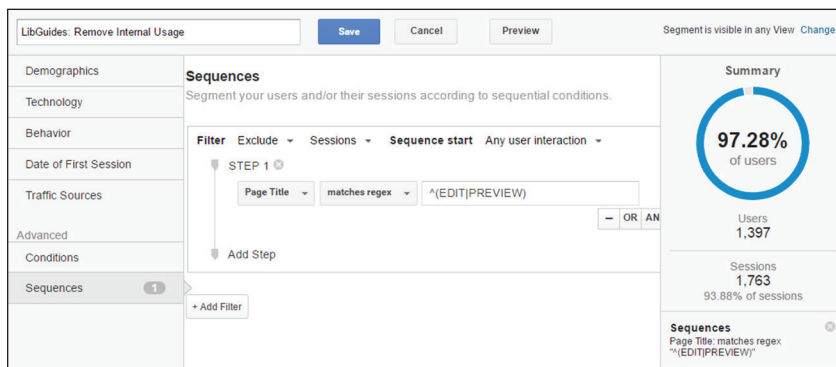


Figure 5.1
Custom segment, Google Analytics, University of Colorado Colorado Springs

develops the LibGuides platform), these event tags will break in GTM. Consider setting an alert in your Google Analytics account to help you monitor your event data. You can set Google Analytics to send you an e-mail notification if an event reports zero data over a specific amount of time. From there, you can test the GTM event tag to determine if it is the event is still firing.

Guide-Level Reports in Google Analytics

Once you configure GTM to track the useful events, the next step is to configure Google Analytics to provide you and all those guide editors with the data. Since guide editors will be interested in data from their individual guides, you must examine the data at the guide level, which requires additional configurations in Google Analytics.

Creating Guide-Level Reports with Custom Segments and Inline Filters

Producing a guide-level report in Google Analytics involves analyzing data from a specific group of web pages for an individual guide. Google Analytics' segments and inline filters hide the unwanted data in a report so you can drill down to web pages just from a specific guide. Segmenting is the ability to temporarily remove data in individual reports within Google Analytics. Every Google Analytics account contains system-generated segments and also allows you to create your own custom segments, which are saved in your user account so they can be applied to most reports at any time. Inline filters are temporary filters that can be found within various Google Analytics reports.⁵ Unlike segments, inline filters cannot be saved, so they are used mainly to quickly sift through report data as necessary.

Creating a guide-level report within Google Analytics is a two-step process. I recommend first creating a custom segment using the Page Title dimension to

remove “internal” usage data and then using the inline filter option to find a specific guide name. I will demonstrate this process by creating a guide-level report in Google Analytics All Pages report.

First, let's create the custom segment to remove any session data from guide editors or administrators that are logged into the LibGuides system so we can focus on actual guide user data. Since this is a feature you will use a lot, it is much more time-effective if you create the custom segment once and apply it as necessary.

You can identify users logged into the LibGuides system by looking at Google Analytics' Page Title dimension, which reports the content in the title tag (<title>) of the web page. When a guide editor or administrator is logged into the LibGuides system, all guide-related web pages will start with the words *Edit* or *Preview* in their title tags. This makes it easy to identify those internal use pages. To create this custom segment, follow these steps:

1. Click on Add Segment option close to the top of most reports.
2. Click the new segment button and name the segment.
3. Select Conditions under the Advanced options.
4. Select Sessions and then Exclude, which removes selected data. Next, select Page Title and the Matches RegEx option and add a RegEx snippet that looks like `^ (EDIT|PREVIEW)` as shown in figure 5.1.⁶
5. Save the new custom segment.

Next, go to the All Pages report under the Site Content reports in Google Analytics' Behavior section. The All Pages report shows all web pages that have been viewed on a website and their basic usage metrics such as number of pageviews and average time users spent on the page. By default, this report displays web pages by their URLs (Google Analytics' Page dimension). This is not the optimal way to view LibGuides' web pages because a single guide web page could have two or more associated URLs due to LibGuides' friendly URL feature. For example, when you create a guide page in LibGuides, that page is automatically assigned a system-generated URL (like `http://libguides.uccs.edu/c.php?g=223497&p=1480509`), and the guide editor can opt to give that same page a friendly URL (such as `http://libguides.uccs.edu/cite`). Both links takes users to the same web page, but one URL is much easier to read. Since there are two URLs assigned to that web page, Google Analytics treats this single web page as two separate web pages if you

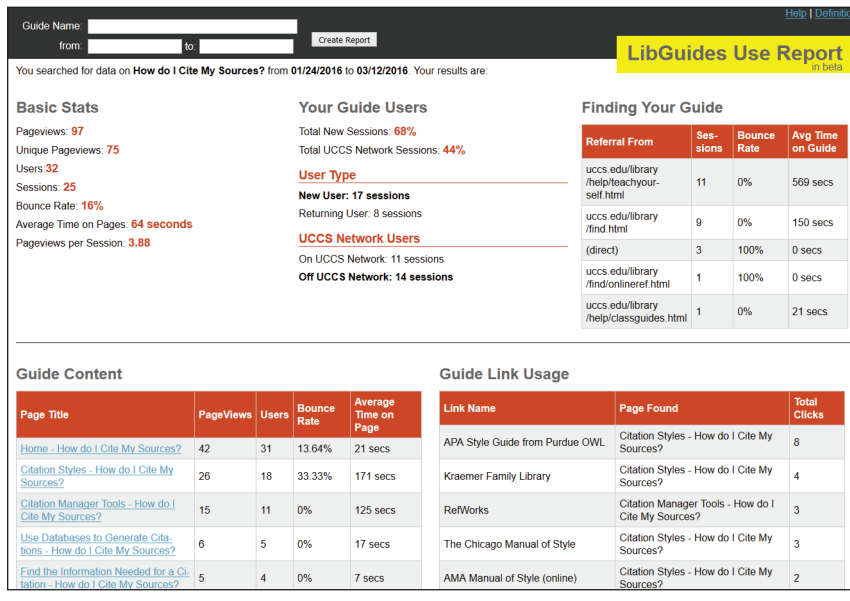


Figure 5.2 LibGuides usage tool that uses the Google Analytics API, University of Colorado Colorado Springs

analyze data with the Page dimension. Switching the All Pages report's primary dimension to the Page Title dimension fixes this issue because each guide web page has one title tag to identify it.

Now that the All Pages report is using the Page Title dimension, you can apply your new custom segment to remove that internal session data if you have not already done so.

Since LibGuides uses the guide's name as the start of the title tag, the final step is to use an inline filter to search for a specific guide name to create a guide-level report. With the Page Title set as the primary dimension in the All Pages report, you can just add the guide name to the inline filter box and click the search button to quickly filter to that guide's web pages.

Is using the Page Title dimension perfect? Absolutely not, because it relies on the title tag never changing. When a guide editor renames a guide, it creates a new title tag and generates a separate Page Title in Google Analytics reports, making it difficult to compare guide usage over extensive periods of time. This is unavoidable due to the nature of Google Analytics and LibGuides. Currently, there is not an easy solution for this problem, but it is better to understand this "flaw" to best accommodate it rather than not collecting the data at all.

Getting the Guide-Level Reports to Guide Editors

If you found the process of creating a guide-level report difficult or just too time-consuming, imagine

how your guide creators would feel having to go into Google Analytics to create these reports themselves. They most likely would not even bother with the process.

So how do you get all of this useful data to the people that need it without forcing them to use Google Analytics? Google Analytics has a few options, including exporting the reports or using the Google Analytics API to build your own statistics tool. Exporting the reports requires you to create scheduled e-mail exports of the guide-level report that are sent to the guide editors.⁷ This process is time-intensive for you to set up and can still be confusing to the guide editors because they still need to interpret what the data means—this is actually the

hardest process in web analytics.

The other option is to use the Google Analytics API to create a custom analytics dashboard for your guide editors to access (figure 5.2).⁸ This takes time to design and build but creates a great opportunity to discuss the data options and features with guide editors to ensure you design reports that are usable and useful in their decision-making process.

Conclusion

Adding Google Analytics to your LibGuides website requires planning and additional configurations to get the most out of the user data. However, it is well worth the extra time because Google Analytics provides more in-depth usage data and reports that reveal how users are interacting with these online guides. Sharing this useful information with guide editors is essential to improve their ability to make more user-friendly guides.

Notes

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Implementing Google Analytics for a Consortial Digital Repository

Greg Vogl, Yongli Zhou, Daniel Draper, and Mark Shelstad

Digital repositories are platforms that allow libraries to make scholarly content publically available. With a few advanced features, Google Analytics via Google Tag Manager (GTM) can provide you with the ability to gather statistics on the use of these resources and reveal how users access and navigate a repository website. This case study uses the Digital Collections of Colorado digital repository consortium to describe these essential Google Analytics and GTM features to create useful and sharable Google Analytics reports for other libraries to consider for their digital repositories.

Google Tag Manager

<https://tagmanager.google.com>

Digital Collections of Colorado

<https://dspace.library.colostate.edu>

Why Install Google Analytics on a Digital Repository?

Many major digital repository systems come with their own internal usage reports built in. DSpace

is the digital repository platform used in this case study, and it offers several internal usage report features.¹ It also supports adding Google Analytics for additional site usage tracking.² Before you jump on the Google Analytics bandwagon, note that it does not replace your repository's internal usage reports, especially the reports involving file downloads. Since repository content is often discoverable outside of the repository website, Google Analytics may not be able to track that usage. For example, if a user directly opens a PDF file from your repository's collection via an external source (such as Google Scholar or another website), your repository software may load the PDF file directly without the Google Analytics tracking script. Hence, Google Analytics will not recognize that download even if it is tracked as an event.³ The statistics from your repository system are more likely designed to capture and report all file downloads.

Despite its limitations, adding Google Analytics to your digital repository is recommended because it expands on the data already collected in those internal usage reports. Google Analytics is a robust and free digital analytics tool that generates a series of standard and custom usage and user reports. When used with GTM, Google Analytics can easily capture more data to enhance its reporting abilities.

All the authors of this chapter are affiliated with Colorado State University and contribute to the Digital Collections of Colorado project. Greg Vogl is a Middleware and Web Developer in Academic Computing and Networking Services. Yongli Zhou is the Digital Repositories Librarian. Daniel Draper is the Digital Repositories Unit Coordinator. Mark Shelstad is Coordinator for Digital Collection Services.

Configuring Google Tag Manager and Google Analytics for DSpace: Digital Collections of Colorado Case Study

The Digital Collections of Colorado (DCC) is a consortium of seven academic institutions and one publisher in Colorado. The members include mainly public universities throughout the state with varying populations and missions: Colorado State University, Colorado State University-Pueblo, Colorado School of Mines, Colorado Mesa University, University of Colorado Anschutz Medical Campus, University of Colorado School of Law, University of Colorado Colorado Springs, and the University Press of Colorado. Colorado State University, referred to as CSU, hosts the repository and provides technical and administrative support to the other consortium members. In 2015, the DCC migrated to DSpace 5, which was configured to include a collection structure for each affiliated institution and its subsequent content collections (e.g., articles, books, reports, theses and dissertations, images, sound recordings, moving images, and datasets). Since the DCC is a consortium system, its usage reports must be available for the whole system and segmented into individual reports by the institution.

Implementing Google Tag Manager on DSpace

GTM is a script management system that integrates with Google Analytics to enhance its data collection ability. We opted to use GTM over the traditional Google Analytics tracking method in DSpace because GTM can easily track events and custom dimensions and metrics for Google Analytics. It also requires little action from DSpace system administrators, since the only code added to the DSpace server is the GTM container snippet, and all other Google Analytics scripts are handled through the various GTM tags, triggers, and variables. We loaded the GTM container snippet via a separate JavaScript file. This injects the GTM container snippet right at the start of the body tag (<body>). This is not ideal since loading GTM through an extra file slightly reduces performance, and tracking may fail in rare cases where the file does not load before the user interacts with the page. However, we found this option still highly functional.

JavaScript file for loading GTM container snippet
<https://dspace.library.colostate.edu/static/js/ga-manual.js>

Since we have two instances of the digital repository (DSpace and DSpaceTest), we created two GTM

containers so each DSpace instance has its own container snippet. All GTM customizations were tested on the test server and then exported and imported to the GTM container for the live server.

Creating Custom Dimensions for DSpace

A Google Analytics dimension is a text string, such as page title or URL, while a metric is a numeric value, such as the number of pageviews or bounce rate. Google Analytics comes with many built-in dimensions and metrics, but it allows you to create custom dimensions and metrics to capture and report additional useful data points.⁴ Sound complicated? GTM greatly simplifies this process as it captures custom dimensions and metrics via simple tags and user-defined variables. We will demonstrate how to collect custom dimensions using GTM.

For this case study, our custom dimensions are based on the various text strings within the breadcrumb navigation used on the DCC interface. This breadcrumb navigation contains several data points, including the institution and collection name on each web page. By collecting these data points as custom dimensions, we are able to create usage reports at the institution and collection level.

Creating a custom dimension is a two-step process, so we first added the custom dimensions to our DSpace's Google Analytics account. Adding custom metrics or dimensions is an administrative feature. Go to Google Analytics' Admin section to find the Custom Definitions option under the Property section and follow these steps:

1. Select Custom Dimensions and click the New Custom Dimension button.
2. Provide a name for the desired custom dimension.
3. Select the Hit option since this custom dimension should be tracked at the pageview level.
4. Save the new custom dimension.

You can ignore the series of JavaScript examples Google Analytics automatically generates. Instead, remember the assigned Index number to that custom dimension—this will be used later in GTM to sync the custom dimension to the data point found on your repository website.

Overall, we created five custom dimensions based on the different breadcrumb navigation levels: Institution, Breadcrumbs, Collection, BreadcrumbCount, and CollectionTopLevel. After adding the custom dimensions to our Google Analytics account, the next step is to build the GTM User-Defined Variables to capture the breadcrumb navigation text from our repository website as a custom dimension. To do this, go to the Variables section in your GTM container (within the GTM website). Here is the process we used:

1. Click the New button under the User-Defined Variable section.
2. Name the variable. We used the same labels as the custom dimensions added to our GA account.
3. Select the Custom JavaScript option.
4. Enter the script that identifies and captures the data related to this custom dimension. We used jQuery because DSpace already uses that JavaScript library. This script identifies the breadcrumb navigation segment and returns that segment's text or a "not set" response if the breadcrumb is not present. Here is the script we used to capture the institution level breadcrumb segment:

```
function() {
var c = jQuery('ul.breadcrumb li');
if (c.length < 2) return 'not set';
var u = [
'Auraria Library',
'Colorado Mesa University',
'Colorado School of Mines',
'Colorado State University, Fort
Collins',
'Colorado State University, Pueblo',
'Open Textbook Library',
'University of Colorado Anschutz
Medical Campus',
'University of Colorado Boulder,
William A. Wise Law Library',
'University of Colorado Colorado
Springs',
'University Press of Colorado',
'University Tester - CSU'
];
var cu = jQuery('ul.breadcrumb li:nth-child(2)').text().trim();
return jQuery.inArray(cu, u) == -1 ?
'not set' : cu;
}
```

5. Save the variable.

We created a new custom JavaScript variable for each custom dimension we previously added to Google Analytics—figure 6.1 demonstrates the institution custom dimension as a User-Defined Variable in GTM. This example highlights five different custom dimensions, but you can have as many as twenty custom dimensions per Google Analytics' property. Other potential custom dimensions include using GTM variables to collect Dublin Core metadata elements (e.g., `dc.title` and `dc.type`) to analyze repository usage based on specific items.⁵

To test whether a GTM variable is being set as expected, select the Preview and Debug option from the Publish menu. In the same web browser, navigate to your repository website to see the GTM debugger window load at the bottom of the page. Within the GTM debugger window, click the Page Load message



Figure 6.1
User-defined variable for institution custom dimension, Google Tag Manager, Colorado State University

in the left sidebar and click the Variables tab at the top to view the values of each variable. If everything looks good, publish the changes to the GTM container.

Using Google Tag Manager to Track Events in DSpace

GTM also greatly simplifies how Google Analytics tracks events on websites. If you are unfamiliar with Google Analytics' event tracking, a Digital Library Federation's analytics working group published a report that describes this process,⁶ and chapter 2 of this issue of *Library Technology Reports* demonstrates event tracking using GTM. You should definitely track events on your digital repository website because there are many useful events to analyze including search and advanced searches, search facets or navigation features, any interactive features such as streaming videos, and of course, downloads.

Creating a Download Event Tag

Understanding how and when users download content from a digital repository is extremely useful especially if you associate all those great custom dimensions with that download event. This provides you with more data to analyze your digital repository within Google Analytics. The following section describes creating a GTM event tag to track file downloads along with the custom dimensions we previously made.

1. Click on the New button in the Tag section of your GTM container.
2. Name the new tag. We called it Downloads Event.
3. Under the Choose a Product section, select Google Analytics and then select Universal Analytics. Click the Continue button.
4. Add your website's Universal Analytics' Tracking ID number. We used a User-Defined Variable

called `{{gaPropertyID}}` to store our tracking ID number. This process is documented on the GTM Help website.⁷

5. Select Event as the Track Type since this is an event tag.
6. Add the category, action, and label information for this event. Our category was simply called downloads, while the action and label uses GTM variables. Action uses a User-Defined Variable we created called `{{FileType}}`, which is a custom JavaScript variable to retrieve the file extension from the URL of the clicked element (figure 6.2). Label uses the GTM system variable `{{Click URL}}` to record the link the user clicks.
7. Expand the More Settings option to add the custom dimensions. You can add as many custom dimensions you wish to associate with this event activity. In the Index text box, add the Index number Google Analytics assigned to that specific dimension. In the Dimension Value text box, add the matching GTM User-Defined Variable you created to capture the custom dimension. Click the Continue button when you are done adding your custom dimensions.
8. Under the Fire On Options, select the Click option to create a click trigger so the downloads event occurs only when a user clicks on a file link.
9. This will pop open the Create Trigger box where you name the new click trigger. We named ours Download Link Click.
10. Select Just Links as the Targets option.
11. If you want GTM to provide more time for the tag to fire, leave the Wait for Tags and Check Validation options checked. This is completely optional, but if you do use these features it may slow down your repository website's response time since all necessary GTM tags must load on the web page before the file downloads. Additionally, you must complete an additional step to define when GTM should watch for these clicks. Under the Enable When area, select Page URL and matches RegEx. In the textbox add the RegEx (regular expression): `.*`. This tells GTM to monitor all links on your repository website for a file extension.
12. Click the Continue Button and under the Fire On section, select the Some Clicks options.
13. Set the trigger conditions by selecting the GTM system variable `{{Click URL}}`. Next, select matches RegEx. In the text box, add the RegEx string to match the various file extensions your digital repository contains. We included the most common file extensions so our RegEx string was very comprehensive as shown in figure 6.3.



Figure 6.2
FileType user-defined variable, Google Tag Manager, Colorado State University

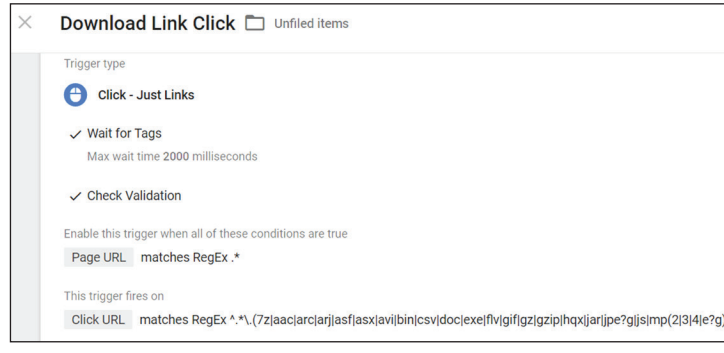


Figure 6.3
Download link click trigger, Google Tag Manager, Colorado State University

14. Save the new click trigger.
15. Save the download event tag.

Test your new tag in the Preview and Debug Mode and publish it when you are ready. Within twelve to twenty-four hours of publishing, your Google Analytics Event reports will show this new data. Additionally, you will be able to use any of those added custom dimensions as a secondary dimension in your Events reports to further analyze the data— figure 6.4 demonstrates Google Analytics Event report with the `CollectionTopLevel` custom dimension as a secondary dimension.

Using Google Analytics Custom Reports for Creating and Sharing Reports

Custom dimensions and metrics are useful Google Analytics enhancements when combined with Google Analytics custom reports. Custom reports allow you to use custom dimensions as primary dimensions and then select a handful of other metrics to create useful reports. For example, we were able to create a report for the number of download events for the different institutions, as shown in figure 6.5.

Creating a custom report is simple: just click on the Customization tab within Google Analytics. Select the metrics and dimensions you wish to view. Add any

Event Category ?	CollectionTopLevel ?	Total Events ?	Unique Events ?	Event Value ?	Avg. Value ?
		20,820 % of Total: 100.00% (20,820)	6,498 % of Total: 67.55% (9,620)	0 % of Total: 0.00% (0)	0.00 Avg for View: 0.00 (0.00%)
1. Downloads	CSU Archives and Special Collections	1,376 (6.62%)	428 (5.75%)	0 (0.00%)	0.00
2. Community Collection	CSU Archives and Special Collections	1,345 (6.47%)	195 (2.62%)	0 (0.00%)	0.00
3. Downloads	CSU Theses and Dissertations	1,231 (5.92%)	832 (11.18%)	0 (0.00%)	0.00
4. Downloads	CSU Departments and Schools	1,155 (5.56%)	641 (8.61%)	0 (0.00%)	0.00
5. Community Collection	not set	973 (4.68%)	467 (6.28%)	0 (0.00%)	0.00
6. Downloads	Theses & Dissertations	888 (4.27%)	572 (7.69%)	0 (0.00%)	0.00
7. Community Collection	CSU Theses and Dissertations	873 (4.20%)	128 (1.72%)	0 (0.00%)	0.00
8. Downloads	Library Special Collections, Archives	867 (4.17%)	129 (1.73%)	0 (0.00%)	0.00

Figure 6.4 Event report with CollectionTopLevel (custom dimension) as a secondary dimension, Google Analytics, Colorado State University

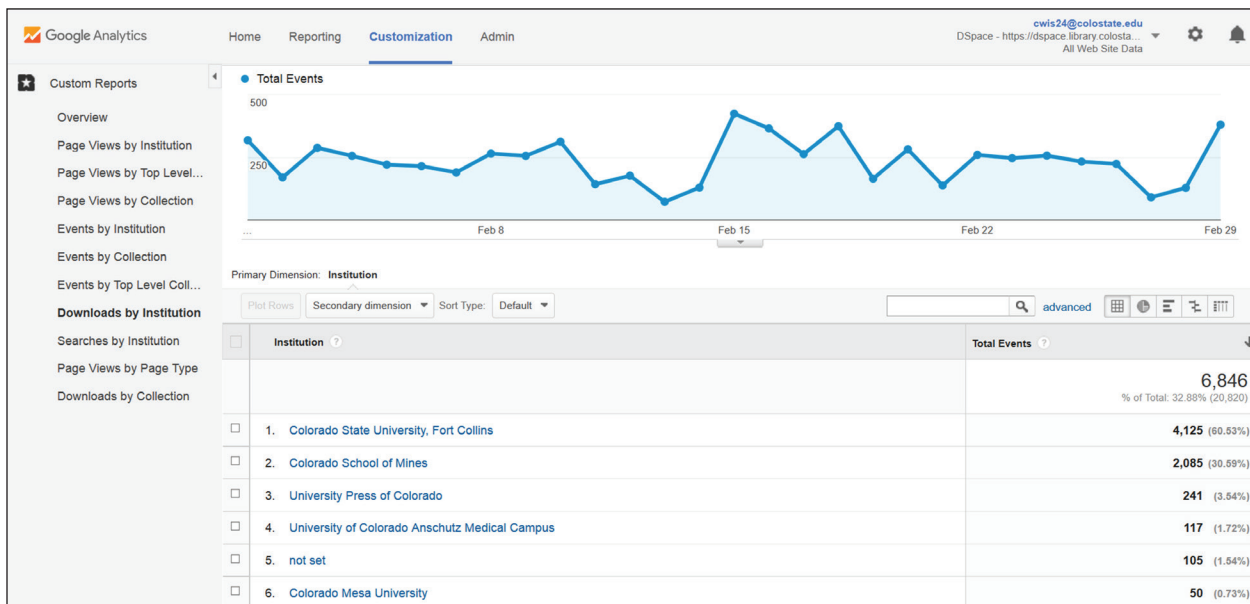


Figure 6.5 Custom report, Google Analytics, Colorado State University

filters that are necessary to drill down to the relevant data. Save the report, and your new custom report is stored within Google Analytics. Figure 6.6 on the following page depicts the configurations for the Downloads by Institution custom report that used Total Events as the metric and two custom dimensions: Institution and CollectionTopLevel. Then we added a filter to look only at events that used the download event category.

The final step is to get these reports to the different institutions that need them. Google Analytics provides several export and sharing options, such as

scheduled e-mails and shortcut links.⁸ You can even use these options to create custom dashboards within your Google Analytics account. Custom dashboards allow you to add several standard or custom reports to one location as shown in figure 6.7. You can share a lot more data in one scheduled e-mail or shortcut link using a custom dashboard report.

Conclusion

Google Analytics and GTM provide great flexibility to

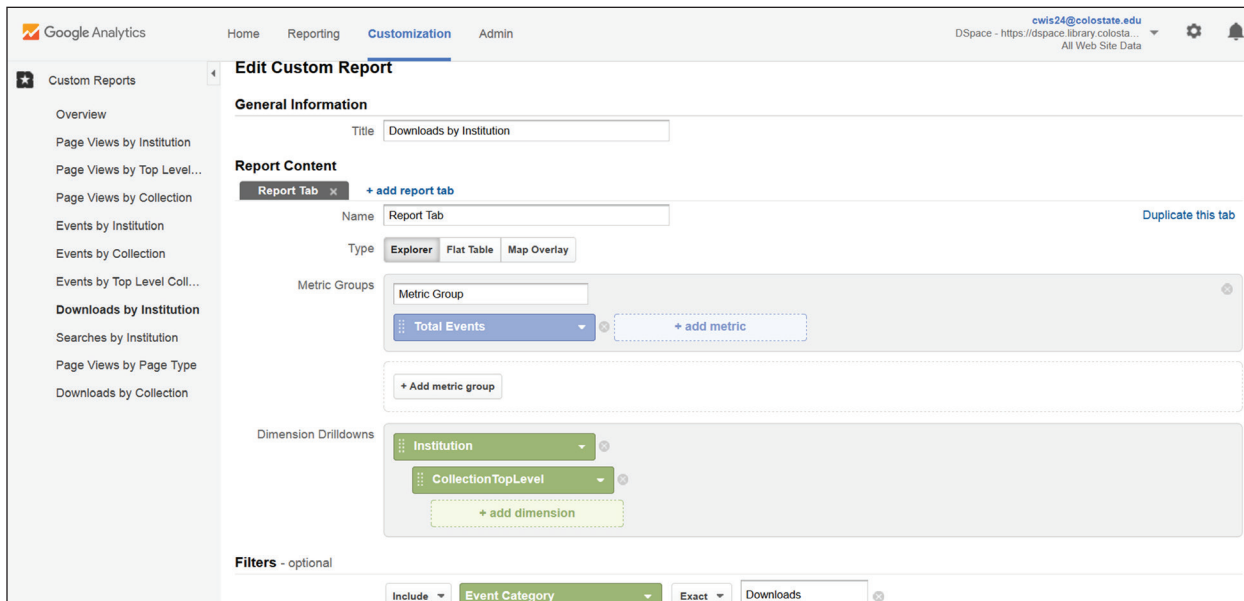


Figure 6.6
Custom report configuration, Google Analytics, Colorado State University

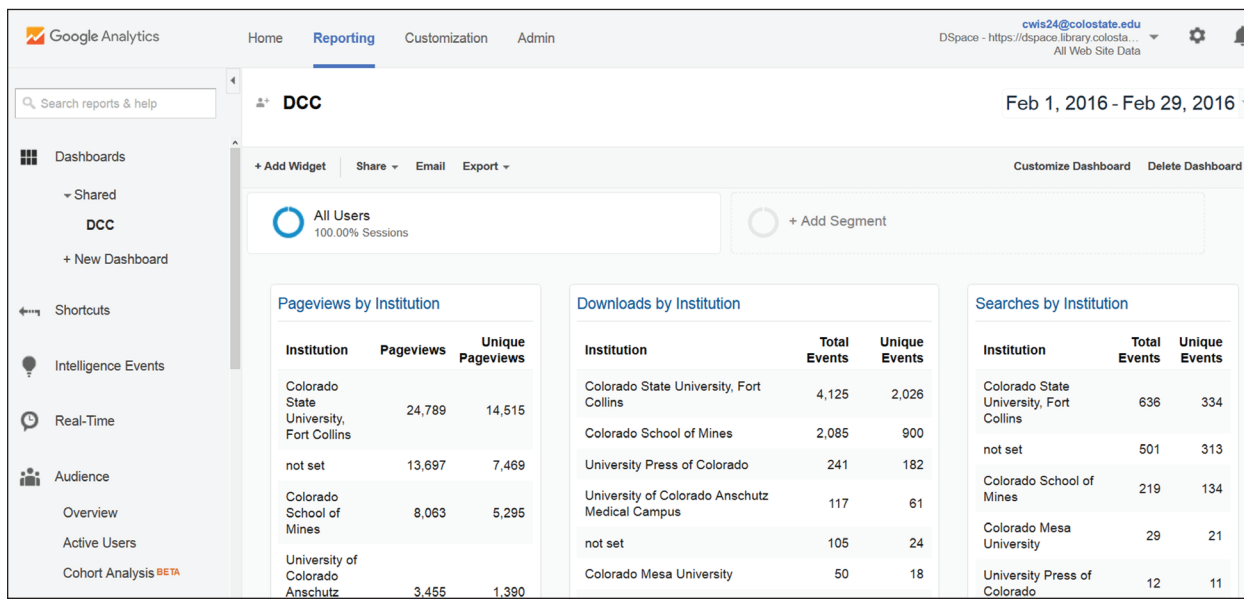


Figure 6.7
Custom dashboard, Google Analytics, Colorado State University

collect and report additional usage data through their customization options and advanced features, but libraries need to be strategic on how they implement these tools on their digital repositories. It is important to create an assessment plan before implementation and thoroughly test your customizations to ensure you are getting useful data. Once you have that data, share it with the people that need it.

Notes

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Additional Resource

“Website Analytics,” Colorado State University Libraries, accessed March 9, 2016, <http://libguides.colostate.edu/analytics>. This online guide includes extensive documentation of the Google Tag Manager and Google Analytics configurations used for the Digital Collections of Colorado in DSpace.

Measuring the Success of Your Social Media Presence with Google Analytics

Joel Tonyan

Whether you want to increase the number of your followers, drive social media users to your library's website, or improve event attendance through social media marketing, clear goals are essential to a successful social media strategy. How will you measure these goals? Social media platforms such as Facebook and Twitter offer built-in metrics for measuring the effectiveness of your social media presence. These platform-provided analytics collect invaluable demographic data about your followers and how they engage with your channels. If you are not already monitoring these built-in analytics, it is time to start.¹

Although these platform-provided metrics are indispensable, they alone do not provide a comprehensive view of how users engage with your library's social media accounts. Facebook Insights, for instance, records how many times your followers click a link to an event registration web page on your library website, but it cannot tell you if they actually registered for the event. This is where Google Analytics comes in. With some simple customizations and basic technical knowledge, you can configure Google Analytics to provide a wealth of data about your social media channels, including how much traffic they drive to your website and what those social media users do on your website. This chapter highlights useful Google Analytics social media reports and discusses the importance of using campaign URLs to measure the success of your social media marketing.

Joel Tonyan is the Systems and User Experience Librarian for the University of Colorado Colorado Springs. An avid social media user, he maintains his library's social media channels and chairs its marketing committee. His research interests include social media, marketing, and analytics.

Installing Google Analytics for Tracking Social Media

To get started, you will need a free Google Analytics account, and it is highly recommended you use Google Tag Manager (GTM) to manage how Google Analytics tracks social media traffic to your various library websites and online tools. The GTM container snippet is not installed on your social media websites. Instead, it should be added to each website you want to monitor for incoming social media traffic—for instance, your library website, online catalog, LibGuides, and so on. Refer to chapter 2 of this issue of *Library Technology Reports* for specifics on how to generate and install the GTM container snippet.

Google Analytics
<https://analytics.google.com>

Google Tag Manager
<http://tagmanager.google.com/?hl=en>

Google Analytics Social Reports

Once you configure and add GTM (with a Google Analytics tag) to your website, Google Analytics provides a number of Social reports that focus on users

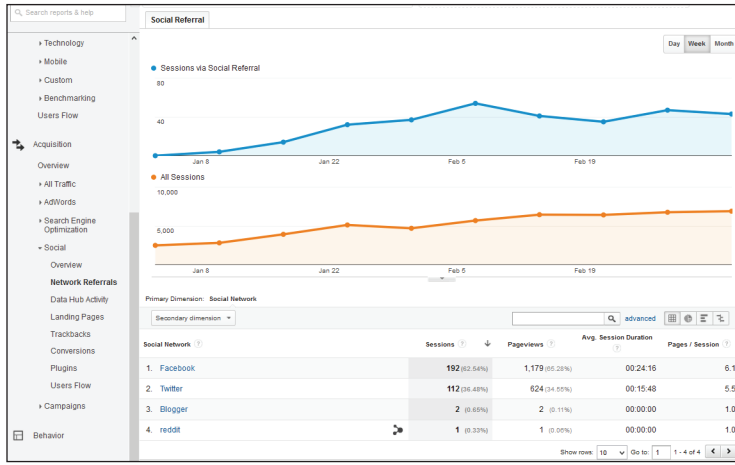


Figure 7.1
Social Network Referrals report, Google Analytics, University of Colorado Colorado Springs

coming to your website from a social media website. Simply navigate to the Acquisition report section in Google Analytics and select Social to view the available reports.

If your aim is to use social media simply to drive traffic to your website, then the Social Network Referrals report (figure 7.1) provides you with the data you need to measure this process. This report lists the social network website that referred users to your website along with the number of sessions and pageviews those users generated, their average session duration, and the average number of pages they viewed per session. Clicking the name of the social network in the report provides a list of the web page links that successfully sent users from a social media post to your website.

Most Social reports are ready to use out of the box, but some require additional customizations to improve their data reporting ability. The Social Users Flow report gives you a pageview-by-pageview account of where social media users go after they land on your website. By default, the Social Users Flow report groups users based on the social network they used to find your website, but it can also group users based on the social media post if you implement Campaign URLs.

Improving Social Media Tracking with Campaign URLs and UTM Parameters

Google Analytics Social reports are not perfect for several reasons. First, Google Analytics accidentally registers some social media referral traffic as direct traffic, which does not appear in the Social reports. How could this happen? This is due to how Google Analytics

differentiates between direct traffic and referral traffic. In web analytics terms, direct traffic occurs when users navigate directly to your website by typing its URL into a web browser or opening a bookmark. Referral traffic occurs when a user enters your website by clicking on a link from another website like Facebook or Twitter. Ideally, all incoming traffic to your website generated by a link would be reported as referral, but if Google Analytics misses the referral website information as the user enters your website, it lumps that “unidentifiable” session into the direct traffic category. This is a common problem with links embedded in e-mails and online documents and routinely associated with shortened URLs, which are popular on Twitter because of its 140-character limit. Another famous offender is smartphone apps (including

Facebook and Twitter) that do not always pass on referral information when users click a link within the app.² All of these links have a high potential to be counted as direct traffic in Google Analytics, making you miss a lot of great social media–related data!

Not only is this frustrating, but Google Analytics Social reports also cannot distinguish between links you share on social media from links from other social media users’ posts. It does not allow you identify the referrals from your own social media posts!

Using Google Analytics’ Campaign URLs is the solution. A Campaign URL is a link that includes UTM (Urchin Tracking Module) parameters to tell Google Analytics to capture more metadata associated with that link. Using links enhanced with UTM parameters for your social media posts ensures any users that click on those links are recorded as social traffic instead of direct traffic—even if users click the link within a smartphone app or from a shortened URL. Additionally, these UTM parameters let you identify your social media posts, making them perfect for measuring specific marketing campaigns in Google Analytics Campaign reports.

How Do UTM Parameters Work?

UTM parameters are placed at the end of any link and do not change the link itself—it still takes users where you want them to go. You simply add the UTM parameters immediately after a question mark in the desired link. Google Analytics recognizes five UTM parameters: `utm_source`, `utm_medium`, `utm_campaign`, `utm_term`, and `utm_content`. Three of these parameters (`utm_source`, `utm_medium`, and `utm_campaign`) are required parameters that must be present within the Campaign URL for Google Analytics to collect the best data.

The campaign source (`utm_source`) is where the traffic to your website originated. For instance, if you share a link to your website on Twitter, then the source would be `twitter`. The campaign medium (`utm_medium`) should list the medium, or the form of communication you used to share your message. For instance, you can post the link on social media, e-mail, and so on. The last required UTM parameter is campaign name (`utm_campaign`) that serves as the unique identifier for the campaign. If you are promoting your 2016 summer reading program, you might use the campaign name `summer-read-2016` to distinguish it from the prior year's campaign name for the same event.

The two optional UTM parameters are `utm_term` and `utm_content`, and they just provide Google Analytics with additional information. The campaign term (`utm_term`) is useful if you are using Google AdWords' paid search that identified specific keywords to trigger an advertisement. You can ignore this option if you do not use paid search for marketing. The campaign content (`utm_content`) allows you to distinguish between similar links and is especially useful for A/B testing. For example, you could create two versions of the same post on Facebook with two different images and could differentiate them by using the `utm_content` parameter to label one as `image-a` and the other as `image-b`. This way you can distinguish between the traffic generated by both posts and identify which one was more effective.

Now that you know your UTM parameter options, here is an example of a Campaign URL:

```
http://libcal.uccs.edu/
booking/groupstudy?utm_
medium=social&utm_
source=facebook&utm_
campaign=studyroom-reservations-
spring-2016
```

Let's break down this long Campaign URL. The `http://libcal.uccs.edu/booking/groupstudy` is the original link to the desired landing page and the `?` indicates the start of the UTM parameters. This example uses the three required UTM parameters. The campaign medium is `social`, which our library uses to identify any Campaign URL listed on a social media website. The campaign source is `facebook` because this specific Campaign URL was shared on a Facebook post. The campaign name is `studyroom-reservations-spring-2016` since it was part of a marketing campaign to promote online study room reservations during the spring 2016 semester.

Campaign URLs tend to be very long, which is annoying to share via social media posts. The quick fix is to use a URL shortening service such as `tinyurl.com`

or `bit.ly` to create a shorter URL. This shorter URL still contains the UTM parameters you added, so Google Analytics is still able to track that data. This makes Campaign URLs useful not only for online marketing, but you can even track Campaign URLs on print flyers! Simply use `print` as the campaign medium when creating the Campaign URL and add the shorter Campaign URL link to your flyer.

Creating a Campaign URL

Google Analytics makes creating Campaign URLs very easy through its form-based Campaign URL builder that generates UTM-tagged links—just enter the URL for the link you intend to share and then add your UTM parameters into the required fields. This generates your Campaign URL for you, so you can just post it.

Google Analytics Campaign URL Builder
<https://support.google.com/analytics/answer/1033867>

However, take care creating your UTM parameters and be consistent in their usage so the campaign data is accurate and easy to compare over time. UTM parameters are case-sensitive and report exactly as they are labeled in the campaign URL. Always use the same terminology to describe the same source, too. Using `twitter` in one link and `twitter.com` in another will result in two separate Twitter-related entries in your Google Analytics reports. Also, do not accidentally use the same UTM-tagged link on another social media channel. If you share the link on Facebook and accidentally leave the campaign source as `twitter`, the data Google Analytics collects and reports will be inaccurate.

If you share social media posting duties with other members of your library, it is helpful to create a spreadsheet to document the controlled vocabulary used to describe the campaign source and medium and give a structure for future campaign names. This is also useful for documenting previous campaigns.³

Viewing Your Campaign URL Data: Campaign Reports and Social Users Flow Report

You can measure the success of specific campaigns using the Campaigns reports found under the Acquisition section in Google Analytics (figure 7.2). In the All Campaigns report, click on a campaign name to compare incoming traffic across different sources and mediums to identify which ones generated the most referrals. You can use this data to guide future decisions about where you concentrate your marketing efforts.

The Social Users Flow report (figure 7.3) visualizes where social media users enter your website and the following web pages they visit, if any. You can modify this report to track the user flow from sessions generated by Campaigns! This makes it possible to

monitor the users from specific social media posts to determine what these users did after they enter your website, including how they navigated your website and where they exited (drop-offs).

While the Social Users Flow report and Campaign

Primary Dimension: Campaign Source Medium Source / Medium Other									
Plot Rows Secondary dimension Sort Type: Default									
Campaign	Acquisition			Behavior			Conversions		
	Sessions	% New Sessions	New Users	Bounce Rate	Pages / Session	Avg. Session Duration	Event Registration Goal (Goal 1 Conversion Rate)	Event Registration Goal (Goal 1 Completions)	Goal 1: Event Registration Goal
	190	42.11%	80	47.89%	2.28	00:02:07	10.53%	20	
	% of Total: 14.45% (1,315)	Avg for View: 59.85% (-29.85%)	% of Total: 10.17% (787)	Avg for View: 38.71% (23.74%)	Avg for View: 2.38 (-3.01%)	Avg for View: 00:02:15 (-5.80%)	Avg for View: 4.33% (142.84%)	% of Total: 35.09% (57)	
1. workshops-spring-2016	155 (81.58%)	38.06%	59 (73.75%)	50.32%	2.26	00:02:03	5.81%	9 (45.00%)	
2. publishing-workshop-spring-2016	28 (14.74%)	60.71%	17 (21.25%)	35.71%	2.57	00:02:11	39.29%	11 (55.00%)	

Figure 7.2 Campaigns report, Google Analytics, University of Colorado Colorado Springs

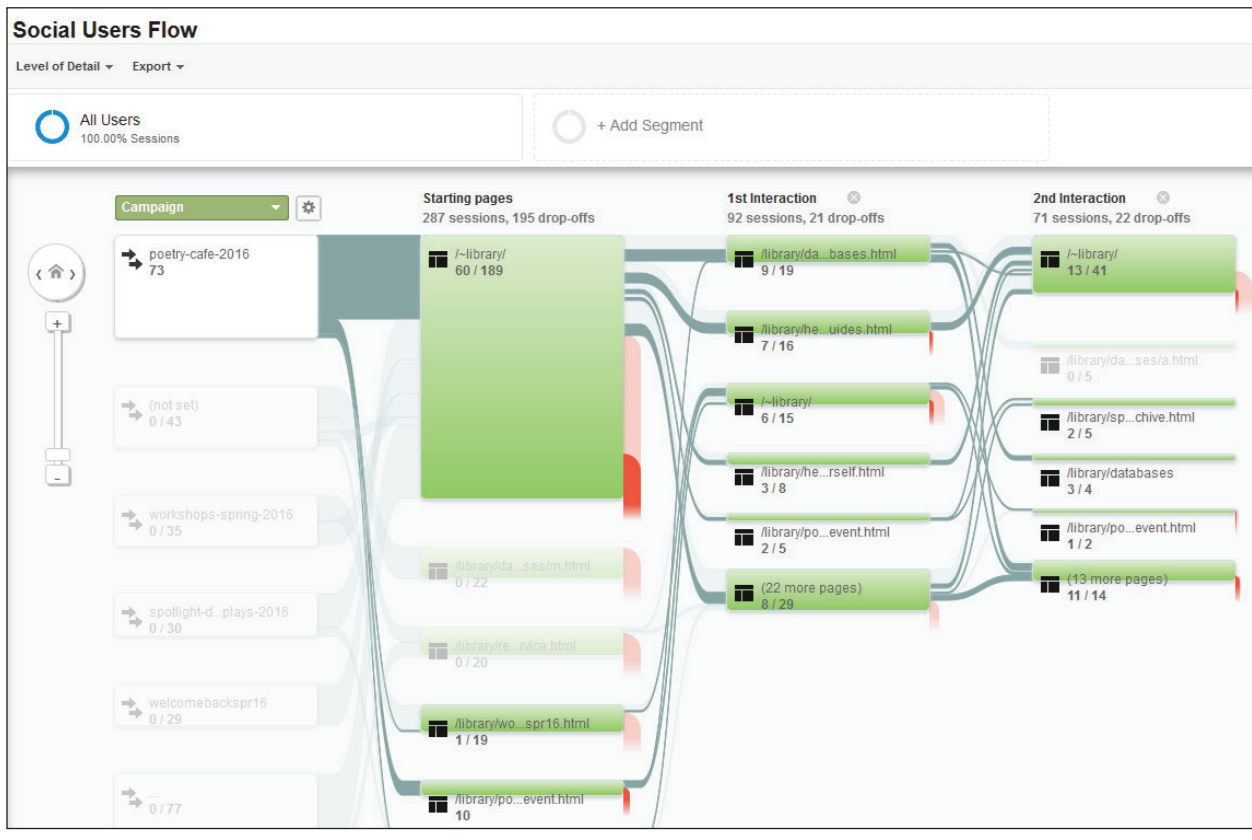


Figure 7.3 Social Users Flow report, Google Analytics, University of Colorado Colorado Springs

reports are useful, the Campaign URL becomes a powerful custom segment for many other Google Analytics reports. Do you want to know if users generated from your Facebook posts return to use your site? You can create a custom segment based on Facebook as the campaign source to analyze just those users in Google Analytics New vs. Returning report.

Measuring the Success of a Social Media Campaign URL

What if you have loftier goals than simply driving social media traffic to your website? For instance, what if you promote a workshop on social media and want to track how many of those users registered for the workshop? Enter conversions! Conversions are any desired action that can be tracked in Google Analytics. If you want to learn more about this useful metric, chapter 1 of this issue of *Library Technology Reports* introduces the concept of conversions. From the social media perspective, you should generate a list of actions you know you want your social media users to do. For example, if you regularly post social media messages about workshops or event activities that require registration, you should track the online registration form submissions as a conversion in Google Analytics.

Since my library uses Springshare's LibCal to manage our library workshops, I will demonstrate this process using LibCal. LibCal creates a unique URL for each workshop, and I convert this link into a Campaign URL before sharing it on my library's various social media presences. The Campaign URL takes users to the workshop web page that has an online registration form for users to sign up for the workshop. The registration form is tracked with a GTM event tag⁴ so Google Analytics records each time a user clicks the registration form's Submit button as an event. My library also tracks that specific event as a conversion because the number of workshop registrations is one of the metrics we use to measure the success of our LibCal website.

Springshare's LibCal
www.springshare.com/libcal

My library already tracks workshop registrations on our LibCal website as a Google Analytics conversion. In order to measure the effectiveness of a social media Campaign URL for marketing a specific workshop, all I need to do is create a Campaign URL for that workshop and post it. Google Analytics All Campaigns report displays data by campaign name, including the total number of conversions and the conversion rate for that workshop registration goal (depicted earlier in figure 7.2). This report can even drill down into that campaign's source so you can tell which social media channel is more effective in marketing these workshops.

Conclusion

If you rely only on the built-in analytics provided by Facebook, Twitter, and other networks, you are missing out on crucial data that can help you gauge how your social media interacts with your various library website and online tools. Google Analytics can provide you with a wealth of data about your library's social media presence, but only if you consistently use Campaign URLs when sharing links to your website on your social media accounts. It takes time, planning, and careful documentation of the UTM parameters you use, but the investment is worth the effort.

Notes

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Notes

Library Technology

R E P O R T S

Upcoming Issues	
November/ December 52:8	Social Media Optimization: Principles for Building and Engaging Community by Doralyn Rossmann and Scott W. H. Young
January 53:1	The Internet of Things: Mobile Technology and Location Services in Libraries by Jim Hahn
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