

Google Search Appliance Google Analytics Integration Guide

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Google Analytics Integration Guide

This paper provides comprehensive instructions on how to integrate Google Analytics (GA) with the Google Search Appliance (GSA). Google recommends that customers provide a comprehensive analytics solution when deploying the GSA. Google Analytics is a separate product from the Google Search Appliance.

About this document

What's covered	This guide provides instructions on three different levels of Google Analytics integration on the Google Search Appliance.			
Primary audience	First-time and experienced GSA administrators, as well developers and web designers tasked with gauging GSA use and quantifying ROI.			
IT environment	Google Search Appliance.			
Deployment phases	Initial and ongoing configuration of the GSA user experience.			
Other resources	 <u>Creating the Search Experience</u> contains information about using Google Search Appliance features to create the search experience for end users. <u>LearnGSA.com</u> provides educational resources for the GSA. <u>GSA product documentation</u> provides complete information about the GSA. <u>Google for Work Support Portal</u> provides access to Google support. 			

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Chapter 1 Overview

Basic integration of Google Analytics (GA) with the Google Search Appliance is the same as integrating GA with any other website, but there are some GSA-specific modifications that can be made to better learn about GSA user behavior.

There are various levels of Google Analytics integration on the Google Search Appliance. The GSA comes with built-in GA integration features, and this is the first and most basic level. This level of integration provides basic visitor metrics and can be used to graph and report basic usage. GA is not enabled by default, but can be activated by simply providing a valid GA tracking ID in the layout helper of each front end you would like to track. At this level, the GSA will automatically send analytics data for page loads and provide a report of top search queries. For more information, see <u>Chapter 2, Basic Integration</u>.

The second level of integration provides customizable data on the use of many features of the GSA. This level requires some front end stylesheet modifications. For more information, see <u>Chapter 3</u>, <u>Advanced</u> <u>Integration</u>.

GSA administrators are responsible for registering and setting up GA, or obtaining access to an existing Google Analytics account, as well as integrating GA with the GSA. Integration beyond what comes with the GSA out of the box is not officially supported.

Chapter 2 Basic Integration

Overview and scenario

Need for free, simple analytics

At the basic level of integration, the GA tracking script is added to all pages served from a specific GSA front end. In GA, you can see the number of visits, page views, average time on page, and specific pages that were viewed. The Site Search tab is also enabled within GA, providing reports on top search terms as well as search engagement. With this data, you are able to provide simple, elegant, and free analytics. This, coupled with Advanced Search Reporting and search logs can demonstrate ROI and assist in quantifying the business value of search.

Understanding what content is important

In this scenario, the GSA is the official search tool of your company's external or internal website. You would like to get a sense of what content is most relevant to visitors on the site. By integrating the GSA with GA, you are able to generate graphs and reports for the following aspects:

- Most relevant search terms for new visitors and returning visitors
- Percentage of visitors on your external website that perform searches
- The pages on your external site where these searches originate
- Percentage of search refinements and search depth ratio

Based on this data, you can use GSA features such as <u>KeyMatches</u> or <u>Results Biasing</u> to promote this content.

The following screenshots show examples of reports available with the basic integration of Google Analytics with the GSA.

Home Standard Reporting Custom Reporting		Admin	Help 🖒
Visitors Overview	Jun 7, 20	12-Jun 1	4, 2012 -
Advanced Segments Email BETA Export J Add to Dashboard			
% of visits : 100.00% Overview			
Visits Vis. Select a metric	Hour	iy Day We	ek Month
3			
Jun 8 Jun 9 Jun 10 Jun 11 Jun 12	Jun	13	
6 people visited this site			
Visits: 27 Unique Visitors: 6			
Pageviews: 509 81.48% Returning Visitor			
Pages / Visit 18.85 = 18.52% New Visitor			
Avg. Visit Duration. 00.23.32			
% New Visits: 18.52%			
Demographics Language	Visits	% Visits	
Language) 1. en-us	27		100.00%
Country/Territory		vie	w full report
City			

View of visitors overview with basic Google Analytics implementation.



Content overview with pageviews per search URL.

Technical implementation

1. Create a <u>Google Analytics</u> account, or obtain admin access to an existing account for your domain.

Once you add a web property to an account, Analytics creates the first profile for the property.

- 2. Create a different profile for each front end that you would like to gather data from.
- 3. In Google Analytics, go to the Admin console of your profile and open the Tracking Code tab.
- 4. In the Admin Console of the GSA, go to Search > Search Features > Front Ends (Previous to Version 7.2: Serving > Front Ends) and edit the front end you would like to track. In the Page Layout Helper, expand the Global Attributes section and paste your analytics Tracking ID into the Analytics Account field.
- 5. For more information on granting other users access to GA reports, see <u>Add/modify/delete users</u>.
- Enable Site Search Tracking, as described in <u>Set up and configure Site Search</u>. You may want to familiarize yourself with the various GSA <u>Request Parameters</u> that you can use when setting up site search tracking. The default query parameter is q.

Once Site Search tracking is enabled, you will have a new tab in GA under **Content > Site Search** where you will see the following reports for site search usage:



Site search tracking overview with useful data such as results pageviews per search.

Search Terms	earch Terms Jun 7, 2012 - Jun 14, 2012 -					
Advanced Segments Custor	nize Email BETA Export - Add t	o Dashboard				
% of total unique searches : Explorer	100.00%					
Site Usage Ecommerce						
Total Unique Searches - VS.	Total Unique Searches - VS. Select a metric Day Week Month 🧝 🕹					
100						
50						
Jun 8	Jun 9	Jun 10	Jun 11	Jun 12 Ju	n 13	
Total Unique Searches	Results Pageviews/Search	% Search Exits	% Search Refinements	Time after Search	Search Depth	
176 % of Total: 100.00% (176)	1.65 Site Avg: 1.65 (0.00%)	11.93% Site Avg: 11.93% (0.00%)	57.04% Site Avg: 57.04% (0.00%)	00:02:51 Site Avg: 00:02:51 (0.00%)	0.72 Site Avg: 0.72 (0.00%)	
Primary Dimension: Search Term	Site Search Category					
Secondary dimension - Sort	Type: Default -			Q advance	₩ @ E % III	
Search Term		Total Unique Resu Searches ↓ Pageviews	lts % Search Exits	% Search Time after : Refinements	Search Search Depth	
51. compiler		1	1.00 0.00%	100.00% 0	0:00:22 0.00	
52. compiler inmeta:author=	Donald E. Knuth	1	1.00 0.00%	100.00% 0	0:00:07 0.00	
53. compiler inmeta:author= inmeta:what=book	Donald E. Knuth	1	1.00 0.00%	100.00% 0	0:04:56 0.00	

The detailed search term data in GA shows a listing of search terms and their popularity.

For additional information on site search data, see <u>What information does the Search Terms report</u> <u>provide?</u> and <u>How we calculate site search metrics</u>.

Chapter 3 Advanced Integration

Overview

The advanced level of integration provides multi-dimensional analytics that cater to specific tracking needs. Using Event Tracking, Custom Variables, and GSA front end stylesheet modifications you can create analytics with data such as click type, click URL, searches with zero results, and other custom metrics.

For more information on advanced customization of front ends, see <u>Creating the Search Experience</u>: <u>Customizing the User Interface</u>.

Scenario

GSA user behavior analysis

In this scenario, your company has decided to completely reevaluate the user search experience on the corporate intranet. The majority of the employees are knowledge workers, which makes search an integral part of their daily work. You have already invested a large amount of resources on your GSA solution, and now it is time to take the search experience from great to exceptional.

With advanced GA integration, you would be able to gather significant data on GSA user behavior which would enable you to make the search experience more efficient, as illustrated in the following table.

Sample Data	Observation	Recommendation
Only 21% of events recorded are from the Refinement category <i>Fig. A</i>	Users are not utilizing currently- enabled refinement tools and are spending about 1.4 minutes looking through search pages.	Enabling other refinement tools, such as Dynamic Results Clusters would allow users to narrow down results and spend less time on search.
Only 3% of events recorded are KeyMatch result clicks, but the top 3 search terms constituted 8% of unique searches	The top 3 search results seem to be very relevant to users, new and old.	Adding KeyMatch entries for top search terms would promote these results to the top of the page, which would make it easier for users to find.
About 12% of searches are returning zero results <i>Fig. C</i>	Users need some form of suggestions before they search to avoid zero results.	Introduce search-as-you-type or query suggestions to avoid lost time in reaching zero results.

15 of your visits sent events					
Total Events: 88					
Unique Events: 15					
Event Value: 100					
Avg. Value: 1.14	Avg. Value: 1.14				
Visits with Event: 8					
Events / Visit: 11.00					
Top Events		Event Category	Total Events	% Total Events	
Event Category	1.	Results	56	63.64%	

Event Category	•	1.	Results	56		63.64%
Event Action		2.	Sending Custom Variabl e	31	35.	23%
Event Label		3.	Refinement	1	1.14%	
						view full report

Fig. A Events overview with sample event categories for a GSA. (from Content > Events > Overview)

· · · · · · · · · · · · · · · · · · ·							
Total Events	Unique Events	Event	Value	Av	g. Value		
20 % of Total: 6.25% (320)	9 % of Total: 15.52% (58)	9 0 % of Totai: 15.52% (58) % of Totai: 0.00% (191)			0.00 Site Avg: 0.60 (-100.00%)		
Primary Dimension: Event Action Event Label Event Category *							
Secondary dimension: Event Action 🔻 Sort Type: Default 👻 🔘 🗄				E 🔁 IIII			
Event Category	Event Action 💿		Total Events 🛛 🕁	Unique Events Even	t Value	Avg. Value	
1. Refinement	Cluster Label Click		12	4	0	0.00	
2. Refinement	Spelling Suggestion Click		5	4	0	0.00	
3. Refinement	More results from Link Click		2	2	0	0.00	
4. Refinement	Synonym Click		1	1	0	0.00	

Fig. B Detailed view of events in the Refinement Category. (from Content > Events > Top Events)

		.					
Visit Starts	Pages / Visit Start	Avg. Visit Duration	per Start	% Nev	w Visits (Starts)	Bound	e Rate
1 % of Total: 1.33% (75)	71.00 Site Avg: 13.95 (409.08%)	00:48:46 Site Avg: 00:19:21 (1) 152.13%)	Site Avg	0.00% : 22.67% (-100.00%)	0.0 Site Avg: 8.0	10% 10% (-100.00%)
Primary Dimension: Custom Variable (Value 03) Other -							
Plot Rows Secondary dimension - Sort Type: Default - Q advanced							
Custom Variab	le (Value 03)	Visit Starts	↓ Page St	es / Visit tart	Avg. Visit Duration per Start	% New Visits (Starts)	Bounce Rate
 jibberjabberjib 	berjabber		1	0.00	00:48:46	0.00%	0.00%
				Sho	w rows: 10 ‡	Go to: 1 1 - 1	of 1 🔇 🔪

Fig. C Looking at a detailed view of a Custom Variable Key for Zero Results. (from Audience > Custom > Custom Variables)

Technical implementation

Event tracking

By modifying the ASR javascript file, you can log all the data currently logged by ASR in GA using <u>Event</u> <u>Tracking</u>. For more information on ASR click types that you can use, see <u>About Advanced Search</u> <u>Reports</u>. You are building four different event categories:

- Search Page
- Refinement
- Results
- Navigation

Within these four categories, you can create several possible actions within those categories, as illustrated in the following table.

Category	Actions		
Search Page	Advanced Search Link Click		
	Google News Link Click		
Refinement	Spelling Suggestion Click		
	Cluster Label Click		
	Synonym Click		
Results	First Search Result Click		
	Search Result Click		
	Cached Result Click		
	OneBox Result Click		
	Database Result Click		
Navigation	Next Results Page Click		
	Previous Results Page Click		

Custom variables

If you would like to include more aspects of search in your analytics, you can use <u>Custom Variables</u>. You can insert a snippet into the stylesheet in order to track various metrics on the visitor, session, and page level with GA. By using the Custom Variable snippets included in the front end template and snippets.xsl file, you can track collection choice, page loads, dynamic navigation use, and zero results.

Event tracking and custom variables are implemented with JavaScript tracking code on the search results page. This can be done by modifying the default XSLT yourself, using our example ga_template.xsl, or if you're using the GSA's XML protocol, you would modify your webapp to include the additional tracking code.

Event tracking and custom variable code

Events are typically used to track clicks. Any click on the results page can be tracked by adding an onclick event:

```
<a href="..." onClick="_gaq.push(['_trackEvent', 'Dynamic Navigation Use', 'Category', 'Books']);">
```

Custom variables are typically used when you want to assign visitors to a specific segment (ie. A/B testing) or to record page-level data (# of items returned). A custom variable is typically set when the page loads, as part of the GA initialization code:

```
_gaq.push(['_setAccount', 'UA-#####=1']);
_gaq.push(['_setCustomVar', 1, 'ZeroResults', 'crufty', 3]);
_gaq.push(['_trackPageview']);
gaq.push([' trackPageLoadTime']);
```

Instructions

- 1. Follow the implementation instructions in <u>basic integration</u>.
- 2. Host the *clicklog.js* file on a server the GSA can reach.
- Edit a front end by going to Search > Search Features > Front Ends (Previous to Version 7.2: Serving > Front Ends), selecting Edit on the desired front end, and then clicking Edit underlying XSLT code.
- 4. Make edits to your front end according to the table below, copying code from the template to your stylesheet to reflect the changes in the template, or by copying and pasting the whole ga_template.xsl. Make sure to set your analytics ID in the 'analytics information' section of the stylesheet and the path to your hosted clicklog_GA.js file.
- 5. Do a few test searches using the front end, making sure to click on results.
- 6. Log in to Google Analytics, select the property/tracking ID that you associated with your front end.
- 7. Click on **Content** > **Events** > **Overview**.
- 8. Select the appropriate date range for your testing on the top right corner of the report. You should now see some data regarding your events.
- 9. Click on Audience > Custom > Custom Variables.
- 10. Select the custom variable key you would like to examine next to **Primary Dimension**. Again, make sure the proper date range has been selected, and you should see some data regarding your variables.

Custom reports allow you to create a specific view of your data, and will save time if you need to view this data often. To create your own custom report:

- 1. Log in to Google Analytics, select the property/tracking ID that you associated with your front end.
- 2. Click on Custom Reporting.
- 3. Click on **New Custom Report**.
- 4. Name the report in the **Title** field.
- 5. Name the new report tab in the **Name** field.
- 6. Select the metric groups you would like to display in the report.
 - For this integration, the most important groups are Content and Visitors.
- Select the dimension drilldowns.
 For this integration, the most important drilldowns are custom variable keys and values.
- 8. If you are unsure about what dimension and drilldowns to choose, see <u>Sample report fields</u> for examples.
- 9. Select Filter.
- 10. Select any other properties (preferably other front ends) to include in the report.
- 11. Click **Save**. Remember to set the proper date range when viewing the report.

Sample report fields

General information

Title: GSA Custom Report

Report content Report Tab Name: *Average Click Rank* Type: *Flat Table* Dimension/Metrics:

Dimension	Metric	Use
Event Action	Average Value	Finds the average click rank for this event action. In this case, you are interested in 1st Search Result Clicks and Search Result Clicks.
Event Category	Average Value	Finds the average click rank for this event category. In this case, you are interested in the Average Click Rank of the Result category.

Filters (Optional):

Filter	Value	Use
Custom Variables > Custom Variable Value 01	default_collection	This filter makes sure that you are only viewing Average Click Rank for the collection of your choice. In this case, you chose default_collection.
Visitors > City	Minato	This filter shows Average Click Rank for a particular set of users. In this case, you chose to only see the Average Click Rank for users in Minato, Tokyo.

Report Tab Name: *Satisfied Clicks* Type: *Flat Table* Dimension/Metrics:

Dimension	Metric	Use
Custom Variables > Custom Variable Key 5	Visits	How many visits this search term got.
Custom Variables > Custom Variable Value 5	Pages / Visit	The number of clicks per session.

Report Tab Name: *Zero Results* Type: *Flat Table* Dimension/Metrics:

Dimension	Metric	Use
Custom Variables > Custom Variable Key 3	Visits	By placing the search term that triggered the zero results custom variable against how many visits it received, you will see how many searches returned zero results.
Custom Variables > Custom Variable Value 3	Visits	Together with the dimension above, you will see which specific search term returned zero results thanks to this dimension.

Resources

This implementation has great flexibility, therefore, the following resources have been included with this guide so that you may use them to best fit the needs of your GSA deployment:

- Sample modified GSA *clicklog.js* to be hosted elsewhere and referenced by the front end stylesheet. You can optimize this file by <u>compiling</u> after retrieving it from your own GSA at <u>https://your_gsa/clicklog.js</u>.
- A front end stylesheet named *ga_template.xsl* based on the GSA default front end with possible tracking snippet locations. Make sure to insert your GA tracking code in the analytics information section before testing.
- XSL code snippets in the *snippets.xsl* to implement code tracking and custom variables in the front end stylesheet. Use the comments in the snippet file and this guide to place code snippets in correct locations on the stylesheet.

File	Method/Template name	Changes made	Implications
ga_template.xsl	analytics_custom_var	Added an xsl template that can be put in various parts of the stylesheet. The template needs the index, name, value, and scope parameters.	When the template is called, this code will send custom variable data to GA.
ga_template.xsl	analytics_event_tracki ng	Added an xsl template that can be put in various parts of the stylesheet. The template needs the category, action, label, and value parameters.	When the template is called, this code will send event tracking data to GA.
ga_template.xsl	<xsl:if test="\$render_dynamic_ navigation = '1'"></xsl:if 	Added a call to <i>clicklog_GA.js</i> file. Change this to point to where your file is hosted.	Allows for ASR and GA advanced integration.
ga_template.xsl	my_page_header	Added call to analytics template.	Loads analytics async code.
ga_template.xsl	no_RES	Added a call to analytics_custom_ var that logs Zero Results.	This is a sample of custom variable template use.
clicklog_GA.js	cl_analytics_clk	Added a switch statement that sends event tracking data to GA for each click type usually recorded in ASR.	This code uses the same data used by ASR to log the data in GA.

You can download copies of the clicklog_GA.js, ga_template.xsl, and snippets.xsl files from <u>https://gsa-admin-toolkit.googlecode.com/files/GSA-GA.zip</u>.

Chapter 4 Analyzing Your Data

With the use of GA standard or <u>custom reports</u> you can bring together these various metrics and present them without the need for further processing. But before you even create reports, it's important to determine what metrics are important—what are your key performance indicators (KPIs)?

Some typical KPIs for Enterprise Search are:

- % of Visitors that Searched
- # of Searches per Visit
- # of Searches per Day/Week/Month
- # of Searches that returned 0 (or very few) results
- # of clicks on first page results
- # of pageviews past first page of results

These are just a few-there are many other metrics that may be important, depending on your scenario.

Goals

For an eCommerce deployment, KPIs would typically be tied to revenue—but conversion rates don't necessarily need to be tied to dollar amounts. Checkouts & Purchases are just one type of "Goal"— they provide good metrics that can be tied to revenue, but any action on the site can be considered a goal.

This often-overlooked section in Google Analytics can be configured to track certain well-defined goals. Often used for eCommerce transaction tracking, you can also set up goals to measure when a specific page is reached or when a user subscribes to a newsletter or submits a ticket.

For more on Goals, see <u>Set up Goals</u>.

Comparing groups of users

Another useful way of viewing reports is to compare one group of users versus another. For search, you might start with viewing users that performed a search vs. those that didn't. This is accomplished in Google Analytics reports by using <u>Advanced Segments</u>.



Here's a simple report with two custom advanced segments, one for visits with Site Search, one for visits that did not use site search. When applied to the Pages/Visit report you can see that users that searched were much more engaged on the site.

Advanced Segments can be created to utilize Events and Custom Variables, so you can compare trends or goals for users based on how they utilized search.

Summary

This guide provides detailed guidance on the recommended integration of Google Analytics on the GSA. It is important to find an easy way to gather and present usage analytics on the GSA. Leveraging the reporting data the GSA provides on the box can be a great way to spot any gaps and improve the overall experience for the user.

It is essential to re-visit the user experience from time to time as the users' needs change and new features become available on the GSA. Google Analytics can easily collect and present usage data for this purpose.

Appendix More Information

Other Considerations

In the event of backend changes to ASR, update *clicklog_GA.js* according to changes in the new *clicklog.js*. Specifically the parameters passed into the *cl_link_clicked* function which then calls *cl_analytics_clk* to register GA Event Tracking data.