

Personalizing Google Analytics Using Events and Custom Variables

Josh Wilson
State Library of North Carolina

Five Minute Version

- What are Events? What are Custom Variables?
 - Definitions & Differences
- Understanding them in GA reports
- CONTENTdm example

Twenty Minute Version

- How does GA work under the hood?
- What are Events? What are Custom Variables?
 - Definitions & Differences
- Understanding them in GA reports
- Examples
 - CONTENTdm (on GitHub)
 - Drupal
 - NCSU?

Twenty Minute Version (2)

- How to implement events and custom variables
 - Adding code or setting a configuration
 - Classic vs. Universal
 - Gotchas
 - Script timing issues
 - Diagnosing problems

Events and Custom Variables

- Out of the box, GA gives you all kinds of general data:
 - Audience: visits, technology, location
 - Acquisition: search, referral, direct
 - Behavior: pageviews, landing/exit pages

What if you need to know something more specific?

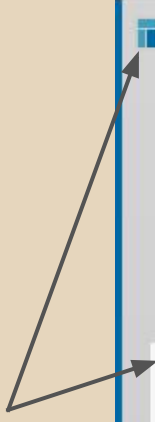
STANDARD REPORTS

- Real-Time
- Audience
 - Overview
 - Demographics
 - Interests
 - Geo
 - Behavior
 - Technology
 - Mobile
 - Custom
 - Custom Variables
 - User Defined
- Visitors Flow
- Acquisition
- Behavior

Variables help define the audience



Events help define their behavior



STANDARD REPORTS

- Real-Time
- Audience
- Acquisition
- Behavior
 - Overview
 - Behavior Flow
 - Site Content
 - Site Speed
 - Site Search
 - Events
 - Overview
 - Top Events
 - Pages
 - Events Flow
 - AdSense
 - Experiments
 - In-Page Analytics
- Conversions

Events and Custom Variables

- Record personalized data about your site's usage
- Events:
 - **STUFF THAT'S HAPPENING** on your site beyond basic pageviews
 - e.g., download, facet click, video play
- Custom Variables:
 - Additional data about **WHO'S DOING THE STUFF** on your site
 - Conceptually like a custom segment
 - e.g., users not logged in, people with items in their shopping cart
 - In Universal Analytics, these are replaced by **Custom Dimensions**

Which to use?

- Depends on what you want to know!

If you want to know more about things that happen on the site, like...

...how many times X happens
...how often users click feature Y
...what the value of Z is on each page as users browse

...then you probably want to use **EVENTS**

If you want to know more about the people using your site, like...

...which visitors are logged in
...which visitors have site badges
...which visitors have tried the site search

...you probably want to use **CUSTOM DIMENSIONS** (aka **CUSTOM VARIABLES**)

Top Events

Nov 17, 2013 - Dec 17, 2013

Customize Email Export Add to Dashboard Shortcut

All Visits
100.00%

Explorer

Event Site Usage Ecommerce

Total Events vs. Select a metric

Day Week Month

Total Events



Primary Dimension: Event Category Event Action Event Label

Plot Rows Secondary dimension Sort Type: Default

advanced [Grid] [Refresh] [List] [Filter] [Print]

Event Action	Total Events	Unique Events	Event Value	Avg. Value
	62,026 <small>% of Total: 100.00% (62,026)</small>	27,851 <small>% of Total: 100.00% (27,851)</small>	0 <small>% of Total: 0.00% (0)</small>	0.00 <small>Site Avg: 0.00 (0.00%)</small>
1. N.C. Family Records Collection	20,545	6,638	0	0.00
2. North Carolina Digital State Documents Collection	6,991	4,776	0	0.00
3. North Carolina Department of Cultural Resources	4,252	2,189	0	0.00
4. Civil War Collection	2,643	956	0	0.00
5. N.C. MOSAIC	2,423	1,714	0	0.00


Events - example from SLNC

2010 Brunswick County comprehensive transportation plan

2010 Brunswick County comprehensive transportation plan - Page 1 1 of 153 Next

View Description View PDF & Text Download Print

PDF Text Text Search...



2010 Brunswick County Comprehensive Transportation Plan

Brwnswick County

Object Description

Rating	★★★★★ Based on 0 rating(s)
Title	2010 Brunswick County comprehensive transportation plan
Other Title	Comprehensive transportation plan, Brunswick County
Creator	Thomas, Earlene W.
Contributor	North Carolina, Transportation Planning Branch. Brunswick County (N.C.) Cape Fear Rural Planning Organization.
Date	2013-03
Subjects	Traffic engineering--North Carolina--Brunswick County City planning--North Carolina--Brunswick County

Page 1 Page 2 Page 3 Page 5

At the State Library of North Carolina, we wanted to record certain metadata fields as part of Analytics

Events - example from SLNC

Place	Brunswick County, North Carolina, United States
Description	"March 2013."
Publisher	N.C. Department of Transportation, Transportation Planning Branch
Agency-Current	North Carolina Department of Transportation
Rights	State Document see http://digital.ncdcr.gov/u?p249901coll22,63754 ↗
Physical Characteristics	153 p. of electronic text : digital, PDF file with maps and plans.
Collection	North Carolina State Documents Collection. State Library of North Carolina

Specifically, we wanted to be able to report how often each state agency's documents were being used

Events - example from SLNC

- Custom GA script developed:
 - Locate field names
 - Whenever an Agency is set, record it!
 - Generate GA event with the value

https://github.com/joshwilsonnc/ga_cdm

<input type="checkbox"/>	Event Action ?	Total Events ? ↓
		15,301 % of Total: 28.45% (53,787)
<input type="checkbox"/>	1. North Carolina Department of Cultural Resources	3,578
<input type="checkbox"/>	2. North Carolina Office of Archives and History, Department of Cultural Resources North Carolina Office of Archives and History, Department of Cultural Resources	1,866
<input type="checkbox"/>	3. North Carolina Office of Archives and History, Department of Cultural Resources	1,860
<input type="checkbox"/>	4. North Carolina General Assembly	813
<input type="checkbox"/>	5. North Carolina Department of Environment and Natural Resources	497
<input type="checkbox"/>	6. North Carolina Department of Health and Human Services	489
<input type="checkbox"/>	7. North Carolina Department of Public Instruction	474
<input type="checkbox"/>	8. North Carolina Department of Transportation	453
<input type="checkbox"/>	9. North Carolina Department of Commerce	368
<input type="checkbox"/>	10. North Carolina Office of the Governor	304

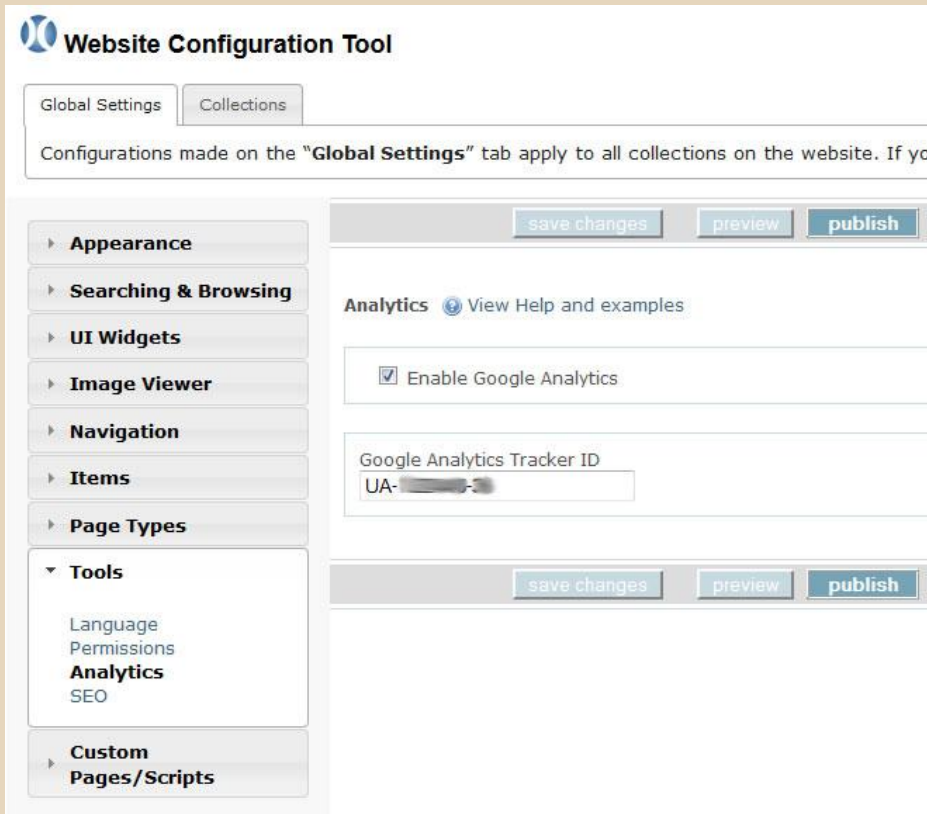
...now we have this data and can report it to state agencies.

Demo time!

- More examples
 - CMSs
 - GA snippet
- Implementation
- Gotchas

If there's time: GA under the hood, or your questions

Events - example from CONTENTdm



The screenshot displays the 'Website Configuration Tool' interface. At the top, there are tabs for 'Global Settings' and 'Collections'. Below the tabs, a note states: 'Configurations made on the "Global Settings" tab apply to all collections on the website. If you have multiple collections, you can also configure settings for individual collections.' The main content area is divided into a left sidebar and a right main panel. The sidebar contains a list of configuration categories: Appearance, Searching & Browsing, UI Widgets, Image Viewer, Navigation, Items, Page Types, Tools, and Custom Pages/Scripts. The 'Tools' category is expanded, showing sub-options: Language, Permissions, Analytics (which is selected and bolded), and SEO. The main panel shows the 'Analytics' section with a 'View Help and examples' link. There is a checkbox labeled 'Enable Google Analytics' which is checked. Below this is a text input field for the 'Google Analytics Tracker ID' containing the text 'UA-'. At the bottom of the main panel, there are three buttons: 'save changes', 'preview', and 'publish'.

OCLC offers a default Google Analytics tool.

Works with Universal Analytics.

Enable in Website Configuration Tool.

Events - example from CONTENTdm

<input type="checkbox"/>	Event Category ?	Total Events ? ↓
		63,704 % of Total: 100.00% (63,704)
<input type="checkbox"/>	1. compound objects	45,194
<input type="checkbox"/>	2. search	9,788
<input type="checkbox"/>	3. download	3,260
<input type="checkbox"/>	4. facets	2,394
<input type="checkbox"/>	5. advanced search	1,595
<input type="checkbox"/>	6. print	1,137
<input type="checkbox"/>	7. navigation	157
<input type="checkbox"/>	8. reference url	118
<input type="checkbox"/>	9. ratings	19
<input type="checkbox"/>	10. page flip	18

OCLC's default analytics provides detailed events relevant to how visitors use CONTENTdm

Categories cover a lot!

You can drill down for details

Events - example from CONTENTdm

Narrow your search by:

- Time Period
 - (1929-1945) depression and world war two (195)
 - (1945-1989) post war/cold war period (80)
- Format
- Publisher



<input type="checkbox"/>	Event Action ?	Total Events ? ↓
		2,394 % of Total: 3.76% (63,704)
<input type="checkbox"/>	1. toggle	1,720
<input type="checkbox"/>	2. click	674

Drilling down into the Facets Category for relevant Actions

Events - example from CONTENTdm

<input type="checkbox"/>	Event Label ?	Total Events ? ↓
		1,720 <small>% of Total: 2.70% (63,704)</small>
<input type="checkbox"/>	1. Place	409
<input type="checkbox"/>	2. Time Period	400
<input type="checkbox"/>	3. Subject	237
<input type="checkbox"/>	4. Format	174
<input type="checkbox"/>	5. Format-Medium	166
<input type="checkbox"/>	6. Coverage-Spatial	105
<input type="checkbox"/>	7. Coverage-Temporal	90
<input type="checkbox"/>	8. Creator	63
<input type="checkbox"/>	9. Publisher	26
<input type="checkbox"/>	10. Project Subject	20

Drill down into the
Actions for Labels:

The facets that
were Toggled or
Clicked are
recorded here

Drupal

Custom variables

You can add Google Analytics **Custom Variables** here. These will be added to every page that Google Analytics tracking code appears on. Google Analytics will only accept custom variables if the *name* and *value* combined are less than 128 bytes after URL encoding. Keep the names as short as possible and expect long values to get trimmed. You may use tokens in custom variable names and values. Global and user tokens are always available; on node pages, node tokens are also available.

Slot	Name	Value	Scope
1	<input type="text"/>	<input type="text"/>	Page ▾
Slot number The custom variable name. The custom variable value.			The scope for the custom variable.
2	Content source	[node:taxonomy_vocabulary_11]	Page ▾
Slot number The custom variable name. The custom variable value.			The scope for the custom variable.
3	<input type="text"/>	<input type="text"/>	Page ▾
Slot number The custom variable name. The custom variable value.			The scope for the custom variable.
4	<input type="text"/>	<input type="text"/>	Page ▾
Slot number The custom variable name. The custom variable value.			The scope for the custom variable.
5	<input type="text"/>	<input type="text"/>	Page ▾
Slot number The custom variable name. The custom variable value.			The scope for the custom variable.

Google Analytics module makes it easy to add custom variables within the administration GUI. You can also add custom snippets (say, for Events) easily.

Drupal taxonomy to GA

Subjects:

[Culture](#)
[Events](#)
[Farmers](#)
[UNC Press](#)

Authors:

[Stinson, Craig M.](#)

From:

[Encyclopedia of North Carolina, University of North Carolina Press.](#)

User Tags:

[favorite](#)



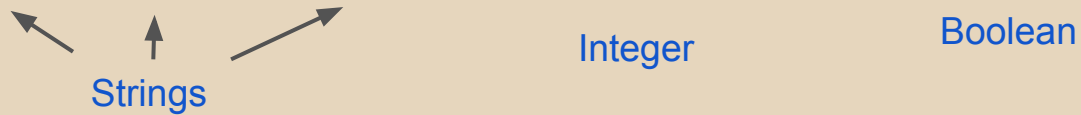
		Visits [?] ↓
		71,330 % of Total: 86.63% (82,338)
<input type="checkbox"/>	1. Tar Heel Junior Historian, NC Museum of History.	28,978
<input type="checkbox"/>	2. Encyclopedia of North Carolina, University of North Carolina Press.	18,776
<input type="checkbox"/>	3. NCpedia.	10,428
<input type="checkbox"/>	4. Dictionary of North Carolina Biography, University of North Carolina Press.	5,866
<input type="checkbox"/>	5. Research Branch, NC Office of Archives and History.	2,730
<input type="checkbox"/>	6. NC Wildlife Information Network Share (NC WINS).	1,098

In NCpedia, we are tracking usage by original source.

Events Implementation

Add this line to your tracking code:

```
_trackEvent(category, action, opt_label, opt_value, opt_noninteraction);
```



Universal Analytics syntax:

```
ga('send', 'event', 'category', 'action', 'opt_label', opt_value, opt_fields);
```



Events

Track a Category and Action:

```
_trackEvent('Videos', 'Play');
```

Add a label:

```
_trackEvent('Videos', 'Play', 'Amazing Cat Video');
```

Additional fields available:

```
_trackEvent('Videos', 'Play', 'Amazing Cat Video', viewTime);
```

```
_trackEvent('Videos', 'Play', 'Amazing Cat Video', viewTime, true);
```

Events - organizing data

Category 1

Action 1

Label

Action 2

Category 2

Action 1

...

...



Videos

Play

Amazing Cat Video

Download

Polls

Submission

...

...

Events - organizing data

Category 1

Action 1

Label

Action 2

Category 2

Action 1

...

...



Thing

Broad details

Drilldown details

Other broad details

Another Thing

Some details

...

...

Events - Gotchas

- Changing a category/action/label?
 - Surprise! It's now a new event
 - Need to balance clarity with consistency
- Test to make sure it's actually recording
 - Look at real-time
 - Use an HTTP watching tool (e.g., HTTPFox)
 - Or just wait a day

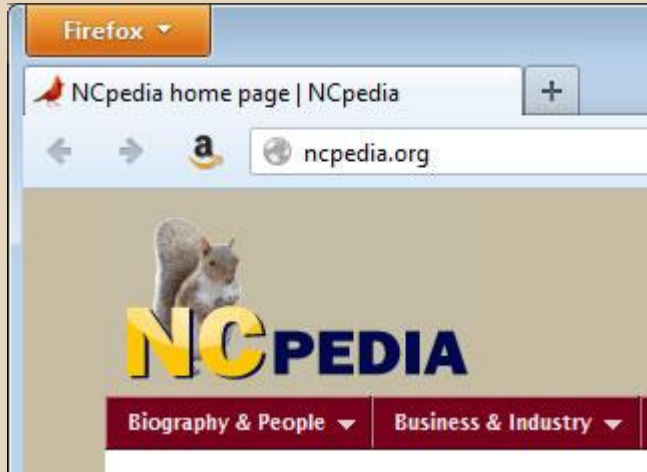
CONTENTdm Gotchas

Some things to watch out for when tinkering with GA in CONTENTdm...

- Occasionally horrifying DOM traversal
 - IE 8 is extra...special
- CONTENTdm hosted URL alias
- Timing can be ugly!

Background: How does GA record data?

1. When a page loads, a script on the page requests a 1x1 GIF from GA servers...



```
http://www.google-analytics.com/collect?v=1&_v=j15&a=663574665&t=pageview&_s=1&dl=http%3A%2F%2Flocalhost%2Fga%2F&ul=en-us&de=UTF-8&dt=GA%20testing&sd=24-bit&sr=1920x1200&vp=1920x510&je=1&fl=11.9%20r900&_utma=111872281.230098139.1387306295.1387306295.1387306295.1&_utmz=111872281.1387306295.1.1.utmcsr%3D(direct)%7Cutmccn%3D(direct)%7Cutmcmd%3D(none)&_utmht=138730684444&_u=MACCAE~&cid=230098139.1387306295&tid=UA-2-2&z=1393673858
```

2. ...only the request is loaded with a bunch of data about the requesting page (and user, from cookie data...)

(This is a trick that's been around since the late '90s. Eric Peterson's Web Site Measurement Hacks has some details.)

3. GA servers parse the request and generate reports for your amusement

Background: GA Anatomy 101

Classic snippet (ga.js):

```
var _gaq = _gaq || [];  
_gaq.push(['_setAccount', 'UA-XXXX-Y']);  
_gaq.push(['_trackPageview']);  
  
(function() { var ga = document.createElement('script'); ga.type = 'text/javascript'; ga.async = true; ga.src = ('https:' ==  
document.location.protocol ? 'https://ssl' : 'http://www') + '.google-analytics.com/ga.js'; var s = document.  
getElementsByTagName('script')[0]; s.parentNode.insertBefore(ga, s); })();
```

Universal Analytics snippet (analytics.js):

```
(function(i,s,o,g,r,a,m){i['GoogleAnalyticsObject']=r;i[r]=i[r]||function(){  
(i[r].q=i[r].q||[]).push(arguments)},i[r].l=1*new Date();a=s.createElement(o),  
m=s.getElementsByTagName(o)[0];a.async=1;a.src=g;m.parentNode.insertBefore(a,m)  
})(window,document,'script','//www.google-analytics.com/analytics.js','ga');  
  
ga('create', 'UA-XXXX-Y', 'auto');  
  
ga('send', 'pageview');
```

Background: Snippet Anatomy 101

Classic snippet (ga.js):

```
var _gaq = _gaq || [];
```

```
_gaq.push(['_setAccount', 'UA-XXXX-Y']);
```

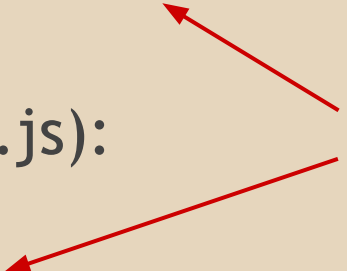
```
_gaq.push(['_trackPageview']);
```

```
(function() { var ga = document.createElement('script'); ga.type = 'text/javascript'; ga.async = true; ga.src = ('https:' == document.location.protocol ? 'https://ssl' : 'http://www') + '.google-analytics.com/ga.js'; var s = document.getElementsByTagName('script')[0]; s.parentNode.insertBefore(ga, s); })();
```

Universal Analytics snippet (analytics.js):

```
(function(i,s,o,g,r,a,m){i['GoogleAnalyticsObject']=r;i[r]=i[r]||function(){(i[r].q=i[r].q||[]).push(arguments)},i[r].l=1*new Date();a=s.createElement(o),m=s.getElementsByTagName(o)[0];a.async=1;a.src=g;m.parentNode.insertBefore(a,m)})(window,document,'script','//www.google-analytics.com/analytics.js','ga');  
ga('create', 'UA-XXXX-Y', 'auto');  
ga('send', 'pageview');
```

Libraries
(minified)



Background: Snippet Anatomy 101

Classic snippet (ga.js):

```
var _gaq = _gaq || [];  
_gaq.push(['_setAccount', 'UA-XXXX-Y']);  
_gaq.push(['_trackPageview']);  
//Library
```

Universal Analytics:

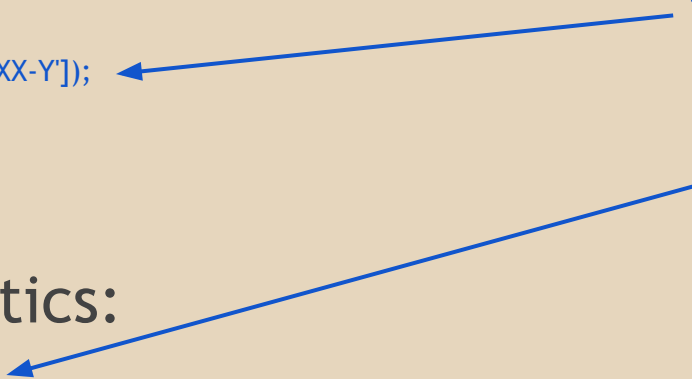
```
ga('create', 'UA-XXXX-Y', 'auto');  
ga('send', 'pageview');  
//Library
```

Background: Snippet Anatomy 101

Classic snippet (ga.js):

```
var _gaq = _gaq || [];  
_gaq.push(['_setAccount', 'UA-XXXX-Y']);  
_gaq.push(['_trackPageview']);  
//Library
```

Creating
tracking object
& setting
account info



Universal Analytics:

```
ga('create', 'UA-XXXX-Y', 'auto');  
ga('send', 'pageview');  
//Library
```

Background: Snippet Anatomy 101

Classic snippet (ga.js):

```
var _gaq = _gaq || [];
```

```
_gaq.push(['_setAccount', 'UA-XXXX-Y']);
```

```
_gaq.push(['_trackPageview']);
```

```
//Library
```


Universal Analytics:

```
ga('create', 'UA-XXXX-Y', 'auto');
```

```
ga('send', 'pageview');
```

```
//Library
```

Actual sending
of data to
Google



Background: Snippet Anatomy 101

Classic snippet (ga.js):

```
var _gaq = _gaq || [];  
_gaq.push(['_setAccount', 'UA-XXXX-Y']);  
/**** MAGIC ! *****/  
_gaq.push(['_trackPageview']);  
//Library
```

WHERE
MAGIC
HAPPENS!

Universal Analytics:

```
ga('create', 'UA-XXXX-Y', 'auto');  
/**** MAGIC ! *****/  
ga('send', 'pageview');  
//Library
```

What does GA record?

Standard report data includes:

- Page title
- Page URL plus query parameters
- Referral information
- Browser and screen resolution
- User hash
 - Non-personally identifiable (we can hope)
 - To track navigation
- Lots more...

Customizing!

You can also:

- Enhance how your data gets recorded
 - Send extra information
 - Record additional data as it happens
- See what is sent to Google
- Break stuff and fix it

(For best results: users need to have JavaScript and cookies enabled. And they have to work. And the page has to load quickly. And etc etc)

Questions?

Now, or: josh.wilson@ncdcr.gov

Code:

https://github.com/joshwilsonnc/ga_cdm

Thanks!