Personalizing Google Analytics Using Events and Custom Variables

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State Library of North Carolina
What you’re about to sit through

- GA reports are ready to be customized!
- What are Custom Variables? What are Events?
  - Definitions & Differences
- Examples
  - Tracking metadata values in CONTENTdm
  - Tracking specific content usage in Drupal
- Basics of implementation
  - Classic vs. Universal
And there’s more still, wow huh? (2)

- Advanced implementation
  - GA under the hood
  - Gotchas
  - Script timing issues
  - Diagnosing problems
Also, there will be some sparkly rainbows in this presentation.
Events and Custom Variables

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

...with room to make customizations.
E-commerce stuff

Where are visitors from?

New vs returning, visit length

Browser & network

Devices
Audience

Overview

- Demographics
- Interests
- Geo
  - Language
  - Location
- Behavior
  - New vs Returning
  - Frequency & Rec...
  - Engagement
- Technology
  - Browser & OS
  - Network
- Mobile
  - Overview
  - Devices
- Custom
  - Custom Variables
  - User Defined
- Visitors Flow

E-commerce stuff

Where are visitors from?

New vs returning, visit length

Browser & network

Devices

Custom data!
Behavior Overview
(What)

- Pages & pageviews
- Speed & timing
- Site search
Behavior Overview (What)

- Pages & pageviews
- Speed & timing
- Site search
- Custom data!
Custom **variables** help define the audience.

**Events** help clarify their behavior.
Events and Custom Variables

- Record personalized data about your site’s usage
- **Custom Variables:**
  - In Universal Analytics, these are replaced by **Custom Dimensions**
  - 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

- **Events:**
  - **STUFF THAT’S HAPPENING** on your site beyond basic pageviews
  - e.g., download, facet click, video play
<table>
<thead>
<tr>
<th>If you want to know more about the <strong>people using your site</strong>, like…</th>
</tr>
</thead>
<tbody>
<tr>
<td>…which visitors are logged in</td>
</tr>
<tr>
<td>…which visitors have site badges</td>
</tr>
<tr>
<td>…which visitors have tried the site search</td>
</tr>
<tr>
<td>…you probably want to use CUSTOM VARIABLES (aka CUSTOM DIMENSIONS)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If you want to know more about <strong>things that happen</strong> on the site, like…</th>
</tr>
</thead>
<tbody>
<tr>
<td>…how many times X happens</td>
</tr>
<tr>
<td>…how often users click feature Y</td>
</tr>
<tr>
<td>…what the value of some element Z is on each page as users browse</td>
</tr>
<tr>
<td>…then you probably want to use EVENTS</td>
</tr>
</tbody>
</table>
Top Events

Explorer

Event Site Usage Ecommerce

Total Events

4,000

Primary Dimension: Event Category Event Action Event Label

Plot Rows Secondary dimension Sort Type Default

<table>
<thead>
<tr>
<th>Event Action</th>
<th>Total Events</th>
<th>Unique Events</th>
<th>Event Value</th>
<th>Avg. Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. N.C. Family Records Collection</td>
<td>20,545</td>
<td>6,638</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>2. North Carolina Digital State Documents Collection</td>
<td>6,991</td>
<td>4,776</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>3. North Carolina Department of Cultural Resources</td>
<td>4,252</td>
<td>2,189</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>4. Chill War Collection</td>
<td>2,643</td>
<td>956</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>5. N.C. MOSAIC</td>
<td>2,423</td>
<td>1,714</td>
<td>0</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Examples!

- Events in CONTENTdm
  - Built-in
  - Custom
- Variables in Drupal
  - Google Analytics module
OCLC offers a default Google Analytics tool.

Works with Universal Analytics.

Enable in Website Config Tool.
OCLC’s default analytics provides detailed events relevant to how visitors use CONTENTdm.

Categories cover a lot!

You can drill down for details.

<table>
<thead>
<tr>
<th>Event Category</th>
<th>Total Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. compound objects</td>
<td>45,194</td>
</tr>
<tr>
<td>2. search</td>
<td>9,788</td>
</tr>
<tr>
<td>3. download</td>
<td>3,260</td>
</tr>
<tr>
<td>4. facets</td>
<td>2,394</td>
</tr>
<tr>
<td>5. advanced search</td>
<td>1,595</td>
</tr>
<tr>
<td>6. print</td>
<td>1,137</td>
</tr>
<tr>
<td>7. navigation</td>
<td>157</td>
</tr>
<tr>
<td>8. reference url</td>
<td>118</td>
</tr>
<tr>
<td>9. ratings</td>
<td>19</td>
</tr>
<tr>
<td>10. page flip</td>
<td>18</td>
</tr>
</tbody>
</table>
Events - example from CONTENTdm

Drilling down into the Facets Category for relevant Actions
Drill down into the Actions for Labels:

The facets that were Toggled or Clicked are recorded here

<table>
<thead>
<tr>
<th>Event Label</th>
<th>Total Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td>409</td>
</tr>
<tr>
<td>Time Period</td>
<td>400</td>
</tr>
<tr>
<td>Subject</td>
<td>237</td>
</tr>
<tr>
<td>Format</td>
<td>174</td>
</tr>
<tr>
<td>Format-Medium</td>
<td>166</td>
</tr>
<tr>
<td>Coverage-Spatial</td>
<td>105</td>
</tr>
<tr>
<td>Coverage-Temporal</td>
<td>90</td>
</tr>
<tr>
<td>Creator</td>
<td>63</td>
</tr>
<tr>
<td>Publisher</td>
<td>26</td>
</tr>
<tr>
<td>Project Subject</td>
<td>20</td>
</tr>
</tbody>
</table>

1,720
% of Total: 2.70%
(63,704)
At the State Library of North Carolina, we wanted to record data from certain metadata fields in CONTENTdm.
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:
  ○ For use in CONTENTdm
  ○ Locates field names of interest
  ○ Whenever a value is set, record it!
  ○ Generate GA event with the value

https://github.com/joshwilsonnc/ga_cdm
now we have this data and can report it to state agencies.

<table>
<thead>
<tr>
<th>Event Action</th>
<th>Total Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North Carolina Department of Cultural Resources</td>
<td>3,578</td>
</tr>
<tr>
<td>2. North Carolina Office of Archives and History, Department of Cultural Resources</td>
<td>1,856</td>
</tr>
<tr>
<td>3. North Carolina Office of Archives and History, Department of Cultural Resources</td>
<td>1,860</td>
</tr>
<tr>
<td>4. North Carolina General Assembly</td>
<td>813</td>
</tr>
<tr>
<td>5. North Carolina Department of Environment and Natural Resources</td>
<td>497</td>
</tr>
<tr>
<td>6. North Carolina Department of Health and Human Services</td>
<td>489</td>
</tr>
<tr>
<td>7. North Carolina Department of Public Instruction</td>
<td>474</td>
</tr>
<tr>
<td>8. North Carolina Department of Transportation</td>
<td>453</td>
</tr>
<tr>
<td>9. North Carolina Department of Commerce</td>
<td>368</td>
</tr>
</tbody>
</table>
Google Analytics module makes it easy to add custom variables within the administration GUI. You can also add custom snippets (say, for Events) easily, as you would add any custom JS.
In NCpedia, we are tracking usage by original source.
Implementation!

- Your CMS may do it for you (as we’ve seen)
  - Built-in or with a plugin/module/add-on/gizmo
- THE CODE
- Where it fits into the GA snippet
- How to decide on labeling
- Notes
- Gotchas
Code: the GA snippet

Classic snippet (ga.js):

```javascript
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):

```javascript
(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');
```
Code: Events (variables are similar)

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);
```
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
  ...

Broad bin
  Thing that happens
    Specific details
  Another thing
  Another bin
    Different thing
  ...

...
Implementation considerations

● Extra JS: usually some sort of trigger code is required

● 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
Gotchas

● TIMING IS EVERYTHING
  ○ Event can’t fire if GA isn’t loaded
  ○ Can’t record page element value if it’s not loaded
  ○ Custom variables must be set BEFORE _trackPageView
  ○ Tracking a download or link-click Event?
    ■ You may need to include a short JS timeout to record the event before proceeding
Gotchas

● Yes, you have to check IE8

● Multiple domains or subdomains?
  ○ GA code requires some extra switches
Questions?
Now, or: josh.wilson@ncdcr.gov
Code:
https://github.com/joshwilsonnc/ga_cdm
Extras: if there’s time...
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=111872281.230098139.1387306295.1387306295.1387306295.1387306295.1&_utmz=111872281.1387306295.1.1&utmcsr%3D(direct)%7Cutmccn%3D(direct)%7Cutmcmd%3D(none)&_utmht=1387306844444&_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: Snippet Anatomy 101

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_gaq.push(['_trackPageview']);

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getElementsByTagName('script')[0]; s.parentNode.insertBefore(ga, s); })();
```

Universal Analytics snippet (analytics.js):

```javascript
(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):

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

//Library
```

Universal Analytics:

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

//Library
```
Background: Snippet Anatomy 101

Classic snippet (ga.js):

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

Universal Analytics:

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

Actual sending of data to Google
Background: Snippet Anatomy 101

Classic snippet (ga.js):

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

WHERE MAGIC HAPPENS!

Universal Analytics:

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