

# Personalizing Google Analytics Using Events and Custom Variables

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# 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.



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



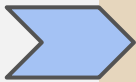
Where are visitors from?



New vs returning, visit length



Browser & network



Devices

Audience  
Overview  
(Who)



Audience

Overview

▶ Demographics

▶ Interests

▼ Geo

Language

Location

▼ Behavior

New vs Returning

Frequency & Rec...

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▼ Technology

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▼ 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!



Audience  
Overview  
(Who)

Overview

**Behavior Flow**

▼ Site Content

All Pages

Content Drilldown

Landing Pages

Exit Pages

▼ Site Speed

Overview

Page Timings

Speed Suggestions

User Timings

▼ Site Search

Overview

Usage

Search Terms

Pages

▼ Events

Overview

Top Events

Pages

Events Flow



Pages & pageviews



Speed & timing



Site search



# Behavior Overview (What)



Overview

**Behavior Flow**

▼ Site Content

All Pages

Content Drilldown

Landing Pages

Exit Pages

▼ Site Speed

Overview

Page Timings

Speed Suggestions

User Timings

▼ Site Search

Overview

Usage

Search Terms

Pages

▼ Events

Overview

Top Events

Pages

Events Flow



Pages & pageviews



Speed & timing



Site search



Custom data!



# Behavior Overview (What)

### STANDARD REPORTS

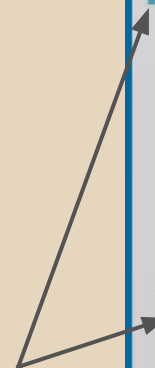
- Real-Time
- Audience
  - Overview
  - Demographics
  - Interests
  - Geo
  - Behavior
  - Technology
  - Mobile
  - Custom
    - Custom Variables
    - User Defined
- Visitors Flow
- Acquisition
- Behavior

Custom **variables** help define the audience



**Events** help clarify 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
- 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

# Which to use?

- Depends on what you want to know!

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 VARIABLES (aka CUSTOM DIMENSIONS)

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 some element Z is on each page as users browse

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

# Top Events

Nov 17, 2013 - Dec 17, 2013

Customize Email Export Add to Dashboard Shortcut

All Visits  
100.00%



## Explorer

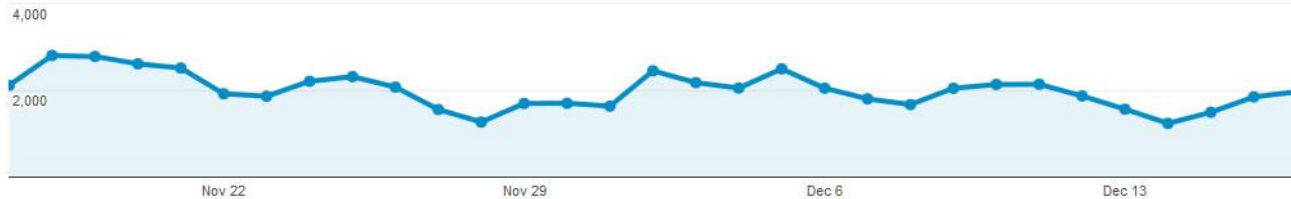
Event Site Usage Ecommerce

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

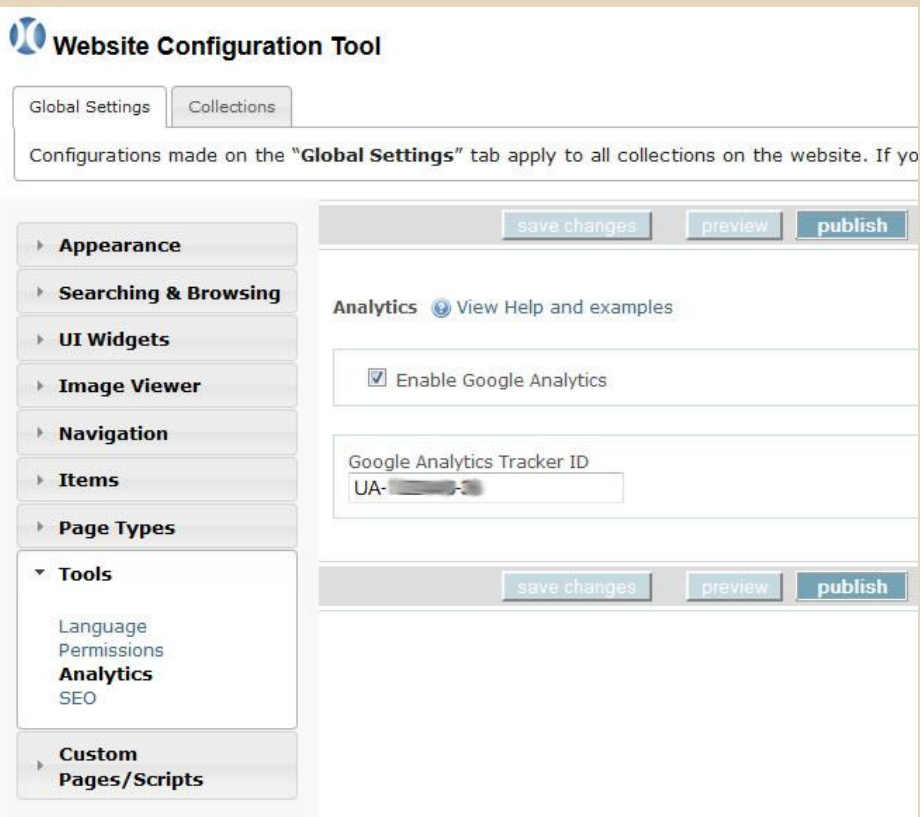
advanced [Grid] [Pie] [List] [Filter] [Print]

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

# Examples!

- Events in CONTENTdm
  - Built-in
  - Custom
- Variables in Drupal
  - Google Analytics module

# Events - built in to 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...'. 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, and SEO. The 'Analytics' sub-option is selected. The main panel shows the 'Analytics' settings, including a 'View Help and examples' link, a checked checkbox for 'Enable Google Analytics', and a text input field for the 'Google Analytics Tracker ID' containing '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 <span>?</span>	Total Events <span>?</span> ↓
		63,704 % of Total: 100.00% (63,704)
<input type="checkbox"/>	1. <a href="#">compound objects</a>	45,194
<input type="checkbox"/>	2. <a href="#">search</a>	9,788
<input type="checkbox"/>	3. <a href="#">download</a>	3,260
<input type="checkbox"/>	4. <a href="#">facets</a>	2,394
<input type="checkbox"/>	5. <a href="#">advanced search</a>	1,595
<input type="checkbox"/>	6. <a href="#">print</a>	1,137
<input type="checkbox"/>	7. <a href="#">navigation</a>	157
<input type="checkbox"/>	8. <a href="#">reference url</a>	118
<input type="checkbox"/>	9. <a href="#">ratings</a>	19
<input type="checkbox"/>	10. <a href="#">page flip</a>	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

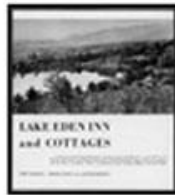
Narrow your search by:

▼ 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 <span>?</span>	Total Events <span>?</span> ↓
		1,720 % of Total: 2.70% (63,704)
<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


# Events - custom 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

Page 1

Page 2

Page 3

Page 5

**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

At the State Library of North Carolina, we wanted to record data from certain metadata fields in CONTENTdm

# Events - example from SLNC

<b>Place</b>	Brunswick County, North Carolina, United States
<b>Description</b>	"March 2013."
<b>Publisher</b>	N.C. Department of Transportation, Transportation Planning Branch
<b>Agency-Current</b>	North Carolina Department of Transportation
<b>Rights</b>	State Document see <a href="http://digital.ncdcr.gov/u?p249901coll22,63754">http://digital.ncdcr.gov/u?p249901coll22,63754</a> ↗
<b>Physical Characteristics</b>	153 p. of electronic text : digital, PDF file with maps and plans.
<b>Collection</b>	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:
  - 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](https://github.com/joshwilsonnc/ga_cdm)



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



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

# Drupal example

## 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 <input type="text"/>
Slot number The custom variable name. The custom variable value.			The scope for the custom variable.
2	Content source	[node:taxonomy_vocabulary_11]	Page <input type="text"/>
Slot number The custom variable name. The custom variable value.			The scope for the custom variable.
3	<input type="text"/>	<input type="text"/>	Page <input type="text"/>
Slot number The custom variable name. The custom variable value.			The scope for the custom variable.
4	<input type="text"/>	<input type="text"/>	Page <input type="text"/>
Slot number The custom variable name. The custom variable value.			The scope for the custom variable.
5	<input type="text"/>	<input type="text"/>	Page <input type="text"/>
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, as you would add any custom JS.

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

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):

```
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); })();
```

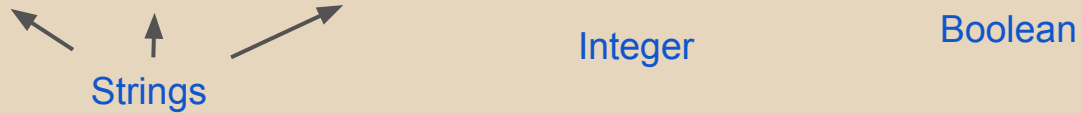
## Universal Analytics snippet (analytics.js):

```
(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');
```

# 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);
```

ga method  
parameters



# Events Code Labeling

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](mailto:josh.wilson@ncdcr.gov)

Code:

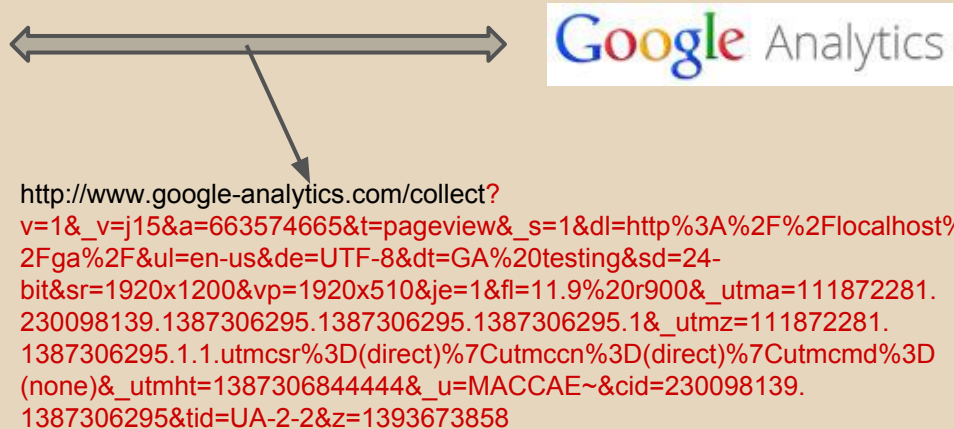
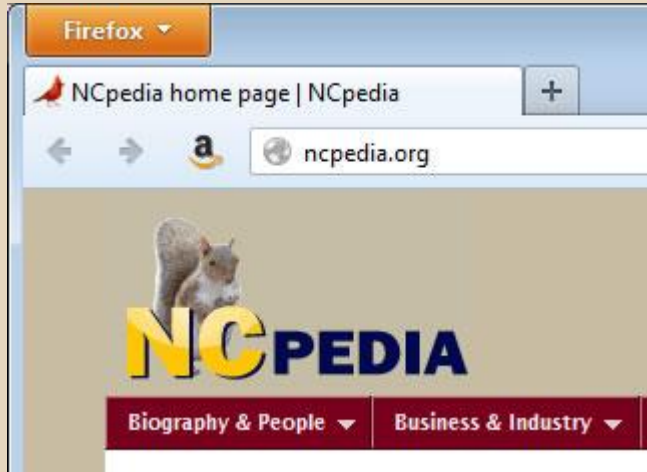
[https://github.com/joshwilsonnc/ga\\_cdm](https://github.com/joshwilsonnc/ga_cdm)

Thanks!

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...



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

## Classic snippet (ga.js):

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

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

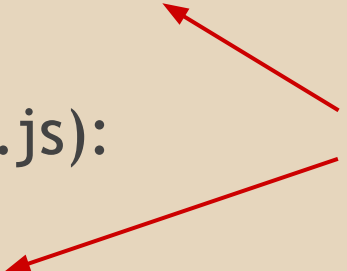
```
_gaq.push(['_trackPageview']);
```

```
(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

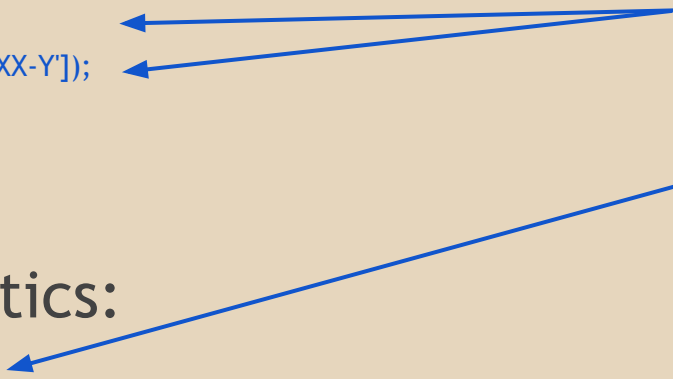
## Classic snippet (ga.js):

```
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
```

# 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