



# join

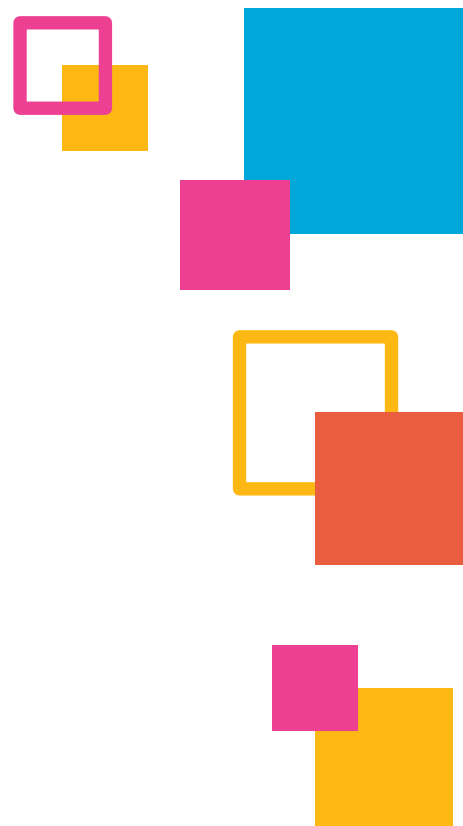


# Hands-on Lab: Dive into the Details: Powerful Data Drills



Shelley Fussman

Sales Engineer





**looker.com/hol**

Select the **Dive into the Details: Powerful Data Drills** lab in the drop-down



# Shelley Fussman

Sales Engineer



# Agenda

Introductions

Storytelling with data

Liquid

Custom limits & sorts

Visual drills

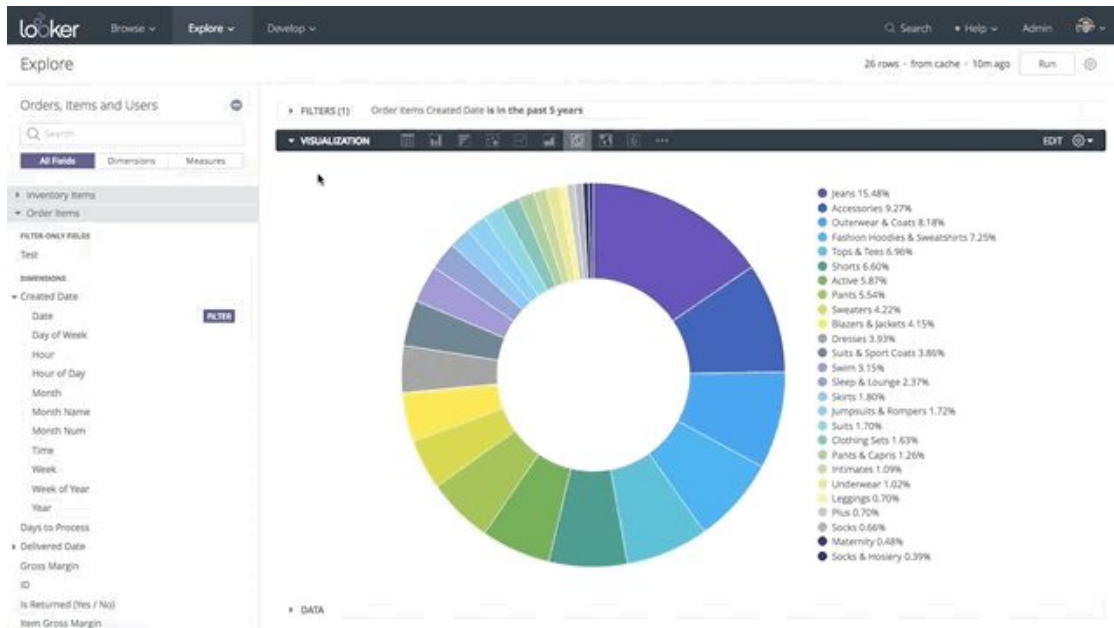
Questions



# Storytelling with data (drills)

# What is drilling?

Drills allow you to go from **high-level metrics** like sums and counts into the **row-level data** that goes into those calculations. This has the benefit of showing general trends, while also allowing deeper dives to find outliers that may not surface at the high level.



# Why drill?

A great place to start is to talk to your users and ask what questions come up when viewing reports.

- **What is the next question they have after seeing a number?**
- Do certain visualizations always lead them to ask iterative questions?
- What values do they think might have contributed to a number that they'd like to confirm?

Designing your drills with these questions in mind will improve your users' experience and help them tell better stories from the data.



# Drill Examples

Adding drilling capabilities to metrics opens up the door to follow-up questions and diving deeper into the story of your data.

- Drill into out of stock items to see **which orders will be affected**.
- Click on an NPS score to show the names of the **least satisfied customers**.
- Show **distribution of average time spent** on a webpage in a boxplot drill.
- Reveal and understand **outliers** in an average number.
- Understand the **breakdown of sources** that feed into an overall number (e.g., contracts, premier offerings, etc).

# Liquid



# What is Liquid?

**Liquid** is an open-source, Ruby-based template language created by Shopify. It can be used in conjunction with LookML to build more flexible, dynamic code.

Liquid code is denoted by braces {} and falls into 3 different categories:

1. **Objects**: Tell Liquid where to show content on a page

```
dimension: product_image {  
  sql: ${product_id} ;;  
  html:  ;;  
}
```

1. **Tags**: Create the logic and control flow for templates

```
label: {% if _user_attributes['customer'] == 'A' %} Standard Margin  
      {% else %} Gross Margin {% endif %}
```

1. **Filters**: Change the output of a Liquid object

```
{% assign last_filter = part_split_at_sorts | first %}  
{% assign user_filters = user_filters | append: '&f' %}
```

# Using Liquid in Looker

There are two places in LookML where Liquid can be used to affect a drill:

- The `html` parameter
- The `link` parameter

A reference sheet for all available Liquid variables can be found [here](#).

# Liquid Parameters

## Referencing LookML Objects

Variable	Definition	Example Output
<code>value</code>	The raw value of the field returned by the database query.	8521935
<code>rendered_value</code>	The value of the field with Looker's default formatting.	\$8,521,935.00
<code>filterable_value</code>	The value of the field formatted for use as a filter in a Looker URL.	8521935
<code>link</code>	The URL to Looker's default drill link. Note that some fields will not have any default link.	/explore/thelook/orders?fields=orders.order_amount&limit=500
<code>linked_value</code>	The value of the field with Looker's default formatting and default linking.	<a href="#">\$8,521,935.00</a>

# Looker URLs



# Components of a URL

https://**HOST**/explore/**model name**/**Explore name**?fields=**fieldname1, fieldname2**

Your Looker URL

The LookML model name

The LookML Explore name

The dimensions and  
measures you add to the  
Explore

# Components of a URL

https://HOST/explore/model name/Explore name?fields=fieldname1, fieldname2

&pivots=**fieldname** sets the pivots

&f[**fieldname**]=**FOOBAR** sets the filters

&sorts=**fieldname** sets the sort fields

&limit=**500** sets the limit fields

&vis=**vis settings** sets the visualization settings

&filter\_config=**filter settings** sets the filters settings (contains, etc)

&dynamic\_fields=**[table calc or custom fields]**



# Components of a URL

Try it out! Navigate to [join2019.looker.com](https://join2019.looker.com) and open the **Order and Sales** Explore. Play around with adding fields and filters, and changing the visualization settings.

Looker will shorten the URL components into a hash, so to see the full URL type **Command-U** for a Mac and **Ctrl+U** for Windows.

It may help to decode the URL to better see the components.

# Components of a URL

You can use `{{ link }}` to reference the URL to Looker's default drill link. By adding in URL parameters like `limit` or `sort`, you can change the behavior of the drill.

```
{{ link }}&limit=500
```

The background is a solid purple color. A series of thin, light-purple lines radiate from a central point, creating a sunburst or starburst effect. There are three abstract, light-purple shapes: a vertical bar with horizontal lines on the left, a rectangular grid of dots on the right, and a horizontal bar with vertical lines at the bottom.

# Let's build

# Custom limits and sorts



# Custom limits and sorts

## Default drill path:

- 500 rows
- Sorted by first measure

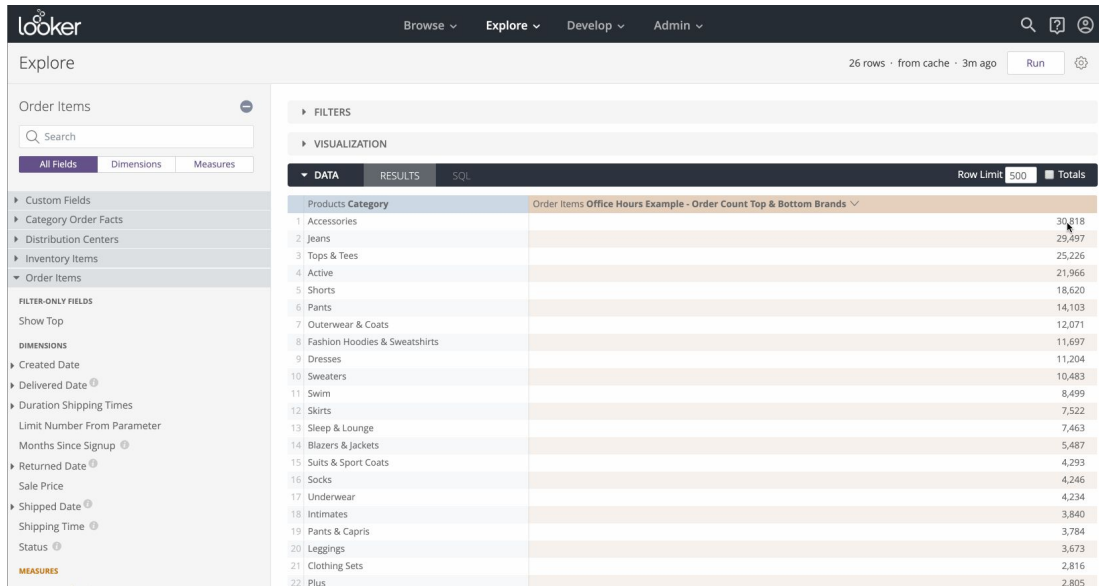
## Custom drill path:

- Limit rows displayed
- Choose the measure and direction to sort by

We can accomplish this using **Liquid** and adding to the **URL** of our drill path!

# Custom limits and sorts example

Your fellow project managers wish to see the top 20 brands, bottom 20 brands, and number of orders for each brand when they drill into a category. We can create multiple custom drills!



The screenshot shows the Looker 'Explore' interface. On the left, the 'Order Items' model is selected, and the 'Custom Fields' section is expanded. The 'FILTERS' and 'VISUALIZATION' tabs are active. The 'DATA' tab is selected, showing a table of products and their order counts. The table is titled 'Order Items Office Hours Example - Order Count Top & Bottom Brands'. The table has 22 rows, with the first 20 rows showing products and their order counts, and the last two rows showing 'Totals'. The 'Row Limit' is set to 500.

Products Category	Order Items Office Hours Example - Order Count Top & Bottom Brands
1 Accessories	30,818
2 Jeans	29,497
3 Tops & Tees	25,226
4 Active	21,966
5 Shorts	18,620
6 Pants	14,103
7 Outerwear & Coats	12,071
8 Fashion Hoodies & Sweatshirts	11,697
9 Dresses	11,204
10 Sweaters	10,483
11 Swim	8,499
12 Skirts	7,522
13 Sleep & Lounge	7,463
14 Blazers & Jackets	5,487
15 Suits & Sport Coats	4,293
16 Socks	4,246
17 Underwear	4,234
18 Intimates	3,840
19 Pants & Capris	3,784
20 Leggings	3,673
21 Clothing Sets	2,816
22 Plus	2,805

# Custom limits and sorts format

You can control the number of rows that are displayed in a drill by adding `&limit=##` to the URL and you can control the sorting by adding `&sorts='view_name.field_name'`

```
{{link}}&limit=number
```

```
{{link}}&sorts=fieldname+asc
```

Because you can create multiple links, you can make multiple drills with different sorts.

```
measure: order_count {  
  type: count  
  drill_fields: [detail*]  
  link: { label: "Explore Top 20 Brands"  
    url: "{{link}}&sorts=order_items.order_count+desc&limit=20"}  
  link: { label: "Explore Bottom 20 Brands"  
    url: "{{link}}&sorts=order_items.order_count+asc&limit=20" }}
```

# Custom limits and sorts exercise

Try it out! As the product manager of an e-commerce clothing store, you need to be able to see how many orders are being made in each product category. The **Order Items** Explore is a good place to start.

Let's add two custom drills to the count measure so that our fellow project managers can see the top/bottom 20 brands and number of orders for each brand when they drill into a category.

```
measure: order_count {  
  type: count  
}
```



# Custom limits and sorts exercise

```
measure: order_count {  
  type: count  
  drill_fields: [products.brand, order_count]  
  link: { label: "Explore Top 20 Brands"  
    url: "{{link}}&sorts=order_items.order_count+desc&limit=20"}  
  link: { label: "Explore Bottom 20 Brands"  
    url: "{{link}}&sorts=order_items.order_count+asc&limit=20" }}
```

# Visual drilling

The background is a solid purple color with a series of thin, light-purple lines radiating from a central point, creating a sunburst or starburst effect. There are three small, dark-purple geometric shapes: a cluster of horizontal lines on the left, a rectangular grid of dots on the right, and a series of vertical bars of varying heights at the bottom right.

# Visual drilling

## Default drill path:

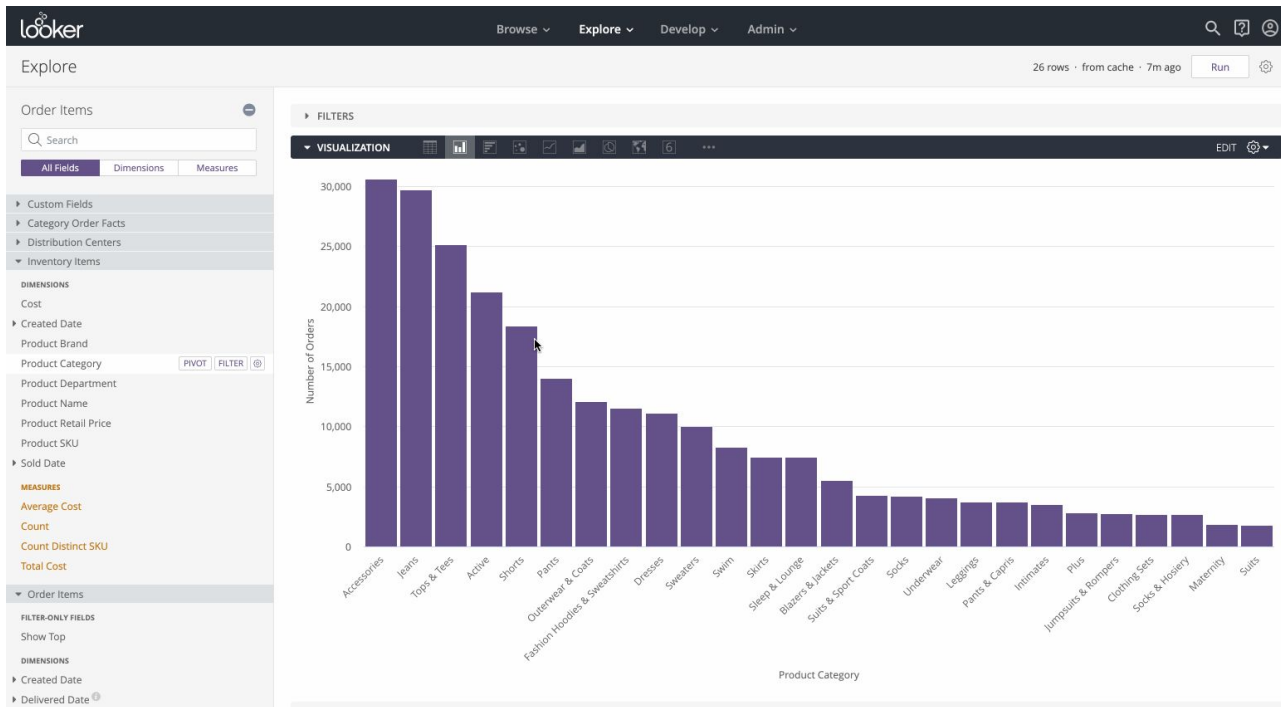
- Looker automatically picks a visualization based on the data
- Often results in a data table for complex drill configurations

## Custom drill path:

- Choose the visualization and data to be displayed
- Enables you to consume much larger quantities of data at once

We can accomplish this by setting **vis\_config** in the **URL**

# Visual drilling example



# Visual drilling

It's possible to make these drill visualizations highly customized by setting the visualization configuration in the URL. Visualization type, colors, labels, and all other attributes can be controlled in the URL.

`https://HOST/explore/model name/Explore name?fields=fieldname1,  
fieldname2&vis=vis settings`

`{{ link }}&vis=vis settings`

# Visual drilling

Using the `assign` tag in Liquid allows you to predefine all of the visualization settings as JSON strings. You can then apply those settings to the drill link using Liquid substitution.

```
link: {  
  label: "Label Text Here"  
  url: "  
    {% assign vis_config = 'VISUALIZATION SETTINGS' %}  
    {{link}}&vis_config={{ vis_config | encode_uri }}  
  "  
}
```

# Visual drilling

The background is a solid purple color with a series of thin, light-purple lines radiating from a central point, creating a sunburst or starburst effect. There are three small, dark-purple geometric shapes: a cluster of horizontal lines on the left, a rectangular grid of dots on the right, and a series of vertical bars of varying heights in the lower right.

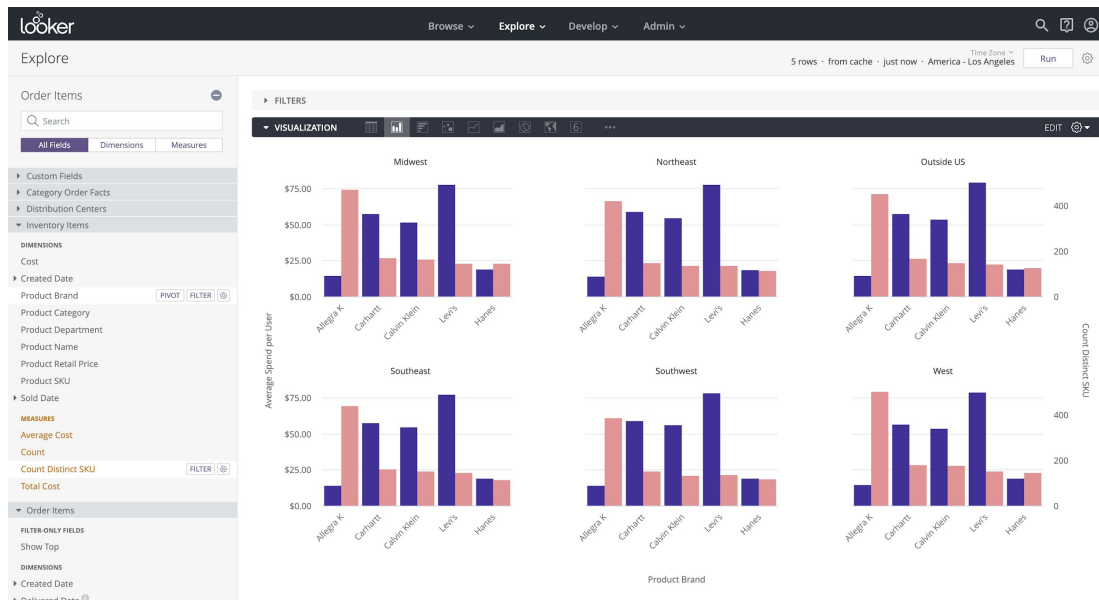
# GitHub repo for URL generator:

<https://xin-looker.github.io/>



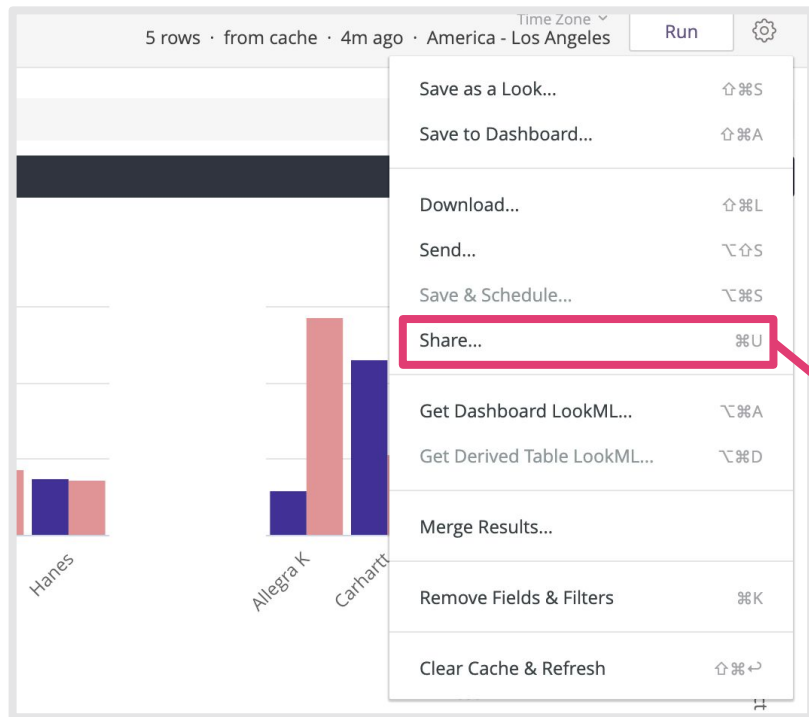
# Visual drilling exercise, part 1

The first step to creating a custom visualization drill is to use an Explore to build the visualization you want in the drill modal. This will serve as the basis for the visualization setting in the URL.



# Visual drilling exercise, part 2

Get the expanded URL, which contains the visualization settings.



Share URLs

Development Mode Enabled

Explorations shared in Development Mode may not display correctly to other users until you sync your LookML with production.

Short URL

<https://teach.corp.looker.com/x/jBGzgRcgggRtZ0DolsTXLB>

Expanded URL

[https://teach.corp.looker.com/explore/ecommerce\\_data/order\\_items?fields=inventory\\_items.pro](https://teach.corp.looker.com/explore/ecommerce_data/order_items?fields=inventory_items.pro)

# Visual drilling exercise, part 3

Use this URL generator to get the part of the URL that contains the visualization settings.

<https://xin-looker.github.io/>

## Step 1: Base url for visualization configuration

Create the visualization you desire in the explore and paste the full url here

```
https://saleseng.dev.looker.com/explore/Shelley/order_items?  
fields=order_items.created_month_num,order_items.created_year,order_items.total_sale_price&pivots=order_items.created_year&fill_fields=or  
der_items.created_month_num,order_items.created_year&f[order_items.created_year]=4+years&sorts=order_items.total_sale_price+desc+0,o  
rder_items.created_year&limit=500&column_limit=50&vis=%7B%22x_axis_gridlines%22%3Afalse%2C%22y_axis_gridlines%22%3Atrue%2C%2  
2show_view_names%22%3Afalse%2C%22show_y_axis_labels%22%3Atrue%2C%22show_y_axis_ticks%22%3Atrue%2C%22y_axis_tick_density
```

## Step2 (Optional): Customize the fields and totals

Fields should be fully scoped like "view\_name.field\_name"

Drill Fields

order\_items.created\_month\_num,order\_items.created\_year,order\_items.total\_sale\_price

Pivot Fields

order\_items.created\_year

Filter

order\_items.created\_year


4+years

# Visual drilling exercise, part 4

Paste the generated URL from the converter into the LookML `url` field between double quotation marks ("" ). Note: Make sure the fields in the visual drill are also in the LookML `drill_fields:` field.

```
link: {  
  label: "Label Text Here"  
  url: "  
    {% assign vis_config = 'VISUALIZATION SETTINGS' %}  
    {{link}}&vis_config={{ vis_config | encode_uri }}  
  "  
}
```

URL from generator



# Questions?

The background is a solid purple color. A central point from which numerous thin, light-purple lines radiate outwards across the entire frame. There are three distinct clusters of small, light-purple squares: one on the left side, one in the upper right quadrant, and one in the lower right quadrant.



looker





# Thank you

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