



6: Debugging





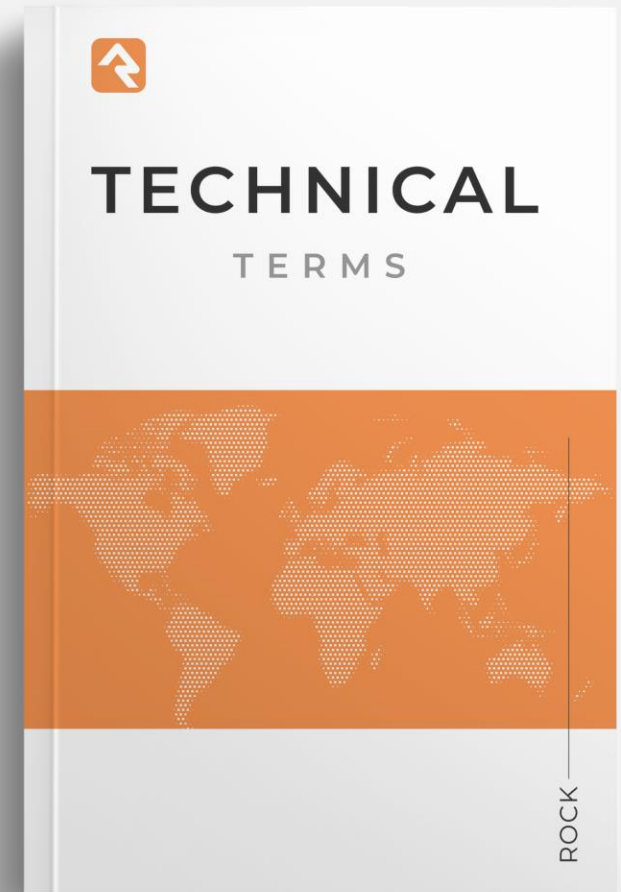
Bug [buhg]

Unexpected problem with software or hardware



Demystified:

“Why isn’t this doing what I want it to?”



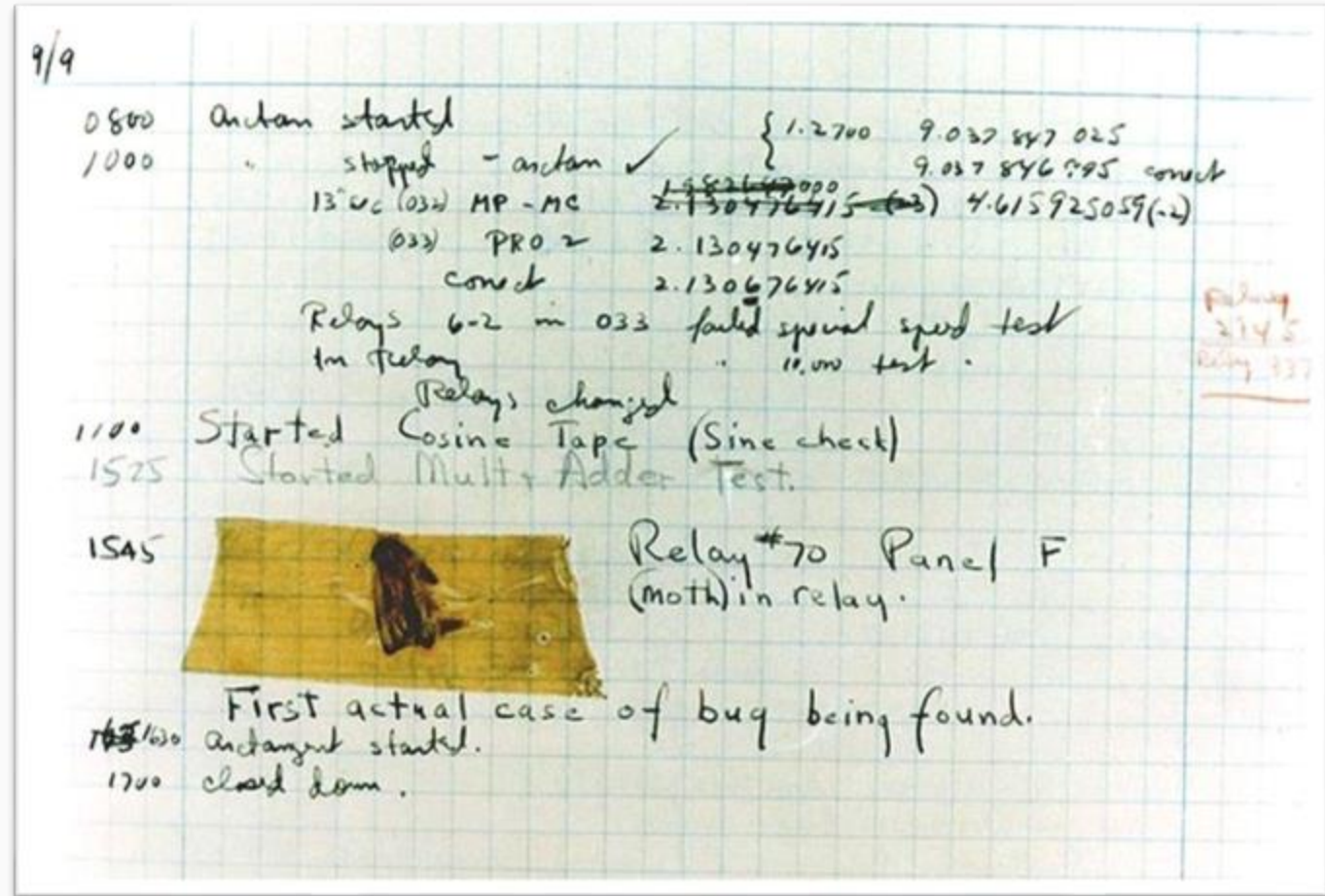


The World's First Software Bug

Thomas Edison reported “bugs” in his designs as early as the 1800s, but this was the first bug identified in computer software.



Researchers at
Harvard, 1945





How to Approach Debugging

(and avoid guessing)!

“Step through” the template

Baby steps on the bus, baby steps down the aisle



Check your variables

Say what?



Confirm your assumptions

Merge fields from the block, etc.





Confirm Your Assumptions

Check the block's Merge Fields

```
1 {{ 'Lava' | Debug }}
```

Lava Debug Info

Below is a listing of available merge fields for this block. Find out more on Lava at rockrms.com/lava.

Page Parameter



Current Person



Current Visitor



Campuses



Pagination



Linked Pages



Items



Item Tag List



Archive Summary



- RockVersion - 1.16.6.6
- CurrentPageUrl - /blog?Tag=TagTemplate
- ArchiveSummaryPageUrl - /blog?Year=YearTemplate&Month=MonthTemplate

Person



Global Attribute





Confirm Your Assumptions

Check the block's Merge Fields

```
1 {{ 'Lava' | Debug }}
```

Lava Debug Info

Below is a listing of available merge fields for this block. Find out more on Lava at rockrms.com/lava.

Page Parameter

Current Person

CurrentPerson properties can be accessed by `{{ CurrentPerson.[PropertyKey] }}`. Find out more about using 'Person' fields in Lava at rockrms.com/lava/person.

- IsSystem - True
- RecordTypeValueld - 1
- RecordStatusValueld - 3
- RecordStatusLastModifiedDateTime -
- RecordStatusReasonValueld -
- ConnectionStatusValueld - 66
- ReviewReasonValueld -
- IsDeceased - False
- TitleValueld -
- FirstName - Alisha
- NickName - Alisha
- MiddleName -
- LastName - Admin
- SuffixValueld -
- Photold - 417
- BirthDay -
- BirthMonth -
- BirthYear -
- Age -
- Gender - Unknown
- MaritalStatusValueld -
- AnniversaryDate -
- GraduationYear -
- GivingId - P1
- GivingLeaderId - 1
- Email - admin@organization.com
- IsEmailActive - False
- EmailNote -
- EmailPreference - EmailAllowed



Confirm Your Assumptions

Check the block's Merge Fields

CurrentPerson properties can be accessed by `{{ CurrentPerson.[PropertyKey] }}`. Find out more about using 'Person' fields in Lava at rockrms.com/lava/person.

- IsSystem - True
- RecordTypeValueld - 1
- RecordStatusValueld - 3
- RecordStatusLastModifiedDateTime -
- RecordStatusReasonValueld -
- ConnectionStatusValueld - 66
- ReviewReasonValueld -
- IsDeceased - False
- TitleValueld -
- FirstName - Alisha
- NickName - Alisha
- MiddleName -
- LastName - Admin

```
1 {{ CurrentPerson.Nickname }}
```





Confirm Your Assumptions

Check the block's Merge Fields

CurrentPerson properties can be accessed by `{{ CurrentPerson.[PropertyKey] }}`. Find out more about using 'Person' fields in Lava at rockrms.com/lava/person.

- IsSystem - True
- RecordTypeValued - 1
- RecordStatusValued - 3
- RecordStatusLastModifiedDateTime -
- RecordStatusReasonValued -
- ConnectionStatusValued - 66
- ReviewReasonValued -
- IsDeceased - False
- TitleValued -
- FirstName - Alisha
- NickName - Alisha
- MiddleName -
- LastName - Admin

```
1 {{ CurrentPerson.NickName }}
```




Confirm Your Assumptions

Check the block's Merge Fields

```
1 {{ CurrentPerson.NickName }}
```



Remember

Lava is caSe sENsITivE



Confirm Your Assumptions

Even if you can't click

```
1 {% assign item = Items | First %}  
2 <pre>{{ item | ToJSON }}</pre>
```

JSON = JavaScript Object Notation



Douglas Crockford
(Not Jason)





Confirm Your Assumptions

Even if you can't click

```
1 {% assign item = Items | First %}  
2 <pre>{{ item | ToJSON }}</pre>
```

```
1 {  
2   "ContentChannelType": {  
3     "IsSystem": false,  
4     "Name": "Blogs",  
5     "DateRangeType": 1,  
6     "IncludeTime": true,  
7     "ShowInChannelList": true,  
8     "Id": 3,  
9     "IdKey": "yqMlAxmENZ",  
10    "Guid": "c0549458-dccf-4e02-8978-b15932576f68"  
11  },  
12  "ContentChannelId": 3,  
13  "ContentChannelTypeId": 3,  
14  "Title": "Mea Animal Aperiam Ornatus Eu",  
15  "Content": "Dolor intellegebat ad vim. Clita tritani...",  
16  "Priority": 100,  
17  "Status": 2,  
18  "ApprovedByPersonAliasId": 10,  
19  "ApprovedDateTime": "2015-11-19T00:00:00",  
20  "StartDateTime": "2015-11-19T00:00:00",  
21  "ExpireDateTime": "2050-08-02T00:00:00",  
22  "Permalink": null,  
23  "Order": 0,  
24  "ItemGlobalKey": "mea-animal-aperiam-ornatus-eu",  
25  "Id": 9,  
26  "IdKey": "bD9PD7lqzZ",  
27  "Guid": "e214f2a7-cb53-4640-acd5-cead2190c99d"  
28 }
```



Meeting JSON

Decoding the Code

Primitives

Bear

```
1 "Bear"
```

Arrays

0 Bear

1 Dog

2 Rhino

```
1 [ "Bear", "Dog", "Rhino" ]
```

Objects

FirstName: Theodore

NickName: Ted

LastName: Decker

...

```
1 {  
2   "FirstName": "Theodore",  
3   "NickName": "Ted",  
4   "LastName": "Decker"  
5 }
```



Meeting JSON

Decoding the Code



Only object properties can be named in JSON

Because ... reasons.



```
1 "Bear"
```

```
1 [ "Bear", "Dog", "Rhino" ]
```

```
1 {  
2   "FirstName": "Theodore",  
3   "NickName": "Ted",  
4   "LastName": "Decker"  
5 }
```



Named Properties

Primitives

```
favoriteAnimal
```

```
Bear
```

```
1 "Bear"
```



```
1 {  
2   "FavoriteAnimal": "Bear"  
3 }
```



Named Properties

Arrays

favoriteAnimals

0 Bear

1 Dog

2 Rhino

```
1 [ "Bear", "Dog", "Rhino" ]
```

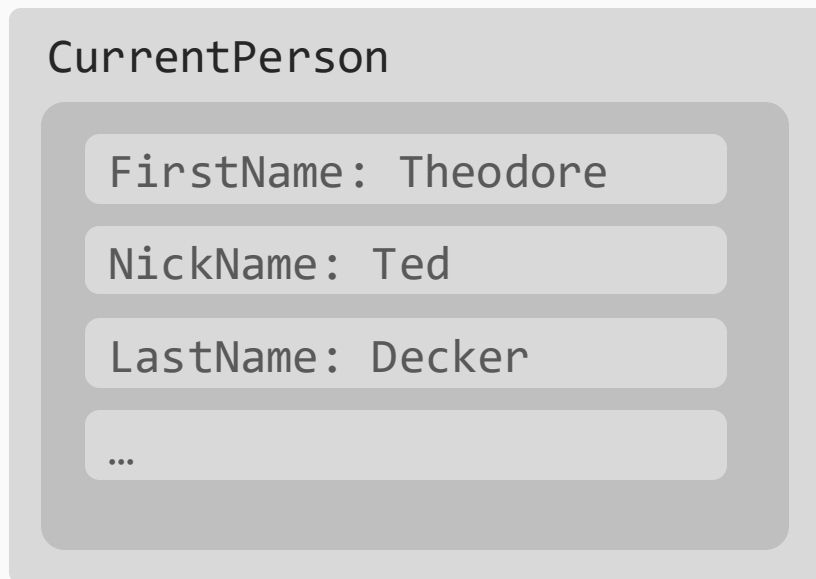


```
1 {  
2   "FavoriteAnimals": [  
3     "Bear",  
4     "Dog",  
5     "Rhino"  
6   ]  
7 }
```



Named Properties

Objects



```
1 {  
2   "FirstName": "Theodore",  
3   "NickName": "Ted",  
4   "LastName": "Decker"  
5 }
```

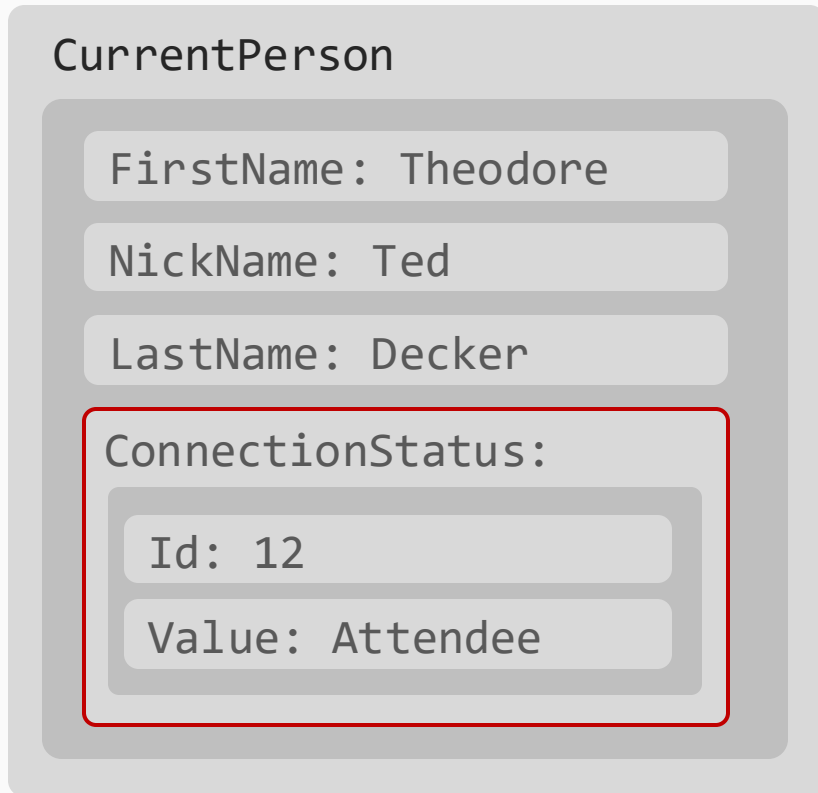


```
1 {  
2   "CurrentPerson": {  
3     "FirstName": "Theodore",  
4     "NickName": "Ted",  
5     "LastName": "Decker"  
6   }  
7 }
```




Named Properties

Properties can be objects.



```
1  {  
2    "CurrentPerson": {  
3      "FirstName": "Theodore",  
4      "NickName": "Ted",  
5      "LastName": "Decker",  
6      "ConnectionStatusValue": {  
7        "Id": 12,  
8        "Value": "Attendee"  
9      }  
10   }  
11 }
```



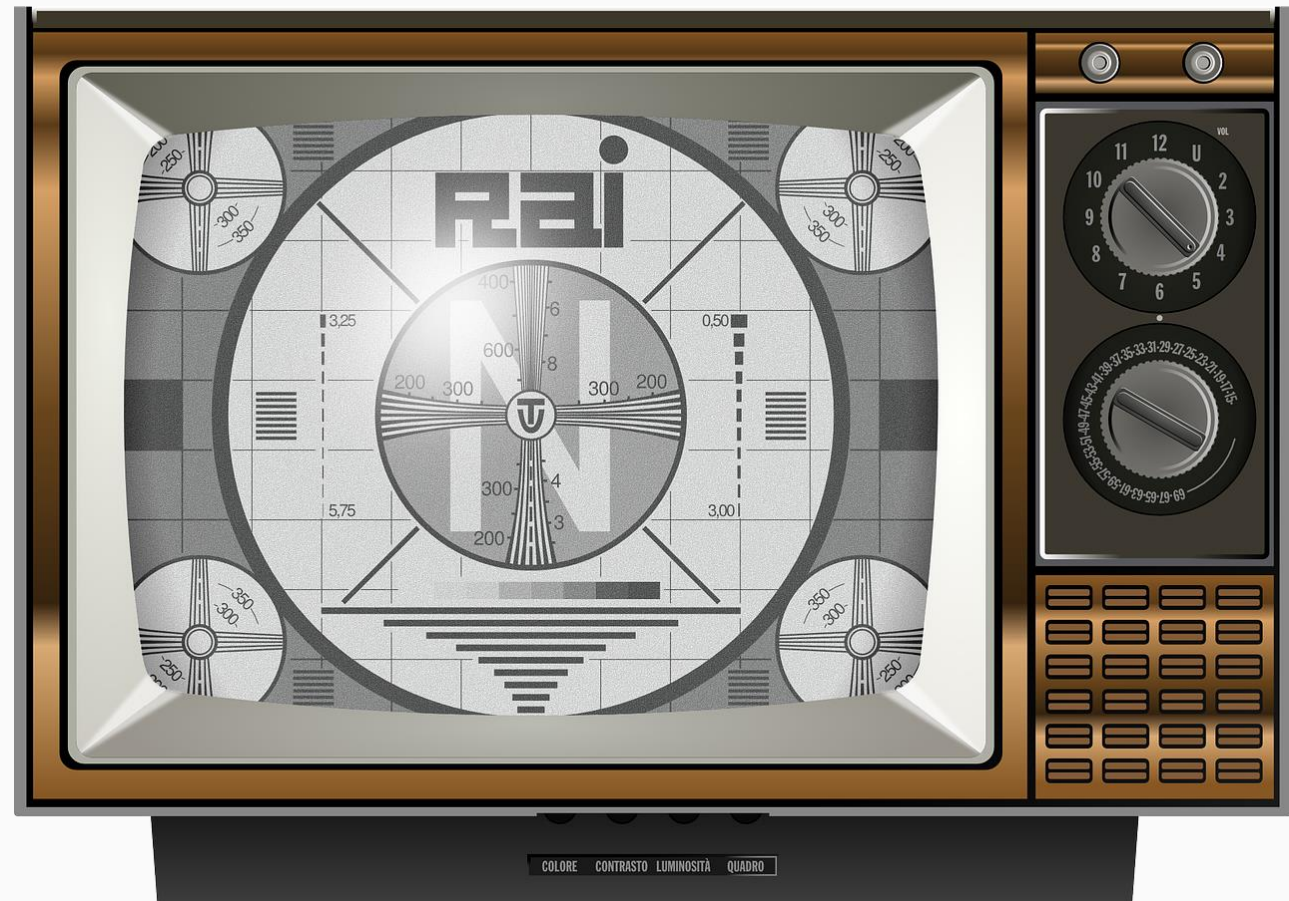
Named Properties



```
1 {  
2   "CurrentPerson": {  
3     "FirstName": "Theodore",  
4     "NickName": "Ted",  
5     "LastName": "Decker",  
6     "ConnectionStatusValue": {  
7       "Id": 12,  
8       "Value": "Attendee"  
9     }  
10  }  
11 }
```



Back to Debugging...





Confirm Your Assumptions

```
1 {% assign item = Items %}  
2  
3 Our blog post is titled  
4 {{ item.Title }}
```

Our blog post is titled





Confirm Your Assumptions

```
1 {{ 'Lava' | Debug }}
```

Typical pattern
(but not the only option)

Confirmed: Title is set

Linked Pages

Items

Items properties can be accessed by `{% for item in Items %}{{ item.[PropertyKey] }}{% endfor %}`.

{

- [0]
 - PrimarySlug - mea-animal-aperiam-ornatus-eu
 - ContentChannelId - 3
 - ContentChannelTypeId - 3
 - Title - Mea Animal Aperiam Ornatus Eu
 - Content - <p>Dolor intellegebat ad vim. Clita tritani...
 - StructuredContent -
 - Priority - 100
 - Status - Approved
 - ApprovedByPersonAliasId - 10
 - ApprovedDateTime - 11/19/2015 12:00:00 AM
 - StartDateTime - 11/19/2015 12:00:00 AM



Confirm Your Assumptions

```
1 {{ 'Lava' | Debug }}
```



Eureka!

Items is an array, not an object

Linked Pages

Items

Items properties can be accessed by `{% for item in Items %}{{ item.[PropertyKey] }}{% endfor %}`.

{

• [0]

- PrimarySlug - mea-animal-aperiam-ornatus-eu
- ContentChannelId - 3
- ContentChannelTypeId - 3
- Title - Mea Animal Aperiam Ornatus Eu
- Content - <p>Dolor intellegebat ad vim. Clita tritani...
- StructuredContent -
- Priority - 100
- Status - Approved
- ApprovedByPersonAliasId - 10
- ApprovedDateTime - 11/19/2015 12:00:00 AM
- StartDateTime - 11/19/2015 12:00:00 AM



Confirm Your Assumptions

```
1 <pre>{{ 'Items' | ToJSON }}</pre>
```



Remember:

Objects are made up of properties.
Arrays aren't.



Also Remember:

Items in an array are numbered,
not named.

```
1 {  
2   "Items": [  
3     {  
4       "Title": "Mea Animal...",  
5       "Status": "Approved",  
6       "StartDateTime": "1/9/2015"  
7     },  
8     {  
9       "Title": "Probo Senserit...",  
10      "Status": "Approved",  
11      "StartDateTime": "1/8/2015"  
12    }  
13  ]  
14 }
```



Confirm Your Assumptions

```
1 <pre>{{ 'Items' | ToJSON }}</pre>
```



Remember:

Objects are made up of properties.
Arrays aren't.



Also Remember:

Items in an array are numbered,
not named.

Items

Title: Mea Animal...

Status: Approved

StartDateTime: 1/9/15

...

Title: Probo Senserit...

Status: Approved

StartDateTime: 1/8/15

...



One Solution:

```
1 Our blog post is titled:
2 {% for item in Items %}
3   {{ item.Title }}
4   {% break %}
5 {% endfor %}
```

**Our blog post is titled: Mea Animal
Aperiam Ornatus Eu**



Check Your Variables

A Time-Honored Tradition 🤪

```
1 {% assign var = 1 %}  
2 <p>Value after assignment (should be "1"):</p>  
3 <pre>{{ var }}</pre>
```



Check Your Variables

```
1 {% for item in Items %}  
2   {% assign person = item | Attribute:'Author' %}  
3   <p>  
4     {{ item.Title }}  
5     <small>By {{ person.FullName }}</small>  
6   </p>  
7 {% endfor %}
```

Mea Animal Aperiam By





Check Your Variables

```
1 {{ Items | ToJSON }}
```

Items

```
1 {{ Items | First | Attribute:'Author' }}
```

item | Attribute:'Author'



Check Your Variables

```
1 <pre>{{ Items | ToJSON }}</pre>
2 {{ Items | First | Attribute:'Author' }}
3
4 {% for item in Items %}
5     {% assign person = item | Attribute:'Author' %}
6     <p>
7         {{ item.Title }}
8         <small>By {{ person.FullName }}</small>
9     </p>
10 {% endfor %}
```

```
[
  {
    "Id": 24,
    "Title": "Mea Animal Aperiam"
  },
  {
    ....
  }
]
```

Ted Decker

Mea Animal Aperiam By



Step Through Your Template

Line by line, step by step.

```
1  {% for item in Items %}
2    {% assign person = item | Attribute:'Author' %}
3    <p>
4      {{ item.Title }}
5      <small>By {{ person.FullName }}</small>
6    </p>
7  {% endfor %}
```



Step Through Your Template

```
1  {% for item in Items %}
2    {{ forloop.length }}
3    {% break %}
4
5    {% assign person = item | Attribute:'Author' %}
6    <p>
7      {{ item.Title }}
8      <small>By {{ person.FullName }}</small>
9    </p>
10 {% endfor %}
```

Let's make really sure
our Items list is valid

Keep the rest of the
loop from running.

8



Step Through Your Template

```
1  {% for item in Items %}
2    //- {{ forloop.length }}
3    {{ item.Id }}
4    {% break %}
5
6    {% assign person = item | Attribute:'Author' %}
7    <p>
8      {{ item.Title }}
9      <small>By {{ person.FullName }}</small>
10   </p>
11  {% endfor %}
```

Let's make sure our
item itself is valid

17



Step Through Your Template

```
1  {% for item in Items %}
2    //- {{ forloop.length }}
3    //- {{ item.Id }}
4
5    {% assign person = item | Attribute:'Author' %}
6    {{ person }} ←
7    {% break %}
8
9    <p>
10      {{ item.Title }}
11      <small>By {{ person.FullName }}</small>
12    </p>
13  {% endfor %}
```

Make sure the attribute
has a value

Ted Decker



Step Through Your Template

```
1  {% for item in Items %}
2    //- {{ forloop.length }}
3    //- {{ item.Id }}
4
5    {% assign person = item | Attribute:'Author' %}
6    {{ person.Id }} ←
7    {% break %}
8
9    <p>
10      {{ item.Title }}
11      <small>By {{ person.FullName }}</small>
12    </p>
13  {% endfor %}
```

Make sure the value is
the record we expect.





Step Through Your Template

```
1  {% for item in Items %}
2    //- {{ forloop.length }}
3    //- {{ item.Id }}
4
5    {% assign person = item | Attribute:'Author','Object' %}
6    {{ person.Id }}
7    {% break %}
8
9    <p>
10      {{ item.Title }}
11      <small>By {{ person.FullName }}</small>
12    </p>
13  {% endfor %}
```

5



Step Through Your Template

```
1  {% for item in Items %}
2    //- {{ forloop.length }}
3    //- {{ item.Id }}
4
5    {% assign person = item | Attribute:'Author','Object' %}
6    {{ person.FullName }}
7    {% break %}
8
9    <p>
10      {{ item.Title }}
11      <small>By {{ person.FullName }}</small>
12    </p>
13  {% endfor %}
```

Ted Decker



Step Through Your Template

```
1  {% for item in Items %}
2    //- {{ forloop.length }}
3    //- {{ item.Id }}
4
5    {% assign person = item | Attribute:'Author','Object' %}
6    //- {{ person.FullName }}
7
8    <p>
9      {{ item.Title }}
10     <small>By {{ person.FullName }}</small>
11   </p>
12 {% endfor %}
```

Mea Animal Aperiam By Ted Decker



Don't forget the last step!

```
1  {% for item in Items %}
2    //- {{ forloop.length }}
3    //- {{ item.Id }}
4
5    {% assign person = item | Attribute:'Author','Object' %}
6    //- {{ person.FullName }}
7
8    <p>
9      {{ item.Title }}
10     <small>By {{ person.FullName }}</small>
11   </p>
12 {% endfor %}
```



Clean Up Your Debugging

```
1 {% for item in Items %}
2   {% assign person = item | Attribute:'Author','Object' %}
3   <p>
4     {{ item.Title }}
5     <small>By {{ person.FullName }}</small>
6   </p>
7 {% endfor %}
```

Cleaning up our
debugging comments



Mea Animal Aperiam By Ted Decker



For the record...

```
1 <pre>{{ Items | First | Attribute:'Author' | ToJSON }}</pre>
2
3 <pre>{{ Items | First | Attribute:'Author','Object' | ToJSON }}</pre>
```

"Ted Decker"

```
{
  "Id": 5,
  "FirstName": "Theodore",
  "LastName": "Decker",
  "NickName": "Ted",
  "ConnectionStatusValueId": 35
  ...
}
```