



# Content Management

in the JAMStack

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By Shy Ruparel



# Shy Ruparel

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Developer Evangelist | Contentful

@ShyRuparel

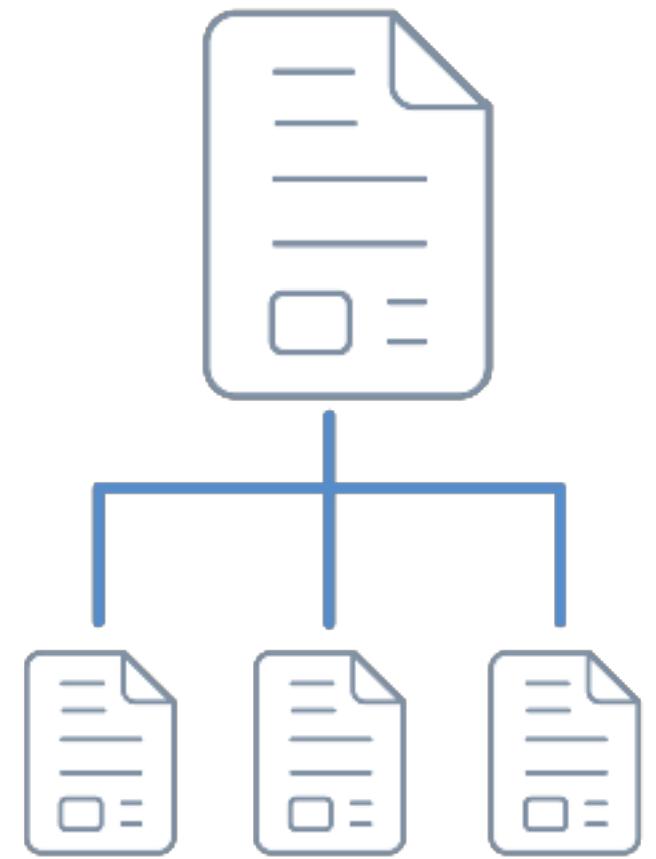
He/Him



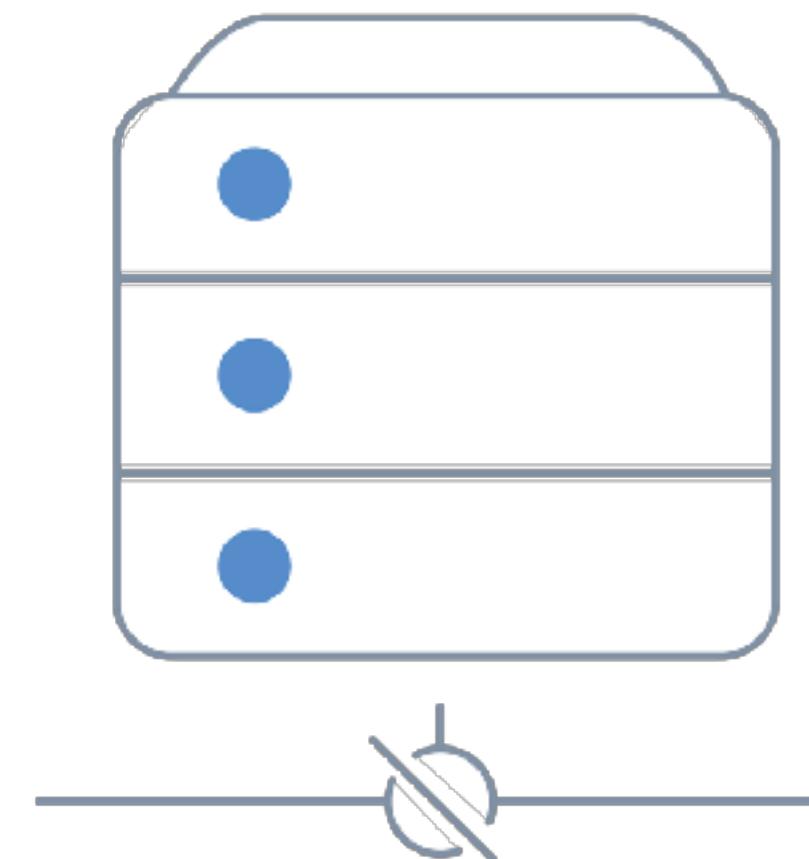
Let's talk about  
Content Management

# COMMON CMS PROBLEMS

PAGE-CENTRIC MODEL



MONOLYTHIC SOLUTION



SLOW ITERATIONS

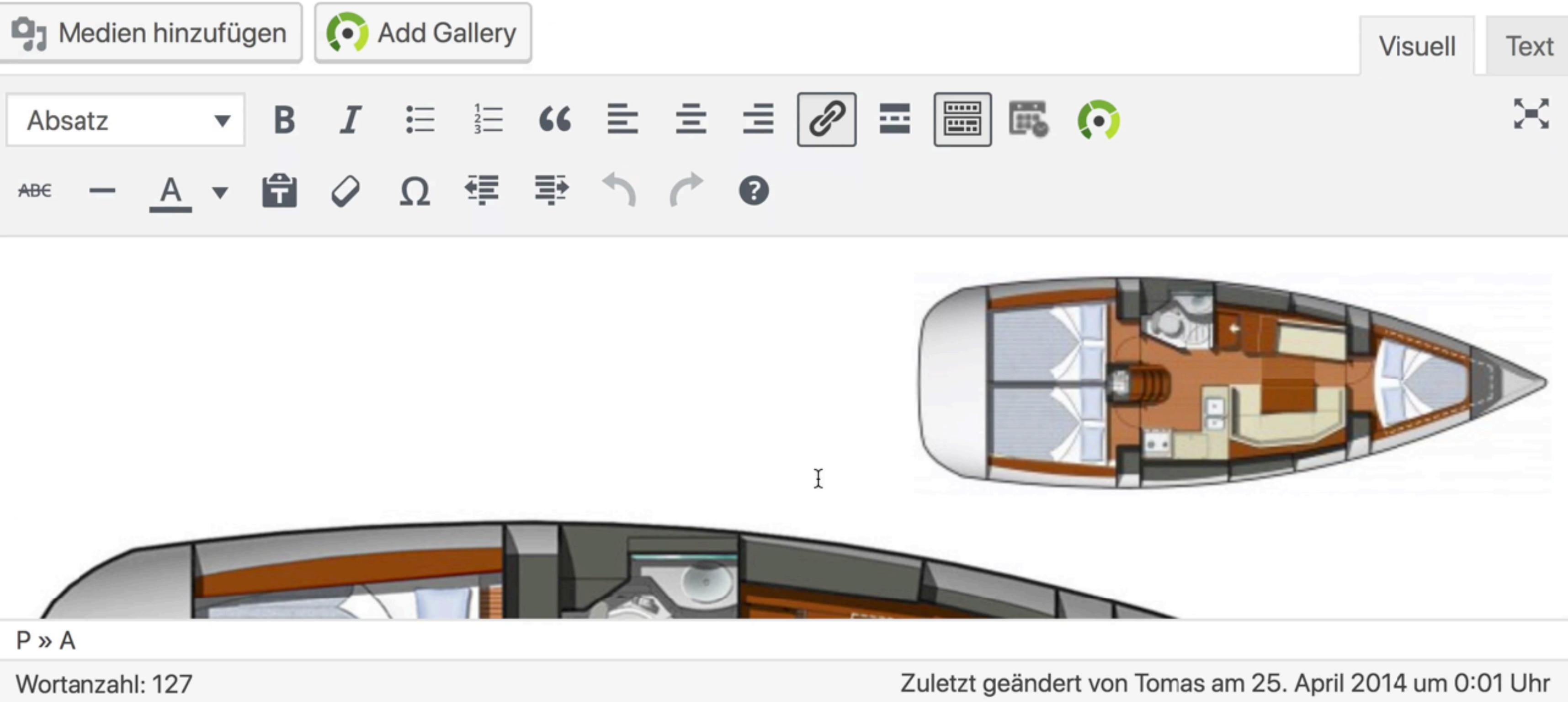


# COMMON CMS PROBLEMS

**WYSIWYG**

# Die Yacht

Permalink: <http://www.sailingforme.de/yacht/> Bearbeiten



# Die Yacht

Permalink: <http://www.sailingforme.de/yacht>

 Medien hinzufügen

Add Gallery

1

ui

0

1

II | cod

mo

lags sc

[!\[\]\(c444627dab9fee9a1550c053ffaaaae2\_img.jpg\)](http://sailingforme.de/das-boot/inne...) Die Yacht AGI Sie wurde 2010 gebaut und ist Swinemünde unterwegs. Sie ist ei Zeit verbringen können. Sie ist w gute Höhe am Wind, enorme Kursstabi S hat ihren Heimathafen im Seebad tdem in den Gewässern der Ostse hre exklusive Yacht, auf sehr und hat vorbildli

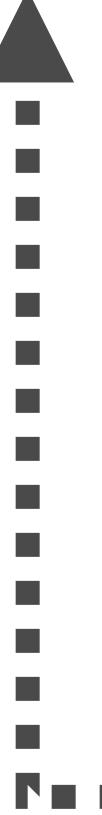
**DON'T BREAK SEPARATION OF CONCERNS**

# **Content vs. Look**





Html

A vertical dotted arrow pointing upwards from the 'Html' text towards the browser window.



Html

A vertical dotted arrow pointing upwards from the word "Html" to the browser icon, indicating the relationship between the two.



**Whenever you put HTML  
in your content you're  
breaking portability!**



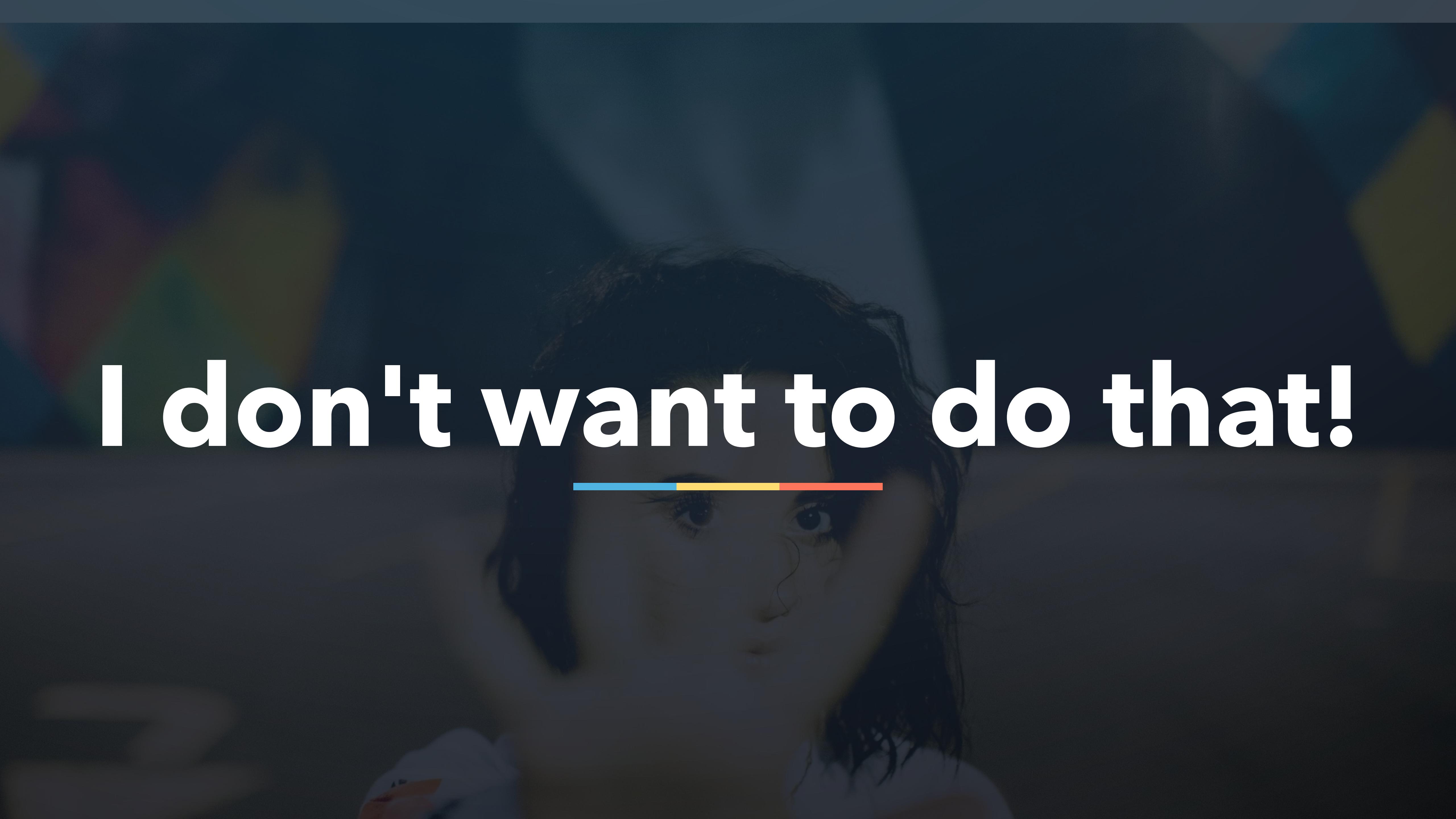
# DISADVANTAGES OF WYSIWYG

- 01** Too flexible
- 02** Mixes content and looks
- 03** Too easy to mess up
- 04** HTML is the goal



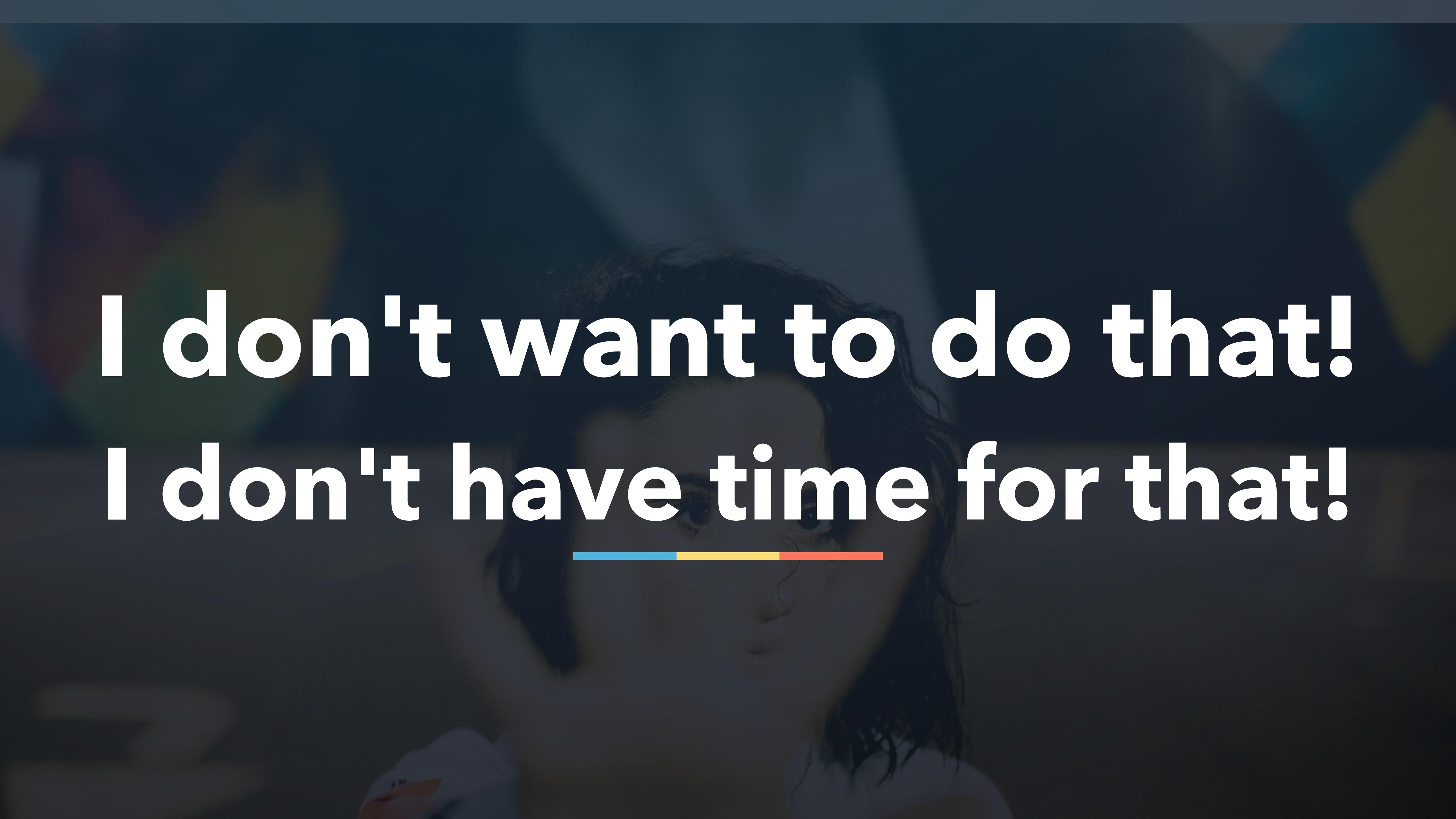
# COMMON CMS PROBLEMS

You can build  
your own CMS, but...

A woman with long dark hair is shown from the chest up, looking directly at the camera with a neutral expression. She is wearing a light-colored top. The background is dark and out of focus.

I don't want to do that!

---

A close-up photograph of a woman's face. She has long, dark, wavy hair and is looking directly at the camera with a neutral, slightly weary expression. Her eyes are light-colored. The lighting is soft and even.

**I don't want to do that!**

**I don't have time for that!**

---



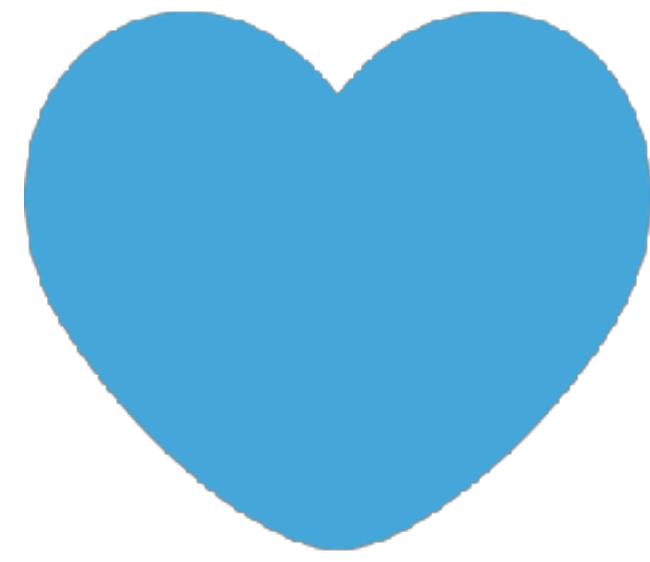
Don't let a CMS get in the way of  
shipping software.

Contentful provides a content infrastructure that enables  
teams to power content in any digital product.

# CONTENT AT SCALE



**STRUCTURED  
CONTENT**



**GOOD EDITING  
EXPERIENCE**



**SPEEDY  
DEVELOPMENT**

# Our APIs

Content Delivery API

production

Content Preview API

staging

Content Management API

automation

Images API

assets

# Let's make a Website

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Foundations of  
**ASP.NET**  
**AJAX**

THE EXPERT'S VOICE IN .NET

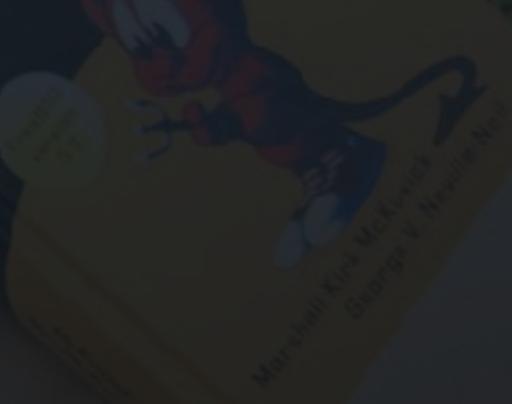
High Performance  
Web Sites

Essential Knowledge for Financial Engineers

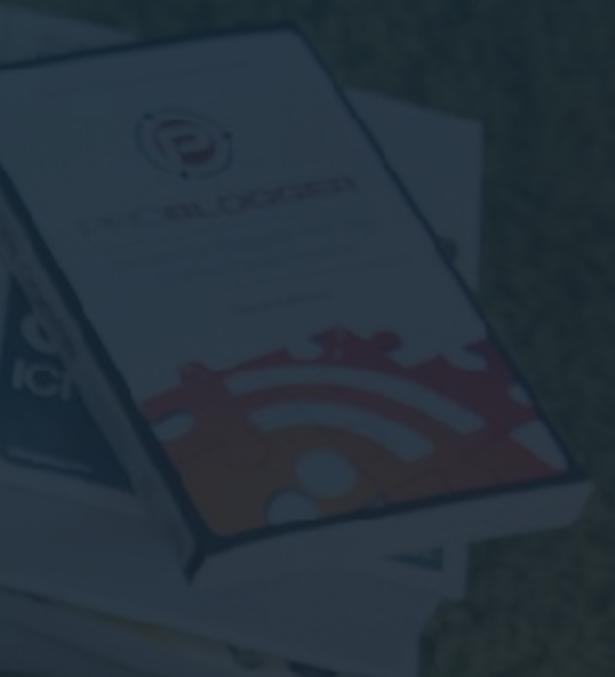


John Paul, Laurence Moroney  
and John Greco

Design  
Implementation  
with FreeBSD



Marshall Kirk McKusick  
George V. Neville-Neil



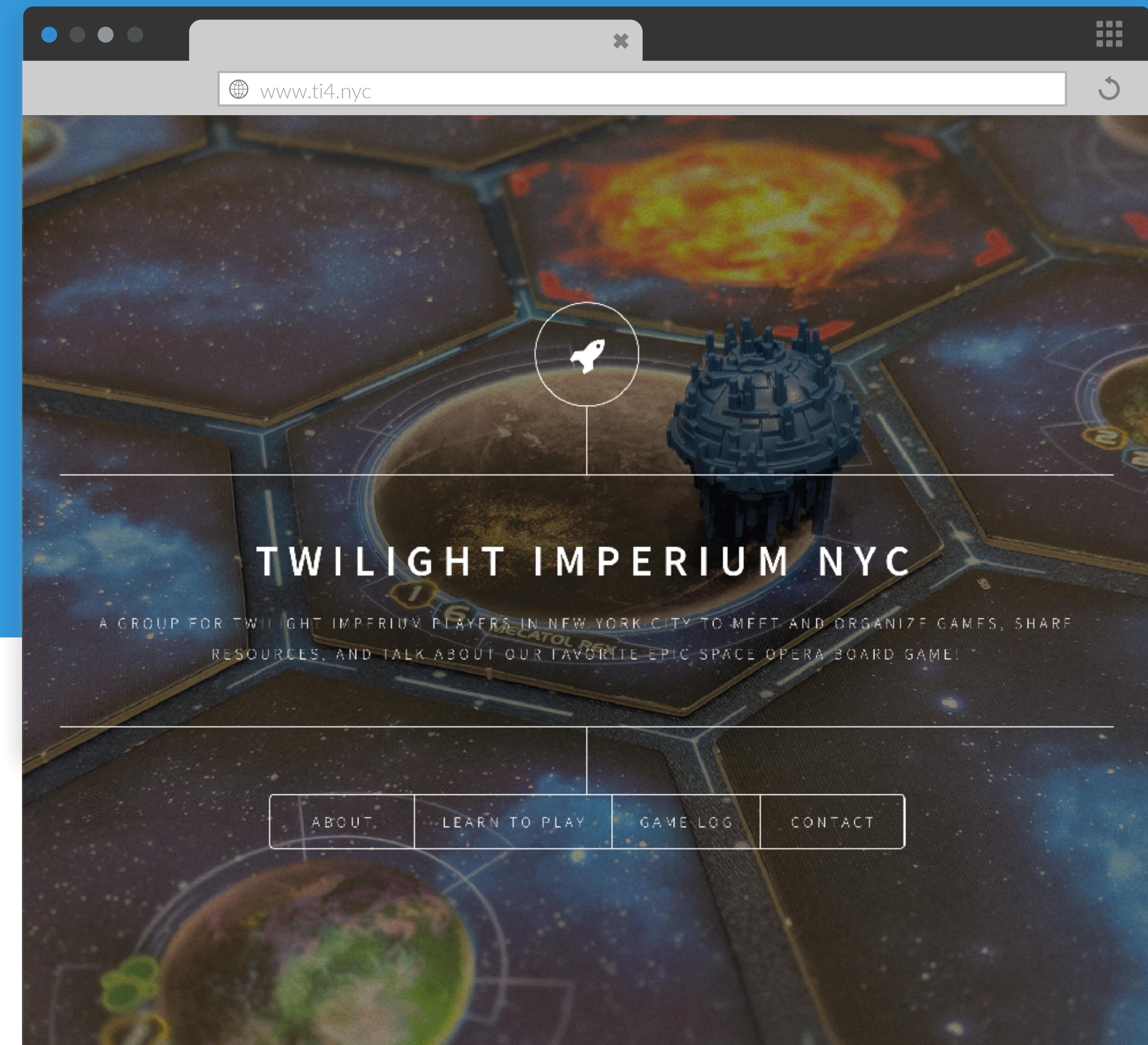


So it's time for a  
small tangent

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# TI4.NYC





# Let's dig into the About Page

The page is titled "ABOUT" and features a large image of the board game *Twilight Imperium*. The text below the image reads:

Twilight Imperium is a monstrous game of Galactic Conquest, where six players vie for galactic domination through military might, political maneuvering, and economic bargaining. It's a fantastic game of strategy, ugly victories and beautiful defeats that we're all huge fans of playing.

Unfortunately playing TI4 is a bit of a commitment. A standard game typically lasts an entire day. Given the length, it can be a bit difficult to get the game out to the table. To help alleviate that issue, we've created a group dedicated to providing a space for *Twilight Imperium* players in New York City to meet and organize games, share resources, and talk about our favorite epic space opera board game!

Every month TI4 NYC players will gather in offices and homes across the city to play a game. The points of every game are tabulated, and in December we'll crown a city

# I define a Content Model

The content type has used 5 out of 50 fields.

+ Add field

component

component

- Read more about content types in our [guide to content modelling](#).
- To learn more about the various ways of disabling and deleting fields have a look at the [field lifecycle](#).

# Sean creates content

A screenshot of a Contentful web application window titled "About". The URL in the address bar is <https://app.contentful.com/spaces/dkuja9bpqvhg/entries/4VNQx0VrJQsCKeMy>. The page shows a form for creating or editing a content entry. The "Title (required)" field contains "About". The "slug (required)" field contains "about". The "page order (required)" field contains "1". The "image (required)" field displays a thumbnail of a board game component. The "Copy (required)" field contains rich text with a link to "Twilight Imperium" and a video link to "Fantastic game of strategy". The right sidebar shows the "Status" as "Published", last saved at "Mon, 6:01 PM", and a note about no preview being set up. It also lists other versions and links.

Contentful

Contentful

https://app.contentful.com/spaces/dkuja9bpqvhg/entries/4VNQx0VrJQsCKeMy

Most Visited Programming Cheat... Contentful Games Misc Personal

Shy's DevRe: Playground t14 Space home Content model Content Media Settings

About

Title (required)  
About

slug (required)  
about

page order (required)  
1  
Order of Page

image (required)

pic02

Copy (required)

Editor Preview

Twilight Imperium (<https://www.fantasyflightgames.com/en/products/twilight-imperium-fourth-edition/>) is a monstrous game of Galactic Conquest, where six players vie for galactic domination through military might, political maneuvering, and economic bargaining. It's a Fantastic game of strategy (<https://www.youtube.com/watch?v=PLyopg39ZwM>), ugly victories and beautiful

Actions Info

STATUS

Status: Published

Change status

Last saved Mon, 6:01 PM

PREVIEW

Open preview

No preview is set up for the content type of this entry.  
Click here to set up a custom content preview.

LINKS

No other entries link to this entry.

TRANSLATION

en-US Change

VERSIONS

Date	Status
Mon, 6:01 PM	CURRENT
Mon, 5:51 PM	PUBLISHED
Oct 17, 2018	PUBLISHED

MacBook

# A JSON API

```
{  
  "sys": {  
    "contentType": {  
      "sys": {  
        "id": "component"  
      }  
    }  
  },  
  "fields": {  
    "title": "About",  
    "slug": "about",  
    "pageOrder": 1,  
    "image": {  
      "sys": {  
        "id": "6BwngCuyHKkS28sKIimomM"  
      }  
    },  
    "copy": "[Twilight Imperium](fantasyflightgames.com) is a monstrous game..."  
  }  
}
```

# Our APIs

Content Delivery API

production

Content Preview API

staging

Content Management API

automation

Images API

assets

# Our APIs

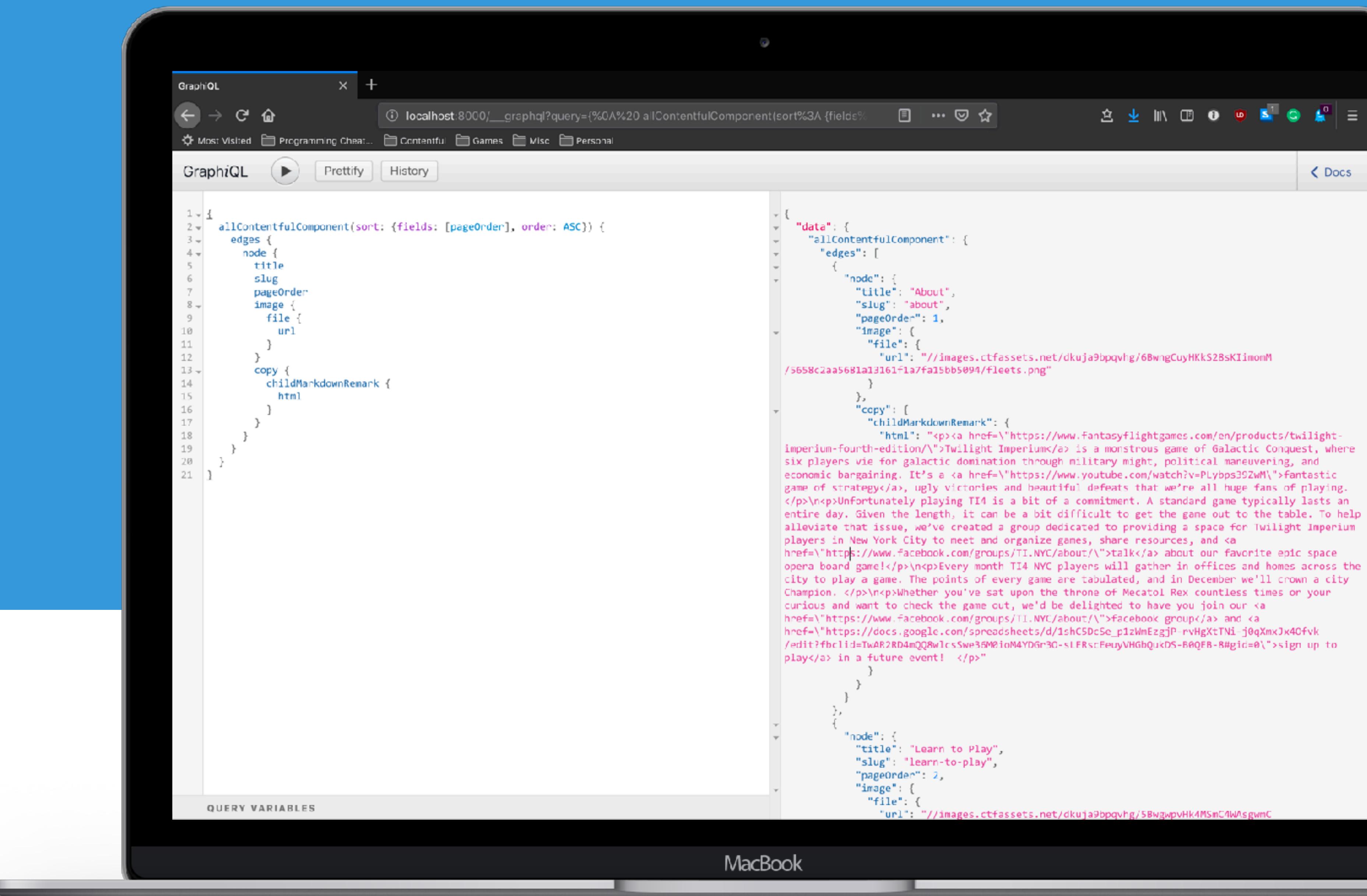
Content Delivery API

production

# GATSBY-CONFIG.JS

```
require("dotenv").config({  
  path: `./env`,  
})  
module.exports = {  
  plugins: [{  
    resolve: `gatsby-source-contentful`,  
    options: {  
      spaceId: process.env.spaceId,  
      accessToken: process.env.accessToken,  
      host: process.env.host  
    },  
  },  
},  
}  
}
```

# Pull in the data



A screenshot of a MacBook displaying a GraphQL interface in a browser window. The browser address bar shows `localhost:8000/__graphql?query=(%0A%20allContentfulComponent(sort%3A {field%3A`. The main content area is a GraphQL playground with two panes. The left pane contains a code editor with the following GraphQL query:

```
1 1
2 2
3 3
4 4
5 5
6 6
7 7
8 8
9 9
10 10
11 11
12 12
13 13
14 14
15 15
16 16
17 17
18 18
19 19
20 20
21 21
```

The right pane displays the resulting JSON data, which includes a node for "About" with its title, slug, pageOrder, and image URL, and another node for "Learn to Play". The image URL for the "About" node points to a PNG file named `/5658c2aa5681a13161-1a7fa15bb5094/fleets.png`.

Below the JSON data, there is a large block of explanatory text about the game Twilight Imperium, its rules, and a community group in New York City.

At the bottom of the interface, there is a "QUERY VARIABLES" section.

# RENDER THE PAGE

```
{  
  this.props.cfData.map(componentEntry => (  
    <article  
      id={componentEntry.node.slug}  
      className={`${this.props.article === componentEntry.node.slug ? "active" : ""} ${  
        this.props.articleTimeout ? "timeout" : ""  
      }`}  
      style={{ display: "none" }}  
    >  
      <h2 className="major">{componentEntry.node.title}</h2>  
      <span className="image main">  
        <img src={componentEntry.node.image.file.url} alt="" />  
      </span>  
      <div  
        dangerouslySetInnerHTML={{  
          __html: componentEntry.node.copy.childMarkdownRemark.html  
        }}  
      />  
      {close}  
    </article>  
  ));  
}
```

# Build the site



A screenshot of a MacBook displaying a terminal window. The terminal shows the output of a `gatsby build` command. The output is color-coded with green for success messages and blue for info messages. The process starts at 02:31:53 PM and ends at 02:32:09 PM, taking 15 seconds. The terminal window has a dark background with light-colored text. The title bar of the window says `Website/ti4NYC`. The bottom of the screen shows the Mac OS X dock with various icons.

```
02:31:53 PM ➜ ti4NYC ✘ master ✘ $ gatsby build
success open and validate gatsby-config - 0.059 s
success load plugins - 0.126 s
success onPreInit - 0.378 s
success delete html and css files from previous builds - 0.037 s
success initialize cache - 0.006 s
success copy gatsby files - 0.228 s
success onPreBootstrap - 0.015 s
· source and transform nodesStarting to fetch data from Contentful
Fetching default locale
· source and transform nodesdefault locale is : en-US
· source and transform nodescontentTypes fetched 3
Updated entries 0
Deleted entries 0
Updated assets 0
Deleted assets 0
Fetch Contentful data: 6502.574ms
success source and transform nodes - 7.289 s
success building schema - 0.418 s
success createPages - 0.007 s
success createPagesStatefully - 0.058 s
success onPreExtractQueries - 0.003 s
success update schema - 0.228 s
success extract queries from components - 0.196 s
success run graphql queries - 0.042 s - 4/4 99.70 queries/second
success write out page data - 0.036 s
success write out redirect data - 0.001 s
· onPostBootstrapdone generating icons for manifest
success onPostBootstrap - 0.184 s
info bootstrap finished - 10.75 s

success Building production JavaScript and CSS bundles - 3.614 s
success Building static HTML for pages - 0.327 s - 4/4 28.54 pages/second
Generated public/sw.js, which will precache 14 files, totaling 352328 bytes.
info Done building in 14.828 sec
02:32:09 PM ➜ ti4NYC ✘ master ✘ 15s ✘ $ |
```

~/Documents/Contentful/TI4.NYC/website/ti4NYC

MacBook



Shy Ruparel



Sites Domains OAuth applications Account settings

Search site

New site from Git



**preview.ti4.nyc**

Deploys from [GitHub](#)

Owned by Shy Ruparel

Last published at 10:05 PM (8 minutes ago)



**ti4.nyc**

Deploys from [GitHub](#)

Owned by Shy Ruparel

Last published at 10:02 PM (10 minutes ago)



## Build environment variables

---

accessToken **b3d994d9baff5a3d2505a74d00...**

host **cdn.contentful.com**

spaceId **dkuja9bpqvhg**

[Edit variables](#)

# Webhooks

Contentful

https://app.contentful.com/spaces/dkuja9bpqvhg/settings/webhooks/6fJ84VVK

Space home Content model Content Media Settings

## Webhook: Netlify CDN Deploy

Webhook settings Activity log

**Details**

Name (required)  
Netlify CDN Deploy

URL (required)  
POST https://api.netlify.com/build\_hooks/5bc77e5373f2cf6254832308

**Triggers** Hide details

Specify for what kind of events this webhook should be triggered.

Trigger for all events  
 Select specific triggering events

	Create	Save	Autosave	Archive	Unarchive	Publish	Unpublish	Delete
Content type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Entry	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Asset	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

Remove Save

DOCUMENTATION

- Intro to webhooks
- Webhook management API reference

WEBHOOK URL REQUIREMENTS

Please note that webhook calls will not be performed against the following URLs:

- Private IPs (10.x, 192.x, etc.)
- localhost
- Hostnames without a top-level domain
- URLs that resolve to localhost or redirects

WEBHOOK IP SOURCES

If you need to restrict access to your webhook endpoint based on an IP visit [AWS reference page](#) to obtain information about IP ranges we support.

MacBook

Gatsby Site

Twilight Imperium NYC

https://ti4.nyc

Most Visited

Personal

Forms Split Testing Settings

00 PM.

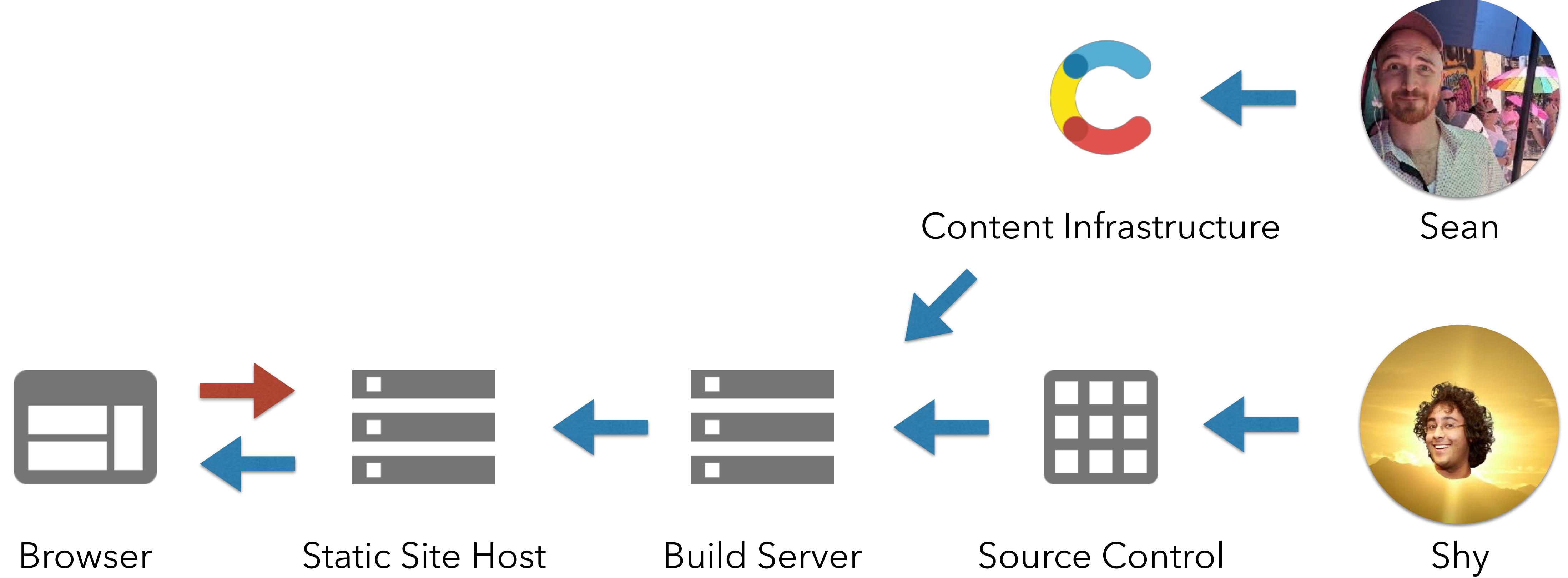
ings

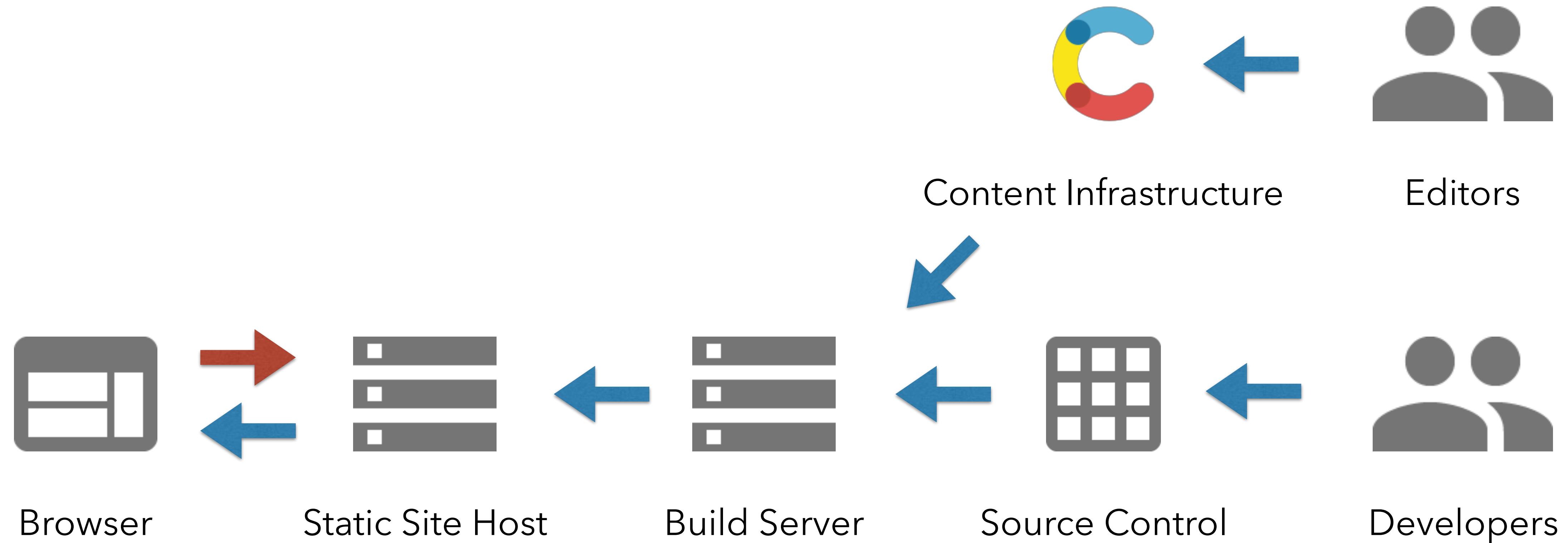
LEARN TO PLAY

New to the game? Want to brush up? Just want to spend time with the board?

Every few games, we'll run a tutorial of how to play Twilight Imperium. While we're big fans of [video tutorials](#), walking through the rules of the game, and playing [one mock round together](#) is always our favorite way to learn how to play. Whether you've never played before, or you're tied for first in the Zodiac League, it's an excellent opportunity to understand the rules before playing in the next League game!

Take a look at our [Facebook page](#) to make sure you don't miss the dates of the next tutorial.





# GITHUB.COM/SHY/ TI4.NYC-WEBSITE

The screenshot shows a GitHub repository page for the user 'Shy' named 'ti4.nyc-website'. The page includes a navigation bar with links for Pull requests, Issues, Marketplace, and Explore. Below the navigation is a search bar and a header with the repository name and a 'Watch' button. The main content area displays the repository details: 25 commits, 1 branch, 0 releases, 1 contributor, and an MIT license. A list of commits is shown, all made by the user 'Shy' within the last 22 hours. The commits include adding icons, screenshots, and Netlify instructions. At the bottom of the commit list is a file named 'README.md'.

File / Commit	Description	Time Ago
Added icons for when I want to add icon features	Latest commit 328f37c	22 hours ago
Added screenshot of UI Extension		a day ago
Added getting started instructions -TODO add Netlify		a day ago
Added icons for when I want to add icon features		22 hours ago
Added getting started instructions -TODO add Netlify		a day ago
Migrated to ENV variables for preview mode		a day ago
init		10 days ago
init		10 days ago
Fixed typo		a day ago
init		10 days ago
Migrated to ENV variables for preview mode		a day ago
init		10 days ago
init		10 days ago
Added getting started instructions -TODO add Netlify		a day ago
README.md		

## TI4 NYC Website





# Shy Ruparel

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Developer Evangelist | Contentful

@ShyRuparel

He/Him

Slides: <https://noti.st/shy>

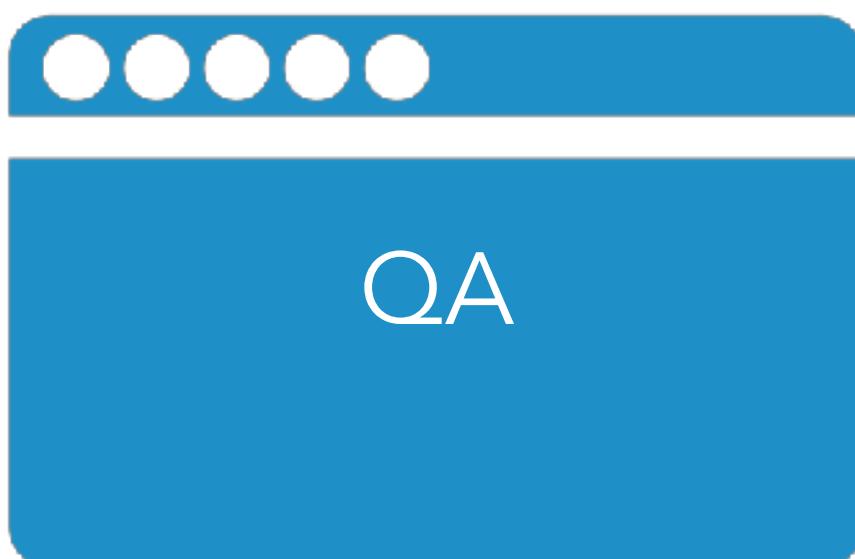
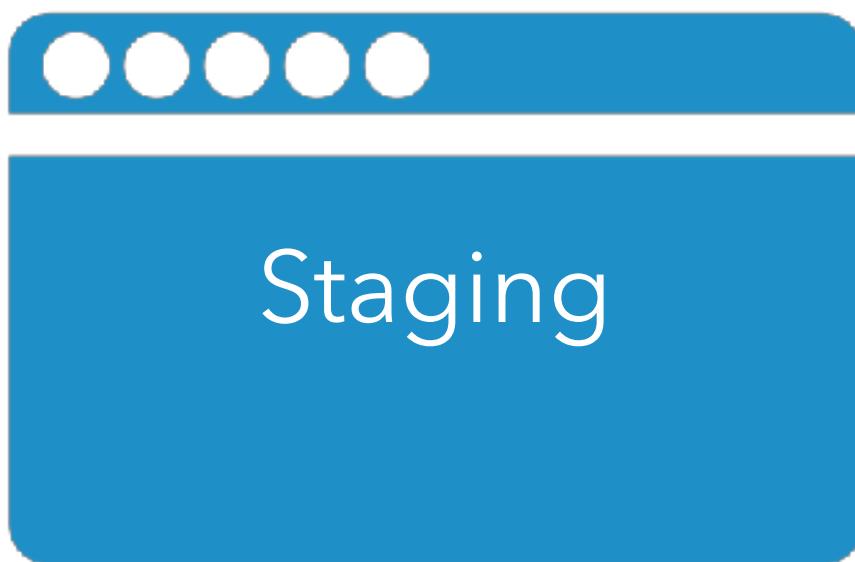
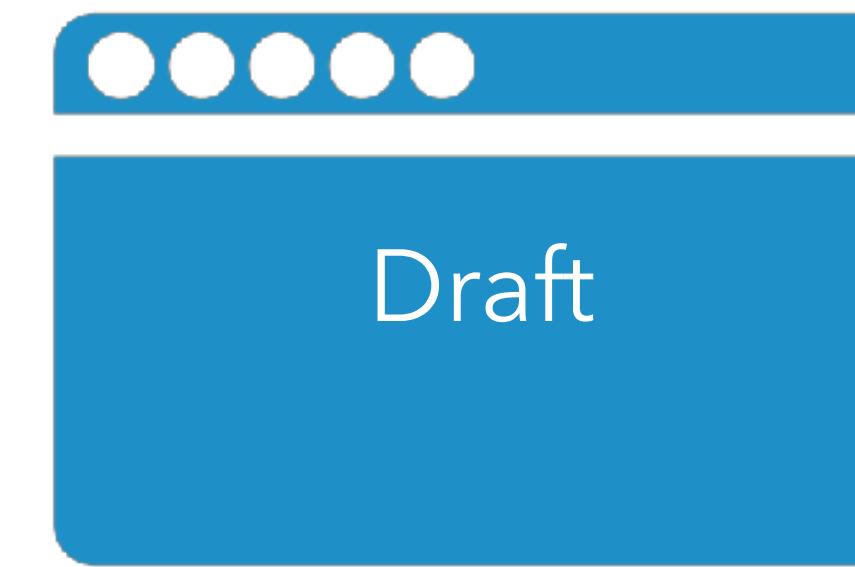
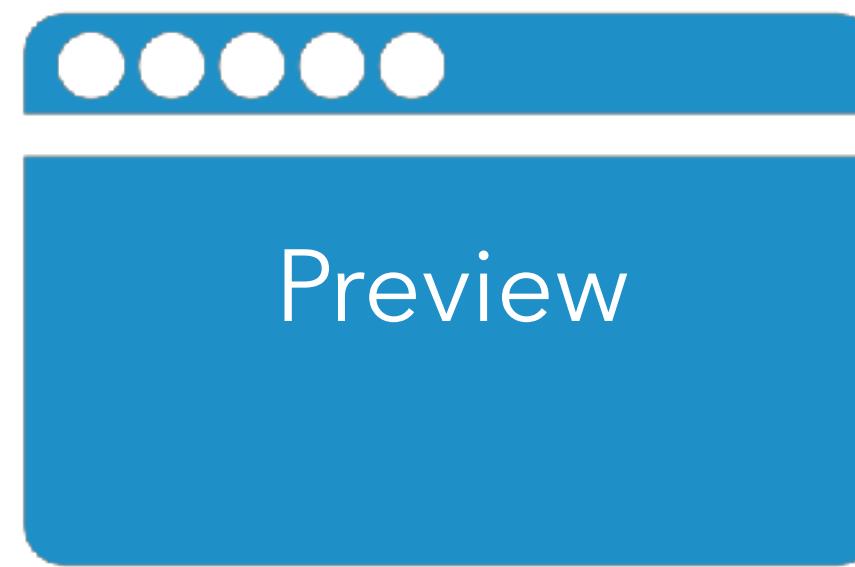
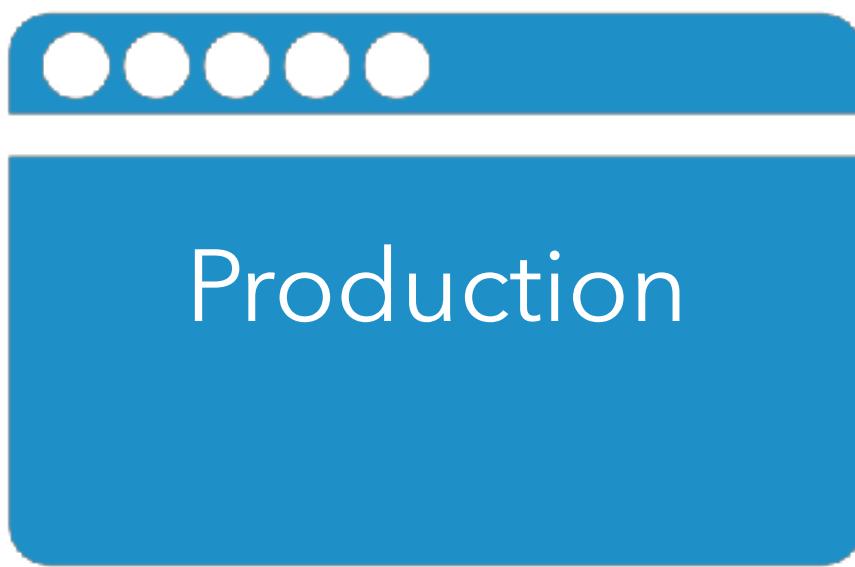
Background Images: [wocintechchat.com](http://wocintechchat.com)



**Editor  
Workflows**



**Developer  
Workflows**



Dev Workflow...

Editor Workflow...



# Improving the Editor Experience

A dark, slightly blurred background image showing a person's hands typing on a laptop keyboard. The laptop screen displays a Treo board interface with various cards and a menu on the right side. The Dell logo is visible at the top of the laptop.

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# Improving Sean's Experience

A dark, semi-transparent background image showing a person's hands typing on a laptop keyboard. A horizontal bar consisting of three colored segments (blue, yellow, and red) is positioned at the bottom of the slide, centered under the title.

# My Editors want A Custom Field Type

A dark, semi-transparent background image showing a person from the side, facing right, writing on a whiteboard with a blue marker. The whiteboard has some faint, handwritten text and arrows, including 'SECTION < 300px' and 'CEP/05'. The overall mood is professional and focused.





Contentful doesn't have a  
built in TI4 game tracker

---

# So I built one

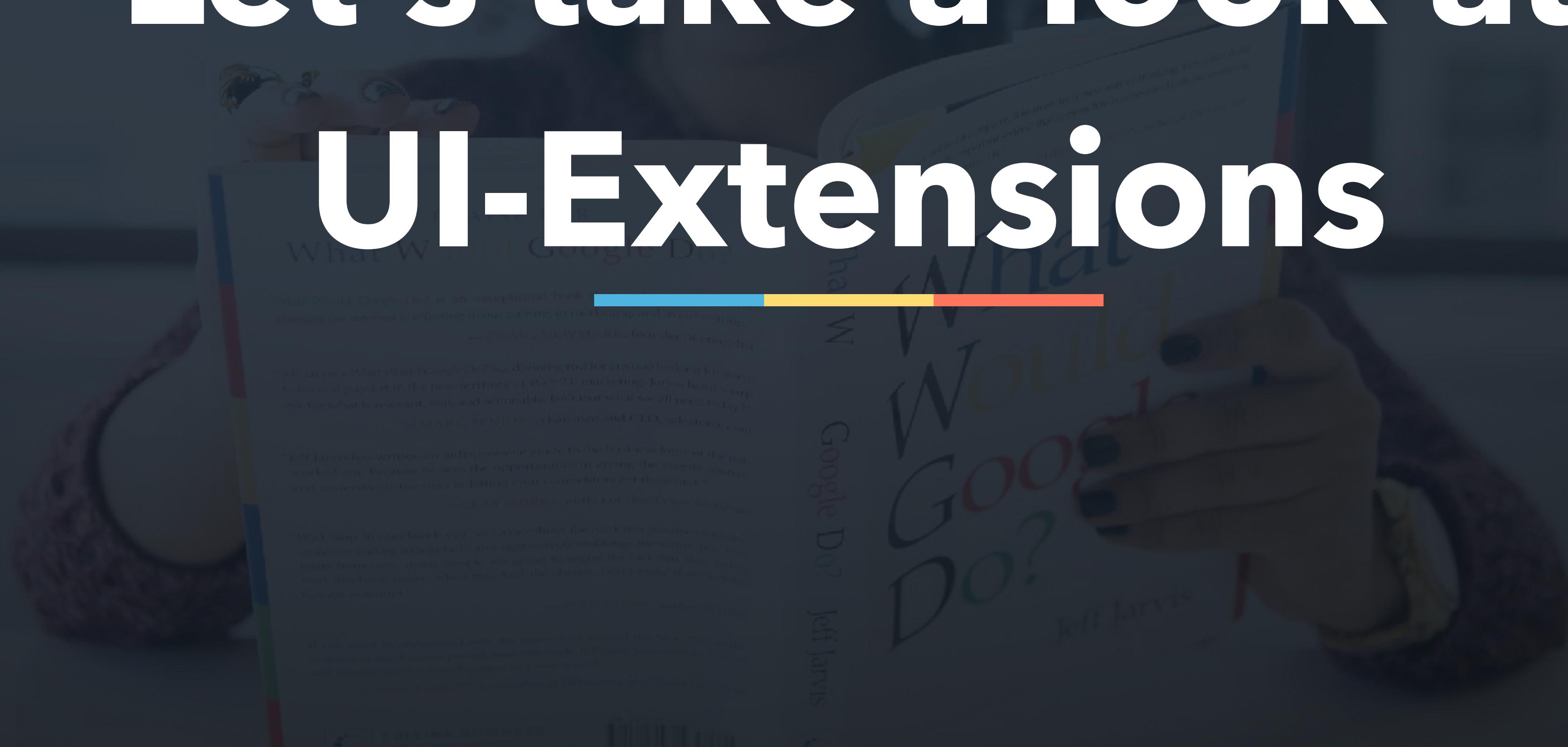
The screenshot shows a Contentful entry page for 'Virgo Table 2'. The page has a dark header with the Contentful logo and navigation links like 'Space home', 'Content model', 'Content', 'Media', and 'Settings'. The main content area has a title 'Virgo Table 2' with a subtitle 'Sign & Table Number (required)'. Below this is a table with columns 'Players', 'Points', and 'Factions'. The table rows are:

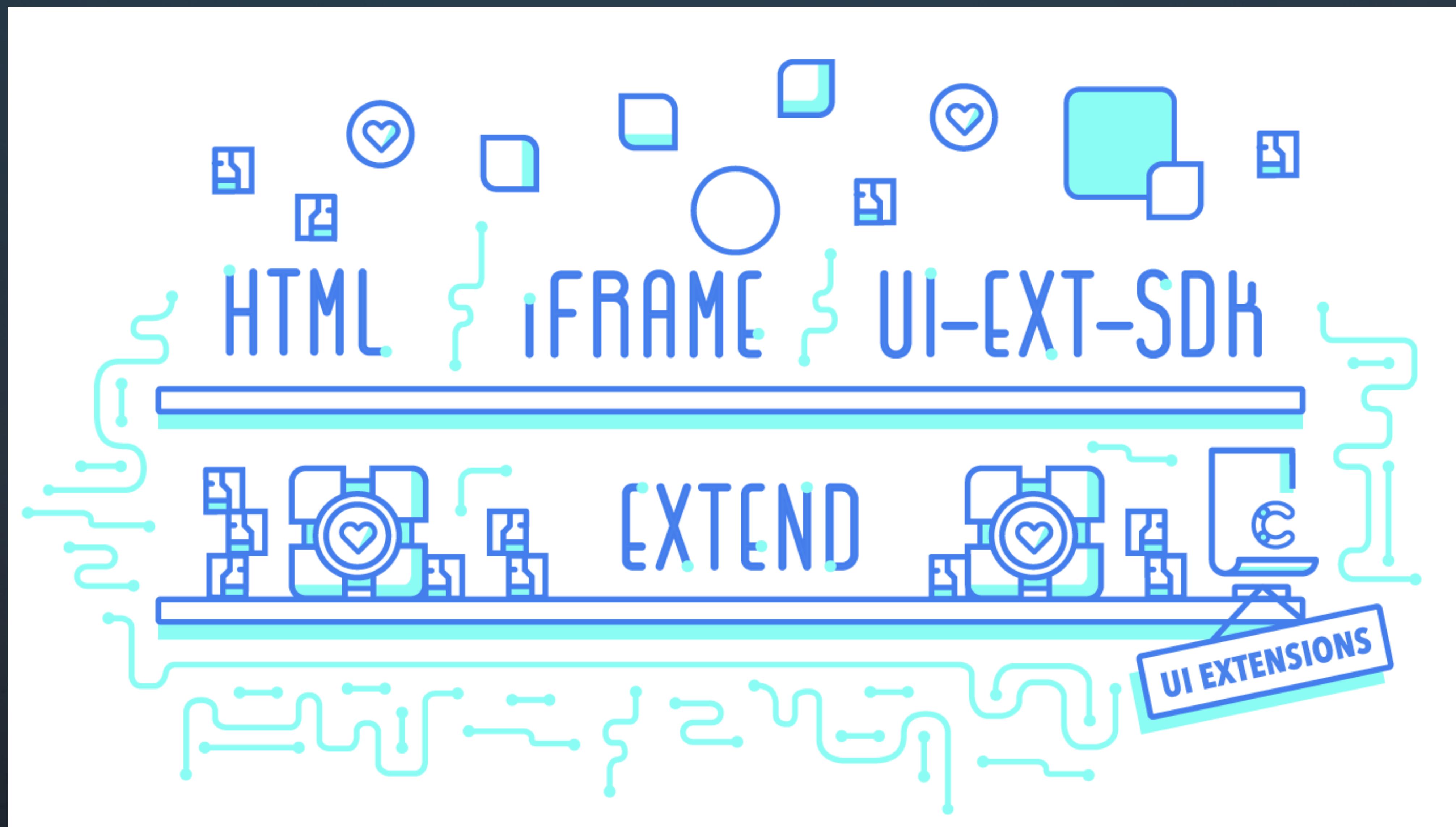
game	Players	Points	Factions
	Shy R	10	Universities of Jol-Nar
	Dave Panfile	8	Ghosts of Creuss
	Connor D.	8	Yssaril Tribes
	Naz A	8	Arboreo Barony of Letnev Clan of Saar Embers of Muat Emirates of Hacan Federation of Sol Ghosts of Creuss LIZIX Mindnet Mentak Coalition Naalu Collective ✓ Nekro Virus Serdakk N'orr Universities of Jol-Nar Winnu Xocha Kingdom Yin Brohood Yssaril Tribes
	Sean I	8	
	Ryan W	7	

A dropdown menu is open over the 'Yssaril Tribes' entry, listing various factions. The 'Nekro Virus' option is highlighted with a blue selection bar. On the right side of the page, there are sections for 'STATUS' (Status: Published), 'PREVIEW' (Open preview, Click here to set up a custom content preview), 'LINKS' (One link to Virgo), and 'TRANSLATION' (en-US, Change).

# Let's take a look at

# UI-Extensions





# Let's dig into The extension

The screenshot shows a Contentful entry page titled "Leo Table 2". The page content is as follows:

Players	Points	Factions
Shy R	10	Federation of Sol
Rob R	4	Arborec
Sepand G	2	Emirates of Hacan
Naz A	9	Clan of Saar
Dave Panfile	8	Emirates of Hacan
Nathan T	3	Nekro Virus

**STATUS**  
Status: Published  
Change status ▾  
Last saved Mon, 3:48 PM

**PREVIEW**  
Open preview  
No preview is set up for the content type of this entry.  
Click here to set up a custom content preview.

**LINKS**  
There is one other entry that links to this entry:  
\* [Leo](#)

**TRANSLATION**  
en-US Change

game

JSON Editor      Undo    Redo

```
{  
  "Players": [  
    {  
      "Name": "Shy R",  
      "Score": "10",  
      "Faction": "Sol"  
    },  
    {  
      "Name": "Rob R",  
      "Score": "4",  
      "Faction": "Arborec"  
    },  
    {  
      "Name": "Sepand G",  
      "Score": "2",  
      "Faction": "Hacan"  
    },  
    {  
      "Name": "Naz A",  
      "Score": "9",  
      "Faction": "Saar"  
    },  
    {  
      "Name": "Dave Panfile",  
      "Score": "8",  
      "Faction": "Hacan"  
    },  
    {  
      "Name": "Nathan T",  
      "Score": "3",  
      "Faction": "Nekro"  
    }  
  ]  
}
```

## STANDARD JSON OBJECT FIELD

game

Players	Points	Factions
Shy R	10	Federation of Sol ▾
Rob R	4	Arborec ▾
Sepand G	2	Emirates of Hacan ▾
Naz A	9	Clan of Saar ▾
Dave Panfile	8	Emirates of Hacan ▾
Nathan T	3	Nekro Virus ▾

## UI EXTENSION

# Inspect in GraphiQL

The image shows a MacBook screen displaying a GraphQL query in the Contentful GraphiQL interface. The query is as follows:

```
1 { allContentfulGames(sort: {fields: [date]}) {  
2   edges {  
3     node {  
4       zodiacSign  
5       date  
6       games {  
7         signTableNumber  
8         game {  
9           Players {  
10            Name  
11            Score  
12            Faction  
13          }  
14        }  
15      }  
16    }  
17  }  
18}  
19}
```

The results of the query are displayed on the right side of the interface, showing a single edge with a node containing game information. The game has a specific date and is associated with a Leo zodiac sign. It includes three players with their names, scores, and factions.

```
{  
  "data": {  
    "allContentfulGames": [  
      {  
        "edges": [  
          {  
            "node": {  
              "zodiacSign": "Leo",  
              "date": "2018-08-04",  
              "games": [  
                {  
                  "signTableNumber": "Leo Table 1",  
                  "game": {  
                    "Players": [  
                      {  
                        "Name": "Sean I",  
                        "Score": "10",  
                        "Faction": "Yssaril"  
                      },  
                      {  
                        "Name": "Andy Z",  
                        "Score": "8",  
                        "Faction": "Jol-Nar"  
                      },  
                      {  
                        "Name": "Vince P",  
                        "Score": "8",  
                        "Faction": "L1Z1X"  
                      },  
                      {  
                        "Name": "John B",  
                        "Score": "8",  
                        "Faction": "L1Z1X"  
                      }  
                    ]  
                  }  
                ]  
              }  
            }  
          ]  
        }  
      }  
    ]  
  }  
}
```

The interface also includes buttons for "Prettify" and "History", and a "Docs" link in the top right corner.

HTML

```
1 <!doctype html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8"/>
5     <title>UI-Extension Country Select</title>
6     <!-- load Contentful stylesheet to have some base styles -->
7     <link rel="stylesheet" href="https://contentful.github.io/ui-extensions-sdk/cf-extension.css">
8     <!-- load Contentful extensions SDK -->
9     <script src="https://unpkg.com/contentful-ui-extensions-sdk@3"></script>
10   </head>
11   <body>
12     <!-- your UI extension code -->
13   </body>
14 </html>
```

JSON

```
1 {
2   "name": "Contentful UI extension",
3   "id": "cf-contentful-ui-extension",
4   "fieldTypes": ["Object"],
5   "srcdoc": "./index.html"
6 }
```

# CONFIGURE THE EXTENSION

```
{  
  "id": "ti4MatchLog",  
  "name": "Twilight Imperium 4th Edition Match Log",  
  "srcdoc": "./index.html",  
  "fieldTypes": ["Object"]  
}
```

# BUILD A FORM

```
<body>
  <div id="content">
    <div class="player">
      <div class="cf-form-field inline">
        <label>Players</label>
        <input type="text" value="Player 1 Name" class="cf-form-input inline"
id="player1Name">
      </div>
      <div class="cf-form-field inline">
        <label>Points</label>
        <input type="integer" value="1" class="cf-form-input inline"
id="player1Score">
      </div>
      <div class="cf-form-field inline">
        <label>Factions</label>
        <select class="cf-form-input" id="player1Faction">
          <option value="Arborec" selected>Arborec</option>
          <option value="Barony">Barony of Letnev</option>
        </select>
      </div>
    </div>
  </div>
```

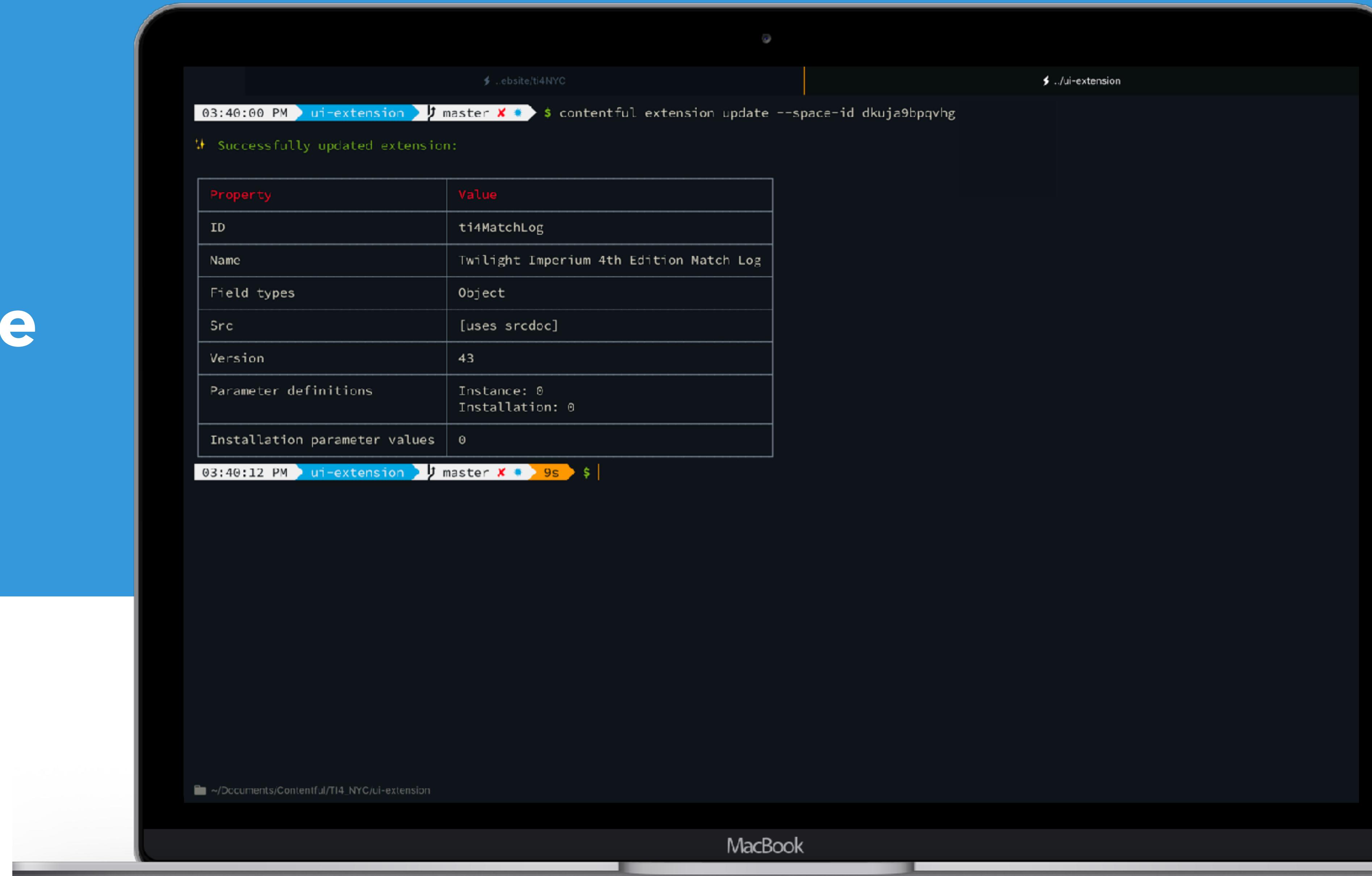
# SET THE DATA

```
$(".cf-form-input").on("input", function() {  
    extension.field.setValue(getGameData());  
});
```

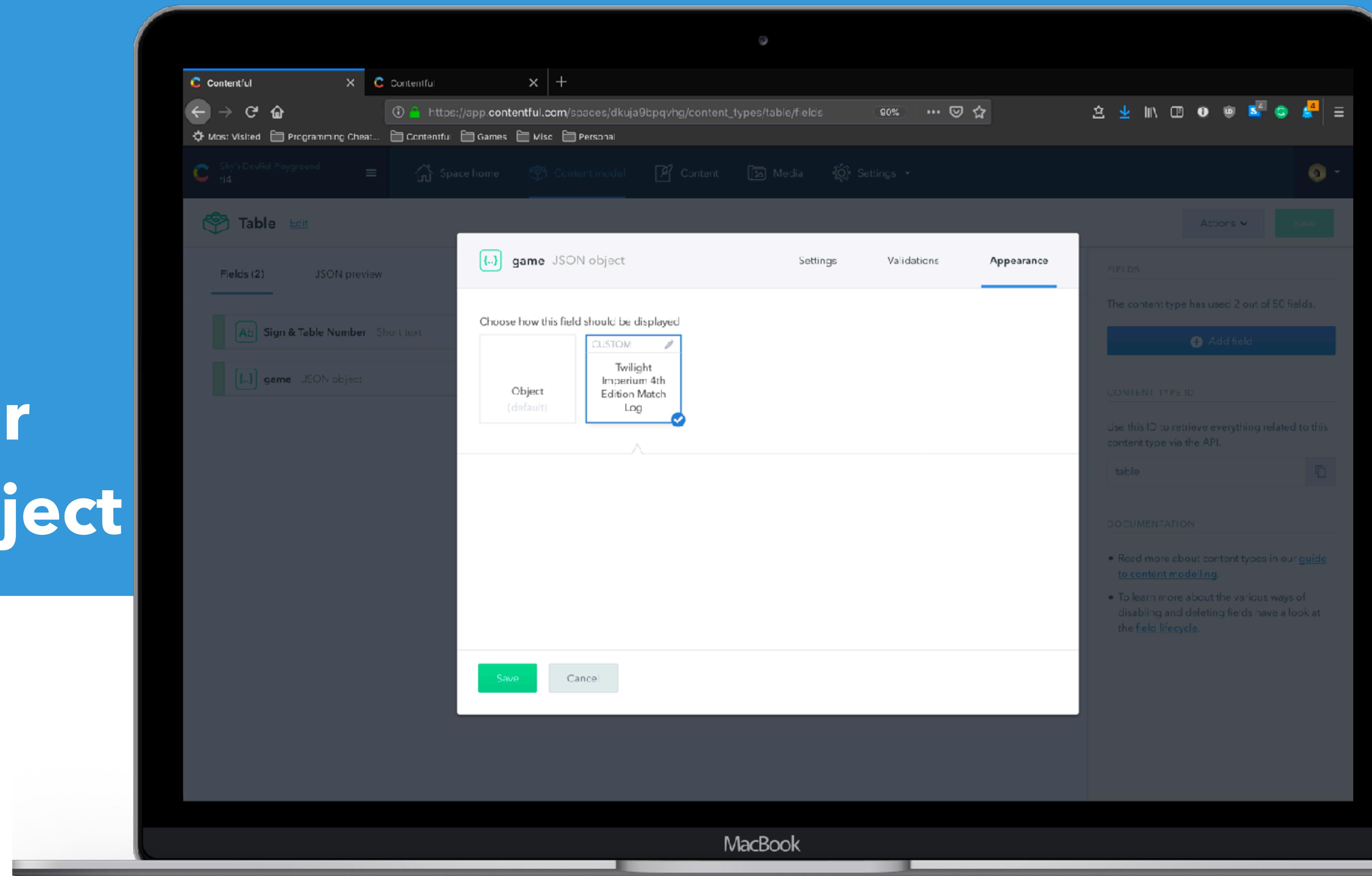
# SET THE DATA

```
function getGameData() {  
    var data = {};  
    data["Players"] = [];  
    var innerData = {};  
    var i = 0;  
    for (; i < document.getElementsByClassName("cf-form-input").length; i +=  
        1) {  
        switch (i % 3) {  
            case 0:  
                innerData = {};  
                innerData["Name"] = document.getElementsByClassName(  
                    "cf-form-input")[i].value;  
                break;  
            case 1:  
                innerData["Score"] = document.getElementsByClassName(  
                    "cf-form-input")[i].value;  
                break;  
            case 2:  
                innerData["Faction"] = document.getElementsByClassName(  
                    "cf-form-input")[i].value;  
                data["Players"].push(innerData);  
                break;  
        }  
    }  
    return (data);  
}
```

**Push the code  
up to  
Contentful**



# Set a custom appearance for the JSON Object



# And that's it

The screenshot shows a Contentful entry page for "Leo Table 2". The entry is titled "Sign & Table Number (required)" and contains the text "Leo Table 2". The entry is 12 characters long and requires less than 256 characters. It includes a table with the following data:

Player	Points	Factions
Shy R	10	Federation of Sol
Rob R	4	Arborec
Sepand G	2	Emirates of Hacan
Naz A	9	Clan of Saar
Dave Panfile	8	Emirates of Hacan
Nathan T	3	Nekro Virus

The right sidebar shows the entry is Published and last saved at 3:48 PM. It also indicates there is one other entry linking to this one.

# RENDER THAT DATA

```
{outerElement.node.games.map(innerElement => (
  <React.Fragment>
    <h4>{innerElement.signTableNumber}</h4>

    <table>
      <thead>
        <tr>
          <th>Name</th>
          <th>Faction</th>
          <th>Score</th>
        </tr>
      </thead>
      <tbody>
        {innerElement.game.Players.map(playerElement => (
          <tr>
            <td>{playerElement.Name}</td>
            <td>
              {playerElement.Faction}
            </td>
            <td>{playerElement.Score}</td>
          </tr>
        )))
      </tbody>
    </table>
  </React.Fragment>
))}
```

# Game Log

www.ti4.nyc

## GAME LOG

LEO - 2018-08-04



LEO TABLE 1

Name	Faction	Score
Sean I	Vssaril	10
Andy Z	Jol-Nar	8
Vince P	L1Z1X	8
John B	Ghosts	8
Ryan W	Yin	6
Micah H	Saar	9



# GITHUB.COM/SHY/ TI4.NYC-UI-EXTENSION

The screenshot shows a GitHub repository page for 'Shy / ti4.nyc-ui-extension'. The repository has 10 commits, 1 branch, 0 releases, 1 contributor, and an MIT license. The latest commit was made 3 days ago. The repository description is: 'Contentful UI Extension for tracking games played for the ti4.nyc website.'

**Branch:** master | [New pull request](#) | [Create new file](#) | [Upload files](#) | [Find file](#) | [Clone or download](#)

File	Description	Time Ago
Shy Updated readme and added images	Latest commit d2f225d 3 days ago	
icons	Messed around with styling and added icons	16 days ago
images	Updated readme and added images	3 days ago
.gitignore	add gitignore	16 days ago
LICENSE	Initial commit	16 days ago
README.md	Updated readme and added images	3 days ago
extension.json	initial extension file	16 days ago
index.html	Linting the code and cleaning stuff up	5 days ago
screenshot.png	Updated readme and added images	3 days ago
README.md		

## ti4.nyc-ui-extension

Contentful UI Extension for tracking games of Twilight Imperium Fourth edition (ti4) played for the ti4.nyc website.

Shopify-Test  
in Space Cadet

Space home Content model Content Media APIs Space settings

Test Product

Title: Test Product (12 characters) STATUS: Published (Last saved a minute ago)

Product: GENERALADMISSION Brooks Towel Pink-Yellow

Product Backup

Actions Info

TRANSLATION: en-US Change

VERSIONS:

Time	Status
a minute ago	CURRENT
a minute ago	PUBLISHED
Fri, 4:51 PM	PUBLISHED
Fri, 4:33 PM	PUBLISHED
Fri, 4:30 PM	PUBLISHED

Compare with current version

Select a previous version to compare it with the current version of this entry.

USERS: No other users online

 Seven Tips From Ernest Hemingway on How to Write... [?](#)

Actions [Mike Springer](#)

Title (required)

Editor Preview

H<sup>v</sup> B I “ ” = = ⌂ ...

Insert media [X](#)

Seven Tips From Ernest Hemingway on How to Write Fiction

Format your text like a pro with the [markdown cheatsheet](#).

10 words, 56 characters

Slug

seven-tips-from-ernest-hemingway-on-how-to-write-fiction

56 characters

Requires less than 256 characters

TRANSLATION

en-US [Change](#)

VERSIONS

There are no previous versions  
haven't made changes to this e  
as you publish changes, you'll b  
compare different versions.

USERS

No other users online

BUILDNETLIFY

[Build on Netlify](#)



**BE FRIENDS  
WITH OTHER  
VENDORS!**

Marketplace - Contentful

https://www.contentful.com/developer

Suchen

DEVELOPERS Developer portal Documentation Marketplace Changelog Sign up Support Get started

## Marketplace

Types

- All types
- Webhooks
- UI Extensions

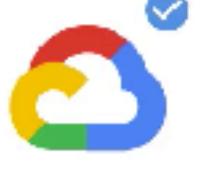
Categories

- Featured
- Deployment
- Ecommerce
- Editorial
- Marketing
- Productivity

 **Algolia - Index entries**  
Webhook  
Keeps the Algolia record up-to-date when entries are being published or unpublished.  
[+ Install now](#)

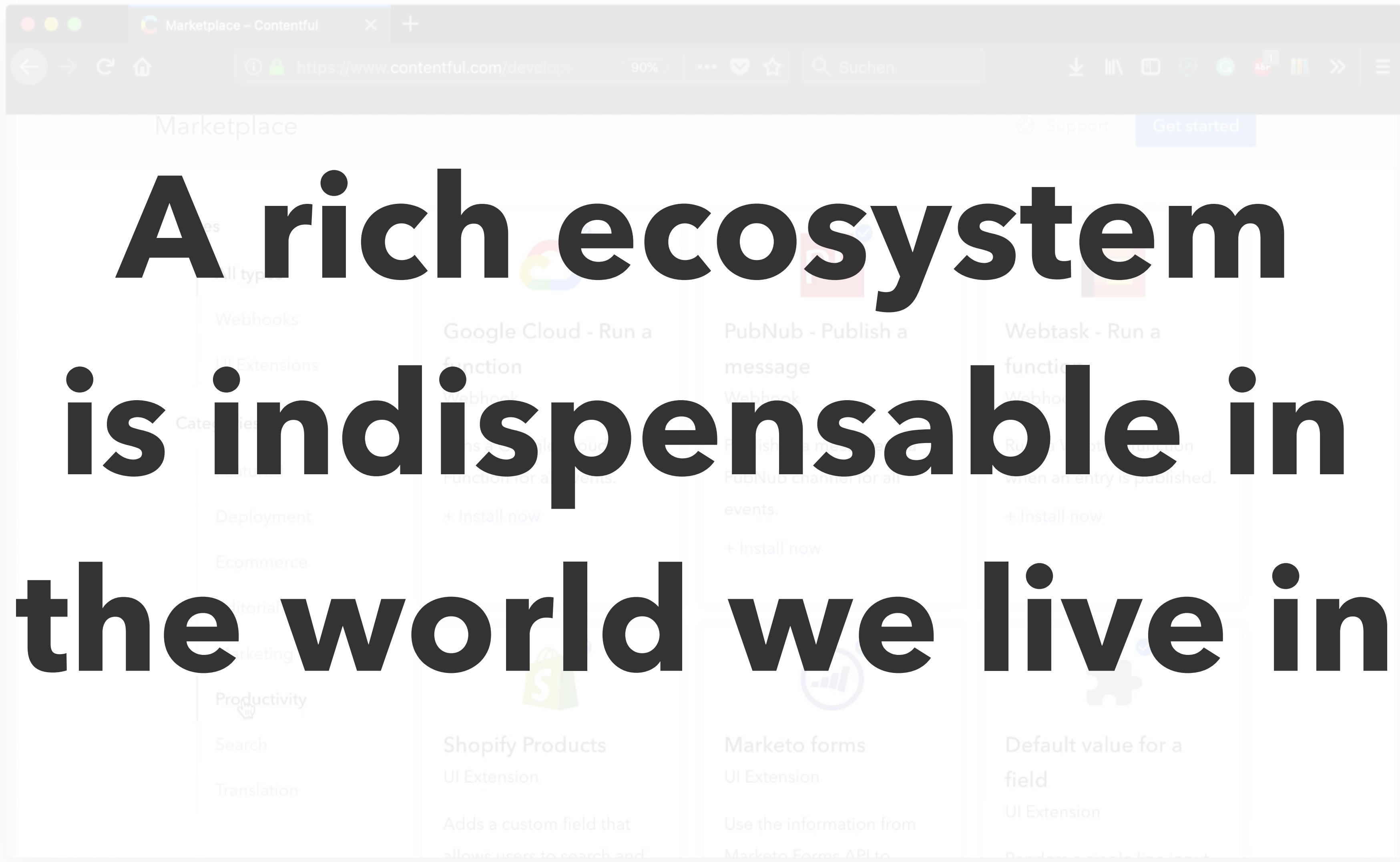
 **Bitbucket - Trigger a pipeline**  
Webhook  
Triggers a pipeline when an entry or asset is published or unpublished.  
[+ Install now](#)

 **CircleCI - Trigger a build**  
Webhook  
Triggers a CircleCI build when an entry or asset is published or unpublished.  
[+ Install now](#)









is indispensable in  
the world we live in

# My Editors want Preview

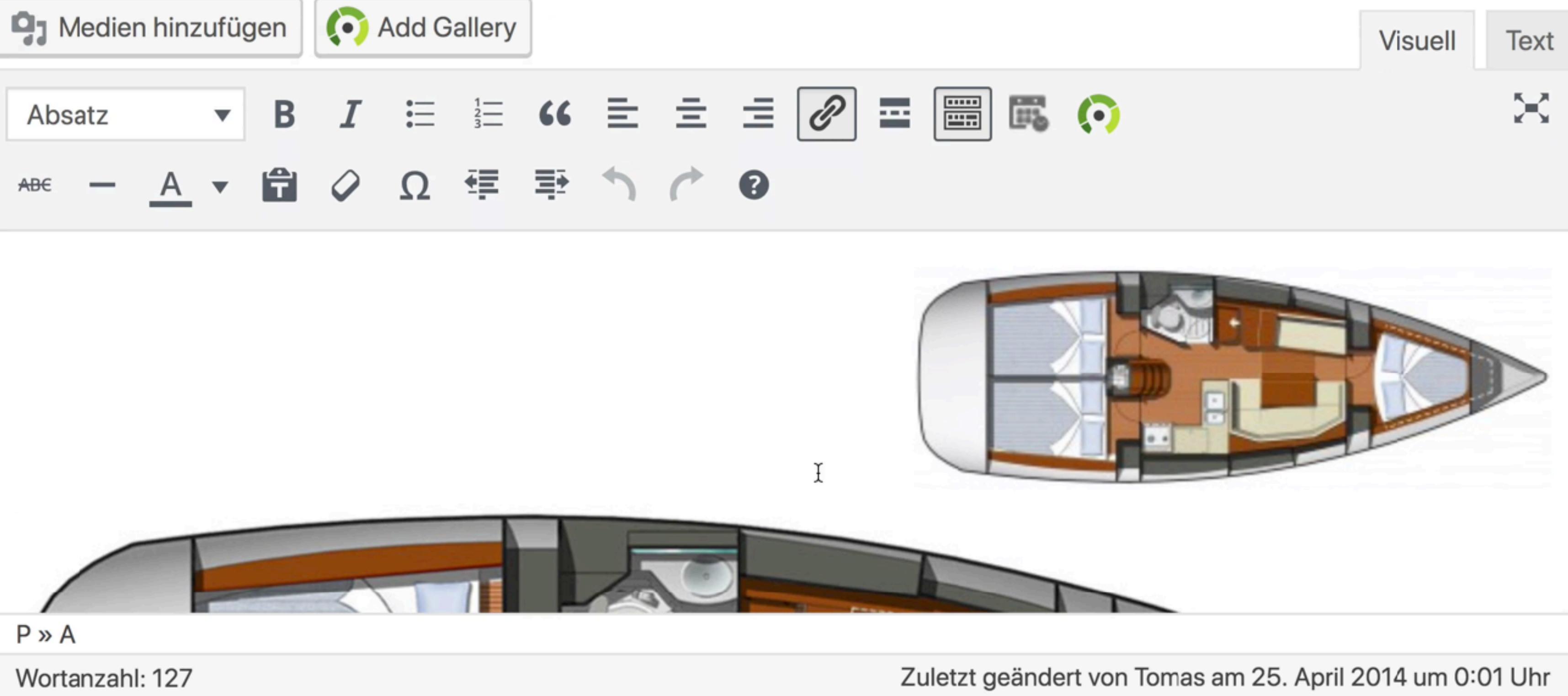
---

# COMMON CMS PROBLEMS

**WYSIWYG**

# Die Yacht

Permalink: <http://www.sailingforme.de/yacht/> Bearbeiten



# Our APIs

Content Delivery API

production

Content Preview API

staging

Content Management API

automation

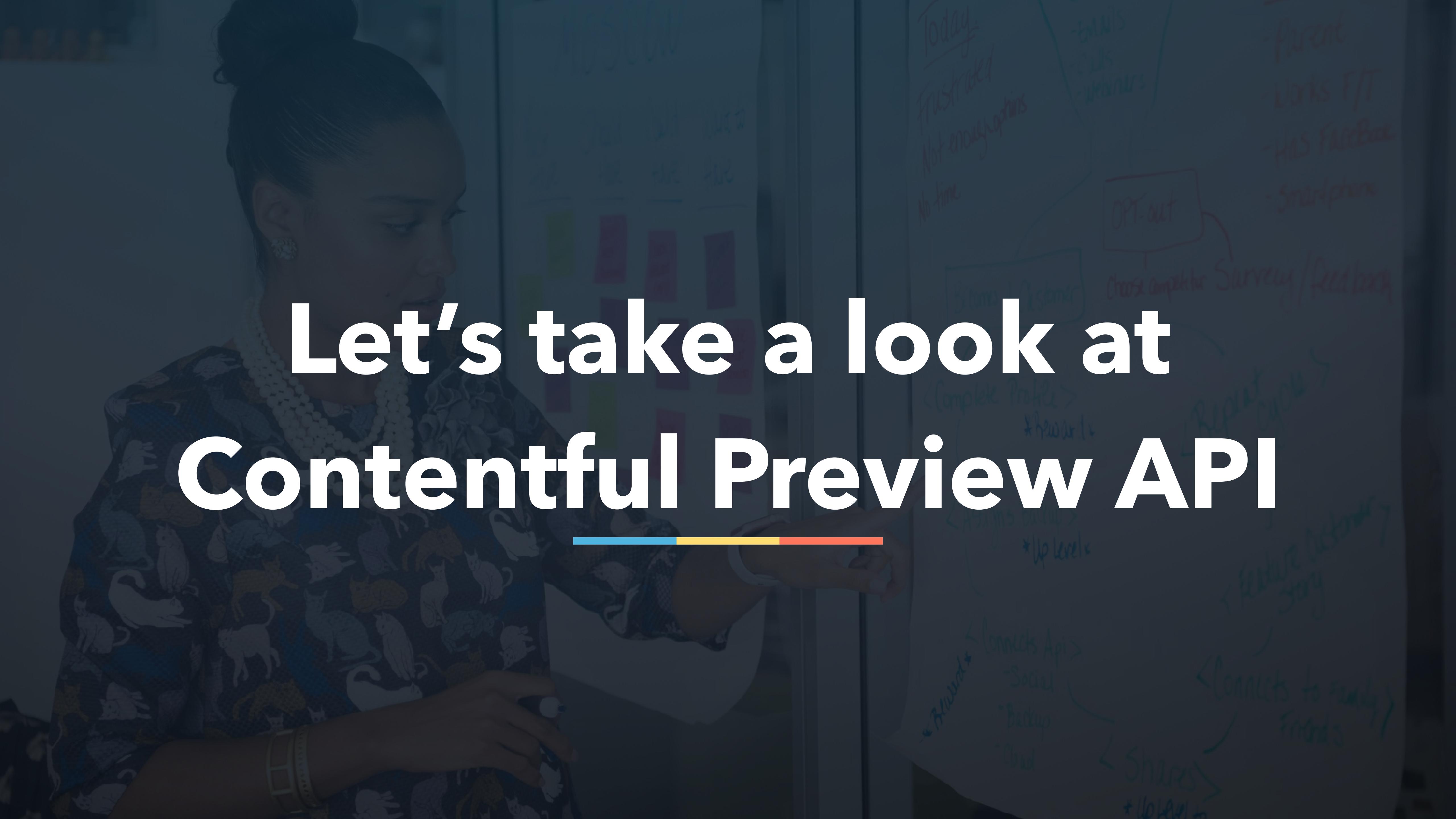
Images API

assets

# Our APIs

Content Preview API

staging



# Let's take a look at Contentful Preview API

---

# PREVIEW.CONTENTFUL.COM

The screenshot shows a web browser window displaying the Contentful Developers API reference. The URL in the address bar is [www.contentful.com](https://www.contentful.com). The page is titled "DEVELOPERS" and features a navigation bar with links to "Developer portal", "Documentation", "Marketplace", "Changelog", "Sign up", and a search icon. Below the navigation bar, there is a secondary navigation menu with links to "Concepts", "Guides", "Platforms", "API reference" (which is highlighted in blue), "Extensibility", and "Tools".

The main content area is titled "Preview API" and contains the following sections:

- Introduction**
  - [Preview API authentication](#)
  - [Using the Preview API](#)
  - [Preview API limitations](#)
  - [API rate limits](#)
  - [Common resource attributes](#)
  - [Collection resources and pagination](#)
- Reference**
  - [Spaces](#)
  - [Space](#)
  - [Content types](#)
  - [Content model](#)
  - [Content type](#)
  - [Entries](#)
  - [Entries collection](#)
  - [Entry](#)

On the right side of the "Preview API" section, there is a sidebar with the following information:

- Documentation / API reference / Content Preview API**
- Preview API**
- Introduction**

In addition to the Content Delivery API (CDA) for published content, is the Preview API for previewing unpublished content as though it were published. It maintains the same behaviour and parameters as the CDA, but delivers the latest draft for entries and assets.
- Basic API information**

API Base URL: <https://preview.contentful.com> This is a read-only API
- Preview API authentication**

You authenticate with the Preview API in the same way as the CDA, but using a preview access token.
- Your production access tokens will not work with the Preview API. The use of a separate token

# Preview API Key

## Access tokens

To query and get content using the APIs, client applications need to authenticate with both the Space ID and an access token.

**Name**  
Can be platform or device specific names (i.e. marketing website, tablet, VR app)

Gatsby Site

**Description**  
You can provide an optional description for reference in the future

Key for Site

**Space ID**

dkuja9bpqvhg

**Content Delivery API - access token**

b3d994d9baff5a3d2505a74d000e38e37ac811a7cfe3633257c018b2f3665945

**Content Preview API - access token**  
Preview unpublished content using this API (i.e. content with "Draft" status). [Read more](#)

e6d437f0ba26940c90e511e02d79991923a9e08926b6f610554304eb4a701b29

## Getting started

Prototype faster with boilerplate code as a base.

Select your language

Javascript

[Download boilerplate .zip](#)

## Run locally

Unzip the project, and run `npm start` to see your entries.

## A fast setup for your project

Most projects launch faster when they receive advice from our experts.

Contact an expert



MacBook





Shy Ruparel



Sites Domains OAuth applications Account settings

Search site

New site from Git



**preview.ti4.nyc**

Deploys from [GitHub](#)

Owned by Shy Ruparel

Last published at 10:05 PM (8 minutes ago)



**ti4.nyc**

Deploys from [GitHub](#)

Owned by Shy Ruparel

Last published at 10:02 PM (10 minutes ago)



## Build environment variables

---

accessToken **b3d994d9baff5a3d2505a74d00...**

host **cdn.contentful.com**

spaceId **dkuja9bpqvhg**

[Edit variables](#)

## Build environment variables

---

accessToken e6d437f0ba26940c90e511e02d...

host preview.contentful.com

spaceId dkuja9bpqvhg

[Edit variables](#)

# Webhooks For Production

Contentful

https://app.contentful.com/spaces/dkuja9bpqvhg/settings/webhooks/6fJ84VVK

Space home Content model Content Media Settings

Webhook: Netlify CDN Deploy

Webhook settings Activity log

Details

Name (required)

Netlify CDN Deploy

URL (required)

POST https://api.netlify.com/build\_hooks/5bc77e5373f2cf6254832308

Triggers Hide details

Specify for what kind of events this webhook should be triggered.

Trigger for all events

Select specific triggering events

	Create	Save	Autosave	Archive	Unarchive	Publish	Unpublish	Delete
Content type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Entry	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Asset	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

Remove Save

DOCUMENTATION

- Intro to webhooks
- Webhook management API reference

WEBHOOK URL REQUIREMENTS

Please note that webhook calls will not be performed against the following URLs:

- Private IPs (10.x, 192.x, etc.)
- localhost
- Hostnames without a top-level domain
- URLs that resolve to localhost or redirects

WEBHOOK IP SOURCES

If you need to restrict access to your webhook endpoint based on an IP visit AWS reference page to obtain information about IP ranges we support.

MacBook

# Webhooks For Preview

The screenshot shows a Contentful webhook configuration page titled "Webhook: Netlify Preview Deploy\*". The "Webhook settings" tab is selected. The "Details" section includes a "Name (required)" field containing "Netlify Preview Deploy" and a "URL (required)" field showing "POST https://api.netlify.com/build\_hooks/{MiscString\$}". The "Triggers" section is set to "Trigger for all events". The "Filters" section shows a dropdown for "Environment ID (sys.environment.sys.id)" set to "equals master". A "Remove" button is next to the filter. On the right side, there are sections for "DOCUMENTATION" (links to "Intro to webhooks" and "Webhook management API reference"), "WEBHOOK URL REQUIREMENTS" (a note about private IPs and localhost), and "WEBHOOK IP SOURCES" (a note about restricting access based on IP ranges).

Webhook: Netlify Preview Deploy\*

Webhook settings Activity log

Details

Name (required)  
Netlify Preview Deploy

URL (required)  
POST https://api.netlify.com/build\_hooks/{MiscString\$}

Triggers Hide details

Specify for what kind of events this webhook should be triggered.

Trigger for all events

Select specific triggering events

Filters

This webhook will trigger only for entities matching the filters defined below.

Environment ID (sys.environment.sys.id) equals master Remove

+ Add filter

DOCUMENTATION

- Intro to webhooks
- Webhook management API reference

WEBHOOK URL REQUIREMENTS

Please note that webhook calls will not be performed against the following URLs:

- Private IPs (10.x, 192.x, etc.)
- localhost
- Hostnames without a top-level domain
- URLs that resolve to localhost or redirects

WEBHOOK IP SOURCES

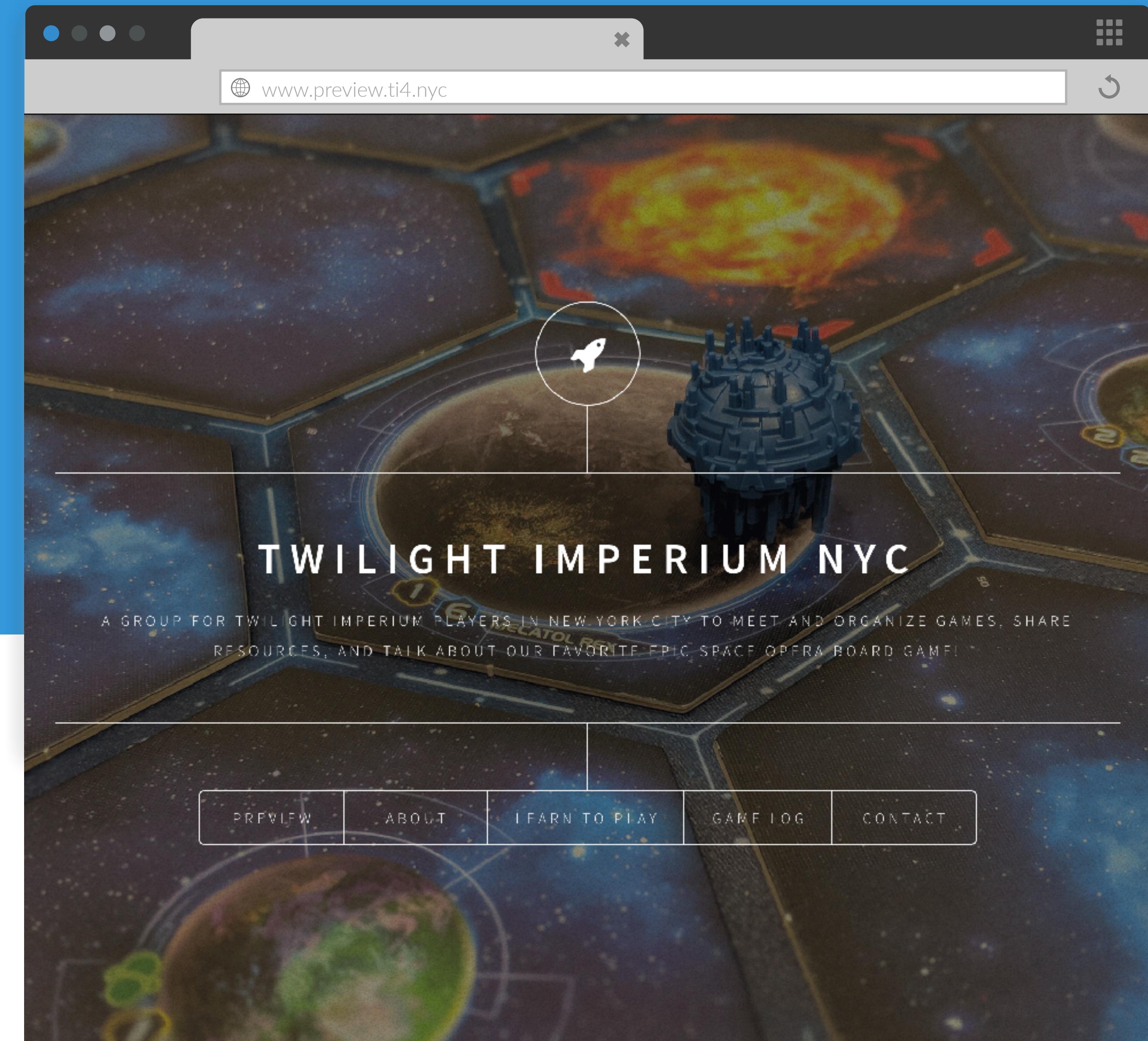
If you need to restrict access to your webhook endpoint based on an IP visit AWS reference page to obtain information about IP ranges we support.

# Create Draft Content

The screenshot shows the Contentful web application interface. The main title is "Content". The left sidebar has tabs for "Shared views" (selected) and "My views". It also includes filters for "STATUS (4)" (Published, Changed, Draft, Archived) and "CONTENT TYPE (3)" (Component, Games, Table). A link to "+ Add folder" is at the bottom of the sidebar.

Name	Content type	Updated	Author	Status
Learn to Play	Component	17 minutes ago	Me	PUBLISHED
preview	Component	Yesterday, 8:36 AM	Me	DRAFT
Virgo	Games	Wed, 9:19 AM	Me	PUBLISHED
Leo	Games	Wed, 9:16 AM	Me	PUBLISHED
About	Component	Mon, 3:01 PM	Me	PUBLISHED
Leo Table 3	Table	Mon, 12:49 PM	Me	PUBLISHED
Leo Table 2	Table	Mon, 12:48 PM	Me	PUBLISHED
Leo Table 1	Table	Mon, 12:47 PM	Me	PUBLISHED

# PREVIEW.TI4.NYC







**YOUR EDITORS  
HAVE TO BE  
HAPPY  
(AND SAFE)**

The image shows a Mac desktop with two browser windows open in Chrome. The left window is the Contentful editor interface, showing a page titled "Home" with fields for "ID (required)" (set to "Home") and "Title" (set to "The Future is Fast"). The right window is the Gatsby preview site at <https://gatsby-preview.gtsb.io>, displaying the Gatsby logo and the tagline "The Future is Fast". The desktop dock at the bottom includes icons for Finder, Mail, Safari, and other applications.

**Gatsbyjs.com Website**

Space home Content model

Home

ID (required)

Home

4 characters

Title

The Future is Fast

18 characters

Subtitle (required)

Editor

H B I “ ” [list icon] [list icon] [scissors icon] [more icon]

Insert media

Finish Pause 00:56 14% Sun 11:03 AM

Home | Gatsby Inc.

https://gatsby-preview.gtsb.io

The Future is Fast

Create blazing fast, compelling websites and apps without needing to become a performance expert.

Join the waitlist →

650+ contributors, 27.2 k stars

Create digital experiences on the edge—faster

Gatsby provides a modern framework for turning content into feature-rich, visually engaging apps and websites. Consume data from anywhere — build your app with React & GraphQL.



# Improving the Developer Experience

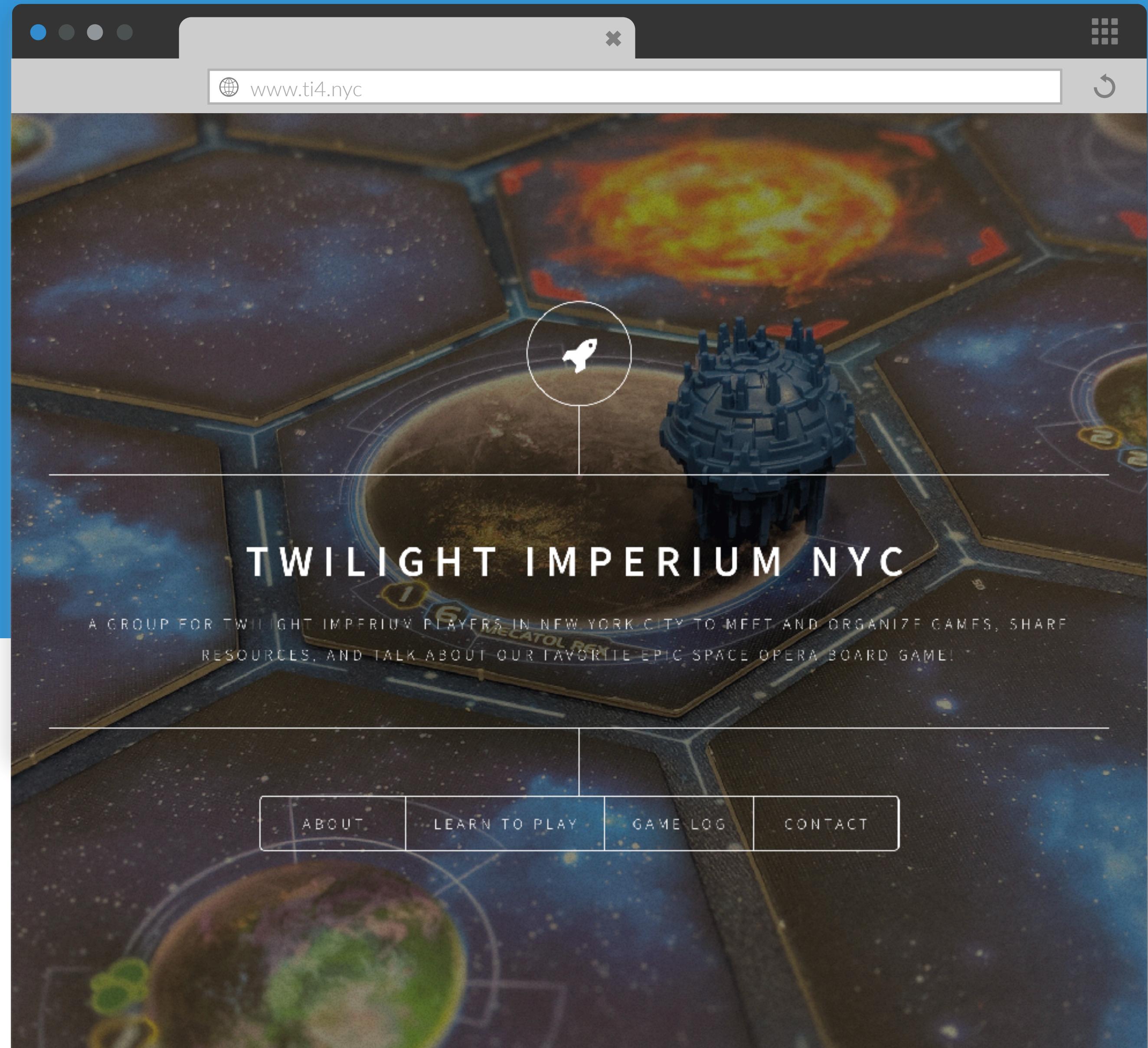
---

A dark, semi-transparent background image of a person sitting at a desk, facing a computer monitor. The monitor displays a complex dashboard with multiple graphs, charts, and data tables. A keyboard and a mouse are visible on the desk in front of the monitor.

# Improving My Experience

---

# LET'S START WITH THE BACKGROUND IMAGE





05

22

# Dealing with Assets



# Our APIs

Content Delivery API

production

Content Preview API

staging

Content Management API

automation

Images API

assets

# Our APIs

Images API

assets



3.2MB

<https://images.ctfassets.net/.../bg.jpg>



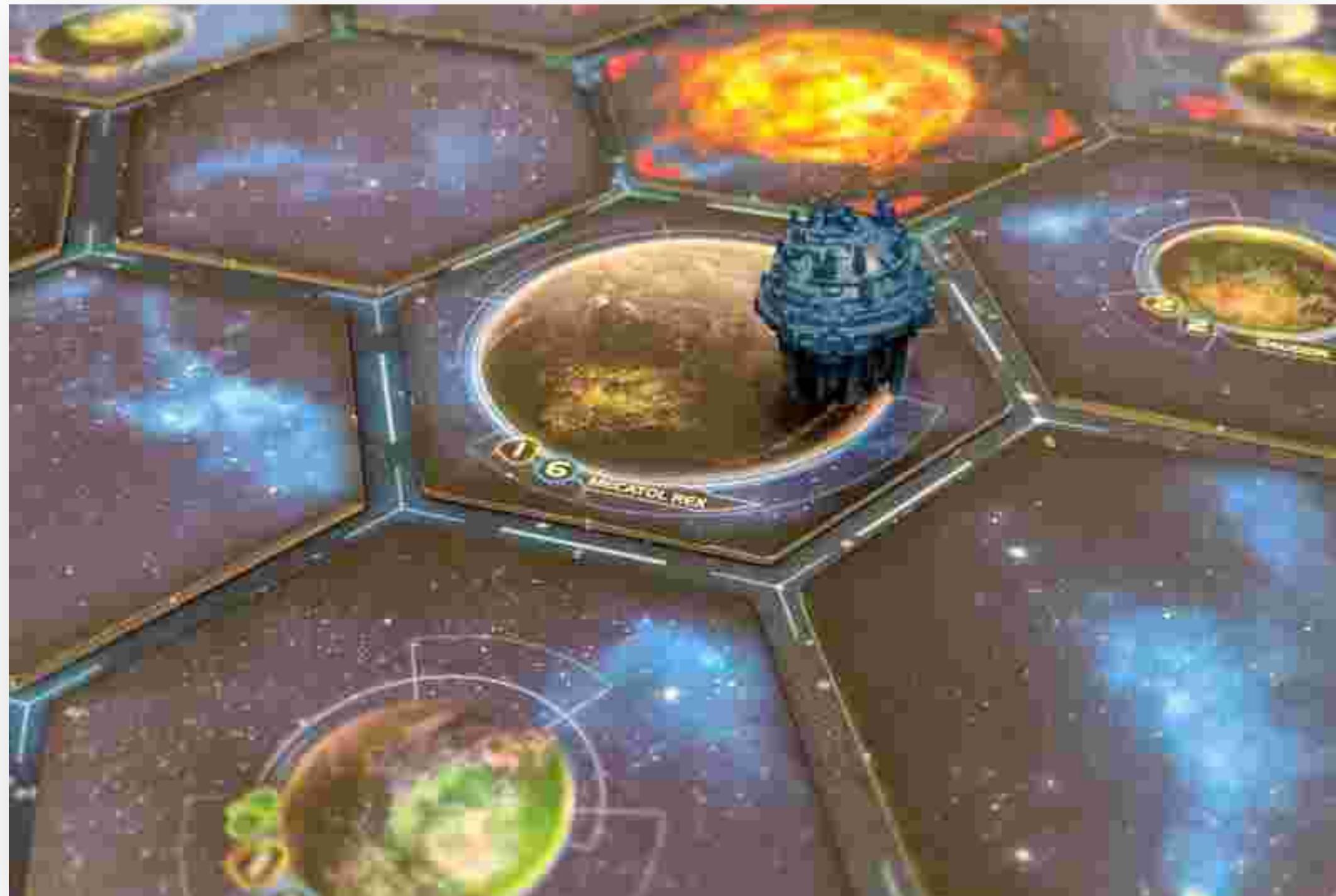
140KB

<https://images.ctfassets.net/.../bg.jpg?w=800>



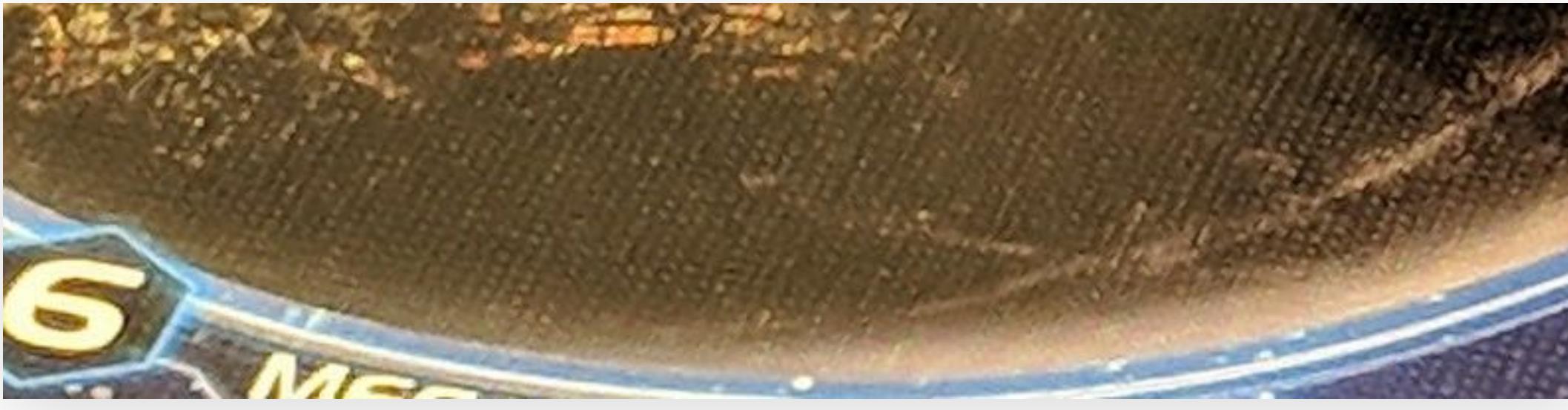
30KB

<https://images.ctfassets.net/.../bg.jpg?w=800&fm=webp>

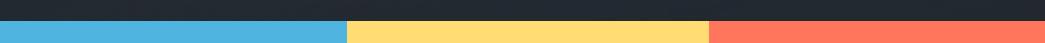


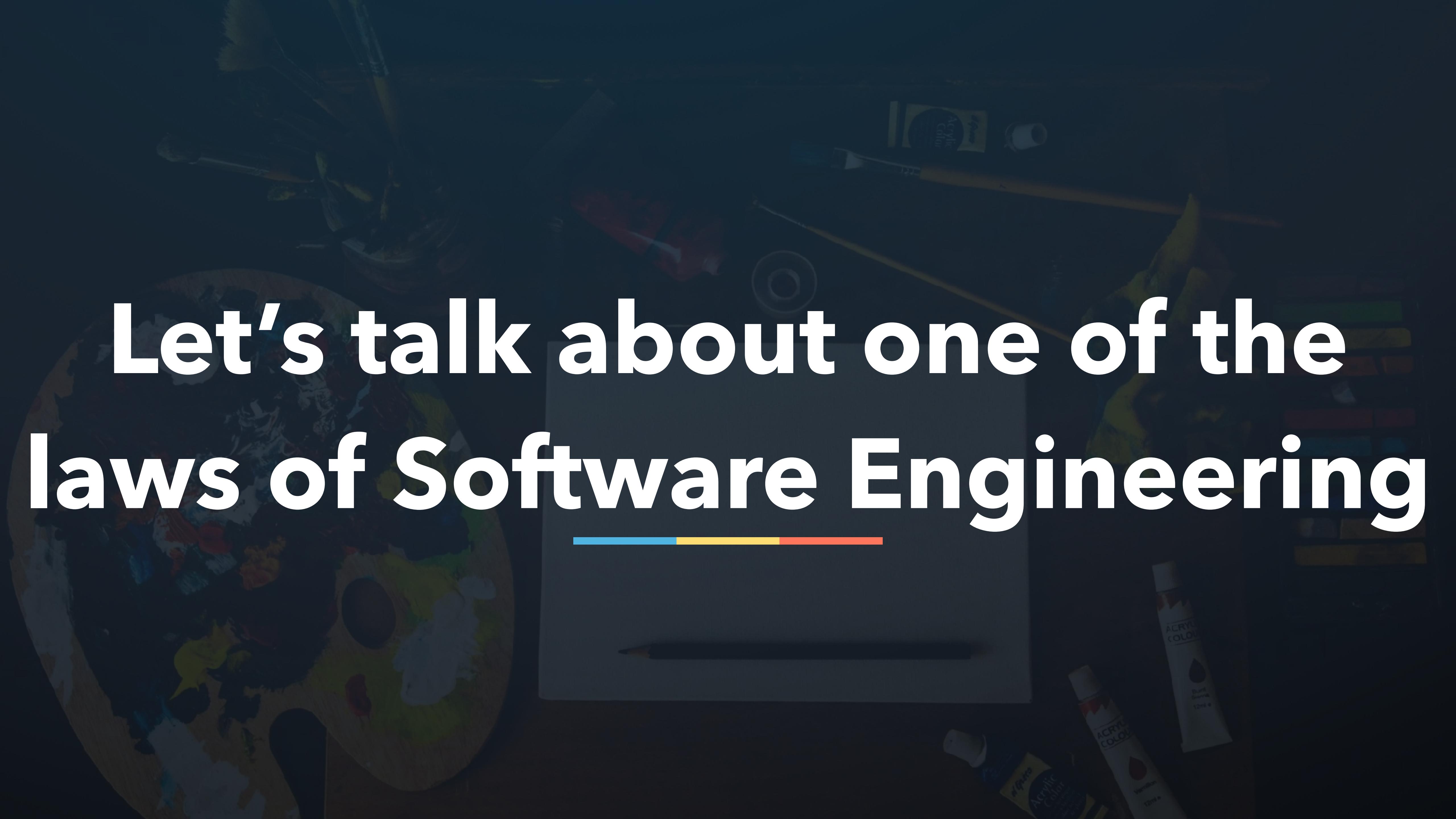
17KB

<https://images.ctfassets.net/.../bg.jpg?w=800&fm=jpg&q=10>



<https://images.ctfassets.net/.../bg.jpg?w=800&h=200&fit=crop>





Let's talk about one of the  
laws of Software Engineering

---

A dark, semi-transparent background image of a person from the side, wearing over-ear headphones and glasses, focused on a computer screen. The screen displays multiple windows, possibly code or software interfaces. The overall mood is professional and tech-oriented.

Nobody gets it right  
the first time

---

When you can't have  
perfection, the next best thing  
is change



**AGAINST MY SUGGESTION, BOSS ASKED  
ME TO MAKE PRODUCTION CHANGE**



**SHIT JUST HIT THE FAN**



# Let's talk about the Contentful Migrations

---

# Our APIs

Content Delivery API

production

Content Preview API

staging

Content Management API

automation

Images API

assets

# Our APIs

Content Management API

automation

# MIGRATION CLI

## CONTENT TYPE OPERATIONS

- 01** Create a content type
- 02** Delete a content type
- 03** Edit a content type
- 04** Create/edit/delete fields
- 05** Change a field ID



# ALL IN JAVASCRIPT

```
module.exports = function runMigration(migration) {  
  const table = migration.editContentType("table");  
  Table  
    .createField("winner")  
    .name("winner")  
    .type("Symbol")  
    .required(false);  
  return;  
};
```

# CALLABLE VIA THE CONTENTFUL CLI

```
contentful space migration
  --space-id $YOUR_SPACE_ID
  --access-token $CONTENTFUL_MANAGEMENT_ACCESS_TOKEN
migration-demo.js
```

The screenshot shows the Contentful web application interface. At the top, there's a header with the Contentful logo, a search bar containing the URL [https://app.contentful.com/spaces/dkuja9bpqvhg/content\\_types/table/fields](https://app.contentful.com/spaces/dkuja9bpqvhg/content_types/table/fields), and various browser controls like back, forward, and refresh.

The main content area is titled "Table" and shows two fields:

- Sign & Table Number** (Short text)
- game** (JSON object)

On the right side, there are several sections:

- FIELDS**: A note stating "The content type has used 2 out of 50 fields." with a blue "Add field" button.
- CONTENT TYPE ID**: A text input field containing "table".
- DOCUMENTATION**: Two bullet points:
  - Read more about content types in our [guide to content modelling](#).
  - To learn more about the various ways of disabling and deleting fields have a look at the [field lifecycle](#).

Let's do something  
A little more complicated



# TRANSFORMING ENTRIES

```
module.exports = function runMigration(migration) {
  const table = migration.editContentType("table");
  table
    .createField("winner")
    .name("winner")
    .type("Symbol")
    .required(false);

  migration.transformEntries({
    contentType: 'table',
    from: ['game'],
    to: ['winner'],
    transformEntryForLocale: function(fromFields, currentLocale) {
      var winner = "";
      fromFields.game[currentLocale].Players.forEach(function(player) {
        if (player['Score'] == 10) {
          winner = player['Name'];
        }
      });
      console.log(winner);
      return { winner: winner };
    }
  });
  return;
};
```

The screenshot shows the Contentful Content Model Editor interface. At the top, there are two tabs labeled "Contentful" and a "+" button. The URL in the address bar is [https://app.contentful.com/spaces/dkuja9bpqvhg/content\\_types/table/fields](https://app.contentful.com/spaces/dkuja9bpqvhg/content_types/table/fields). The page title is "Space home". The main navigation includes "Content model", "Content", "Media", and "Settings". A user profile icon is in the top right.

The left sidebar shows "Shy's DevRel Playground" and a "master" branch. The current view is "Table". There are "Actions" and "Save" buttons at the top right.

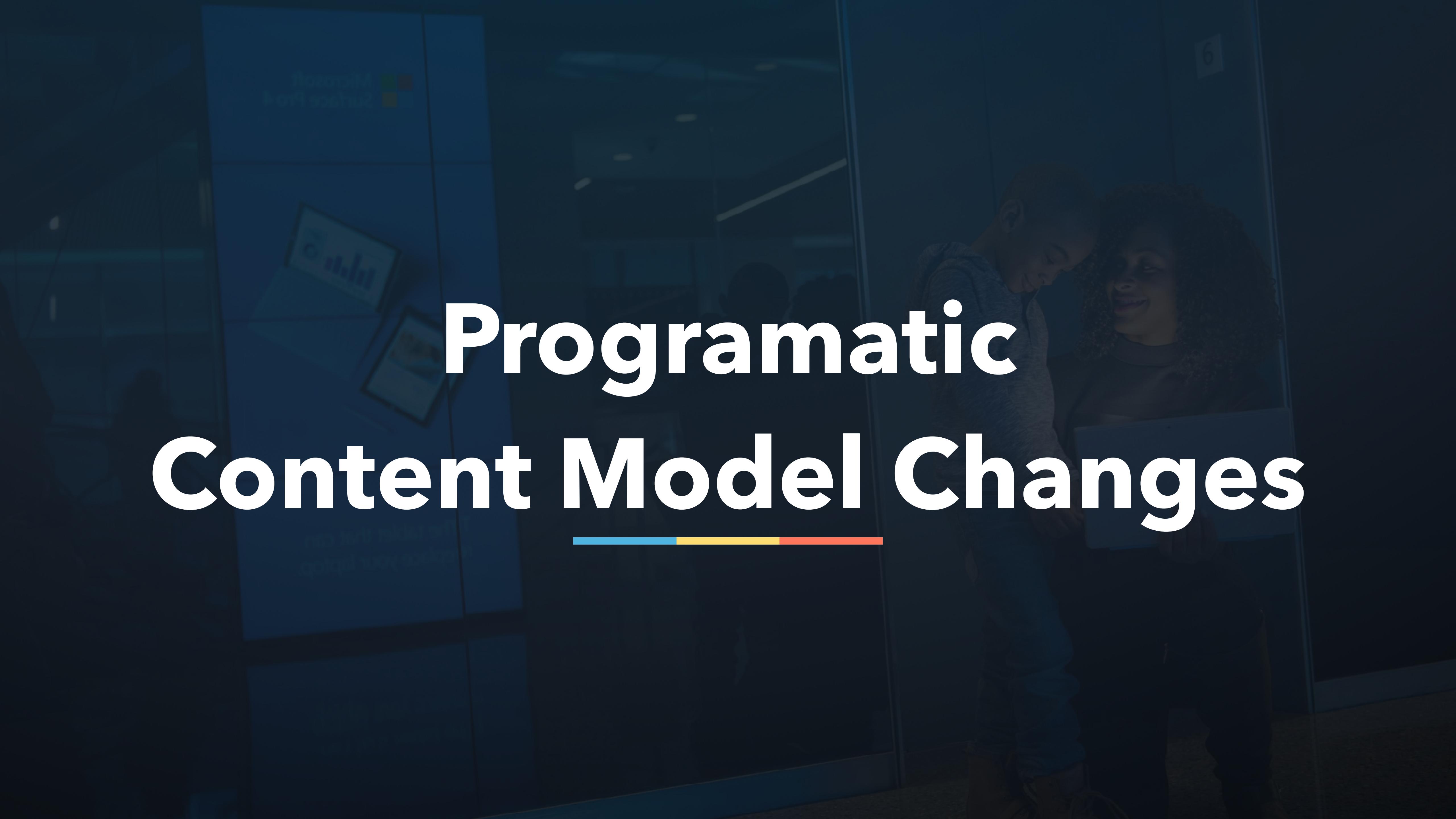
The main area is titled "Fields (2)" and includes a "JSON preview" section. It lists two fields:

- Sign & Table Number**: Short text. Entry title: [Settings](#) [...](#)
- game**: JSON object. Entry title: [Settings](#) [...](#)

The right side of the screen contains several sections:

- FIELDS**: A note stating "The content type has used 2 out of 50 fields." with a blue "Add field" button.
- CONTENT TYPE ID**: A text input field containing "table" with a clear icon.
- DOCUMENTATION**: Two bullet points:
  - Read more about content types in our [guide to content modelling](#).
  - To learn more about the various ways of disabling and deleting fields have a look at the [field lifecycle](#).

# Programmatic Content Model Changes



# MIGRATION CLI

## ADVANTAGES

- 01** Repeatable
- 02** Can be kept in VC
- 03** Includes sanity checks
- 04** Perfect for CI



# CMS as Code

(automation like a boss)



A dark, slightly blurred background image of a person sitting at a desk. They are using a laptop computer, with their hands visible on the keyboard. To the left of the laptop is a white keyboard and a mouse. The overall atmosphere is professional and focused.

# That's Great

---

A dark, semi-transparent background image showing a close-up of a person's hands typing on a laptop keyboard. The hands are positioned on the center keys, and the fingers are in motion. The laptop has a light-colored keyboard with dark keys. The background is dark, making the hands and the laptop screen visible.

# But what if I want to Discard Test or Preview a Migration?

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# Space Environments



Shy's DevRel Playground

ti4

branch-preview

≡

Space home Content model Content Media

## Environments

ID	Status	Actions
master  DEFAULT ENVIRONMENT	READY	<a href="#">Delete</a>
branch-preview 	READY	<a href="#">Delete</a>
Youtube-Feature 	READY	<a href="#">Delete</a>
New-Component-Model-Test 	READY	<a href="#">Delete</a>

# MIGRATIONS + ENVIRONMENTS

```
contentful space migration
--space-id $YOUR_SPACE_ID
--environment-id $YOUR_ENV_ID
--access-token $CONTENTFUL_MANAGEMENT_ACCESS_TOKEN
migration-demo.js
```

# GATSBY-CONFIG.JS

```
require("dotenv").config({
  path: `./env`,
})
module.exports = {
  plugins: [
    {
      resolve: `gatsby-source-contentful`,
      options: {
        spaceId: process.env.spaceId,
        accessToken: process.env.accessToken,
        host: process.env.host
      },
    },
  ],
}
```

# GATSBY-CONFIG.JS WITH ENVIRONMENTS

```
require("dotenv").config({
  path: `./env`,
})
module.exports = {
  plugins: [
    {
      resolve: `gatsby-source-contentful`,
      options: {
        spaceId: process.env.spaceId,
        accessToken: process.env.accessToken,
        host: process.env.host,
        environments: process.env.environments
      },
    },
  ],
}
```

# COMBINE WITH NETLIFY FOR DEV PREVIEW

The screenshot shows a GitHub pull request interface for a branch named "branch-preview".

**Branch Preview Test #1**

**Open** Shy wants to merge 3 commits into `master` from `branch-preview`

**Conversation 0** **Commits 3** **Checks 4** **Files changed 2** **+4 -2**

**Shy commented 2 days ago**  
No description provided.

**Shy added some commits 2 days ago**

- Branch Preview Test (e58b127) **✗**
- messed with env vars (412aacd) **✓**
- messed with title (2650920) **✓**

Add more commits by pushing to the `branch-preview` branch on [Shy/ti4.nyc-website](#).

**All checks have passed** 3 neutral and 2 successful checks

- Header rules** Completed in 27s — No header rules processed [Details](#)
- Pages changed** Completed in 27s — 13 new files uploaded [Details](#)
- Redirect rules** Completed in 27s — No redirect rules processed [Details](#)
- Mixed content** Successful in 27s — No mixed content detected [Details](#)
- deploy/netlify** — Deploy preview ready! [Details](#)

**This branch has no conflicts with the base branch**  
Merging can be performed automatically.

**Merge pull request** You can also [open this in GitHub Desktop](#) or view [command line instructions](#).

**Reviewers**: No reviews

**Assignees**: No one—assign yourself

**Labels**: None yet

**Projects**: None yet

**Milestone**: No milestone

**Notifications**: [Unsubscribe](#)  
You're receiving notifications because you authored the thread.

**1 participant**:

**Lock conversation**

# Combine with Netlify for Dev Preview



# COMMON USAGE FOR SPACE ENVIRONMENTS

- Local development
- Staging / QA
- Continuous integration



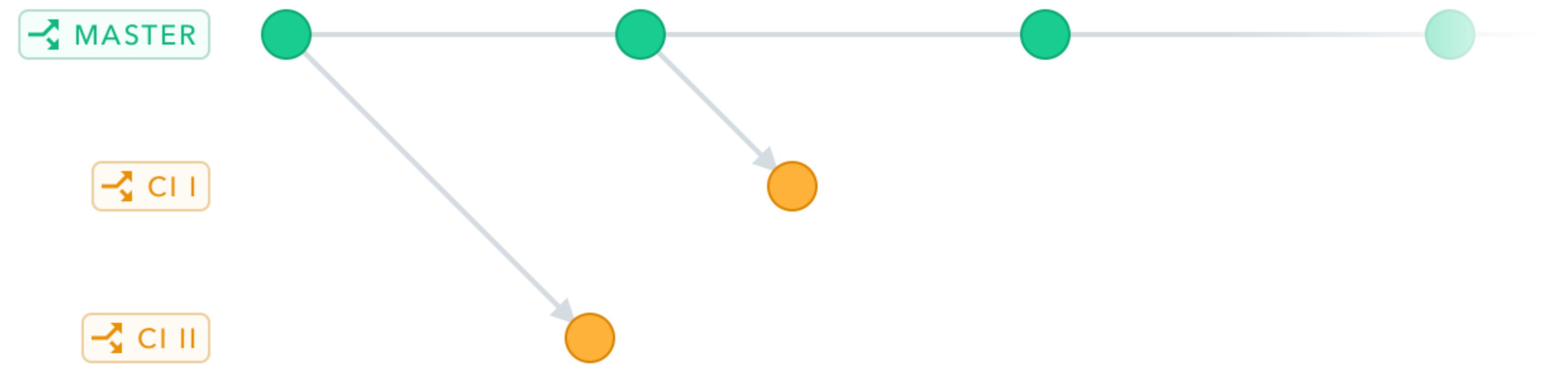


# Let's briefly dig into Continuous Integration

# BASIC CI PIPELINE

Build  
Test  
Deploy





# MIGRATIONS

+

# CI PIPELINE

Build

Test

Deploy



# MIGRATIONS

+

# CI PIPELINE

Build

*Create a new environment*

Test

Deploy



# MIGRATIONS

+

# CI PIPELINE

Build

***Create a new environment***

***Migrate new environment***

Test

Deploy



# MIGRATIONS

+

# CI PIPELINE

Build

***Create a new environment***

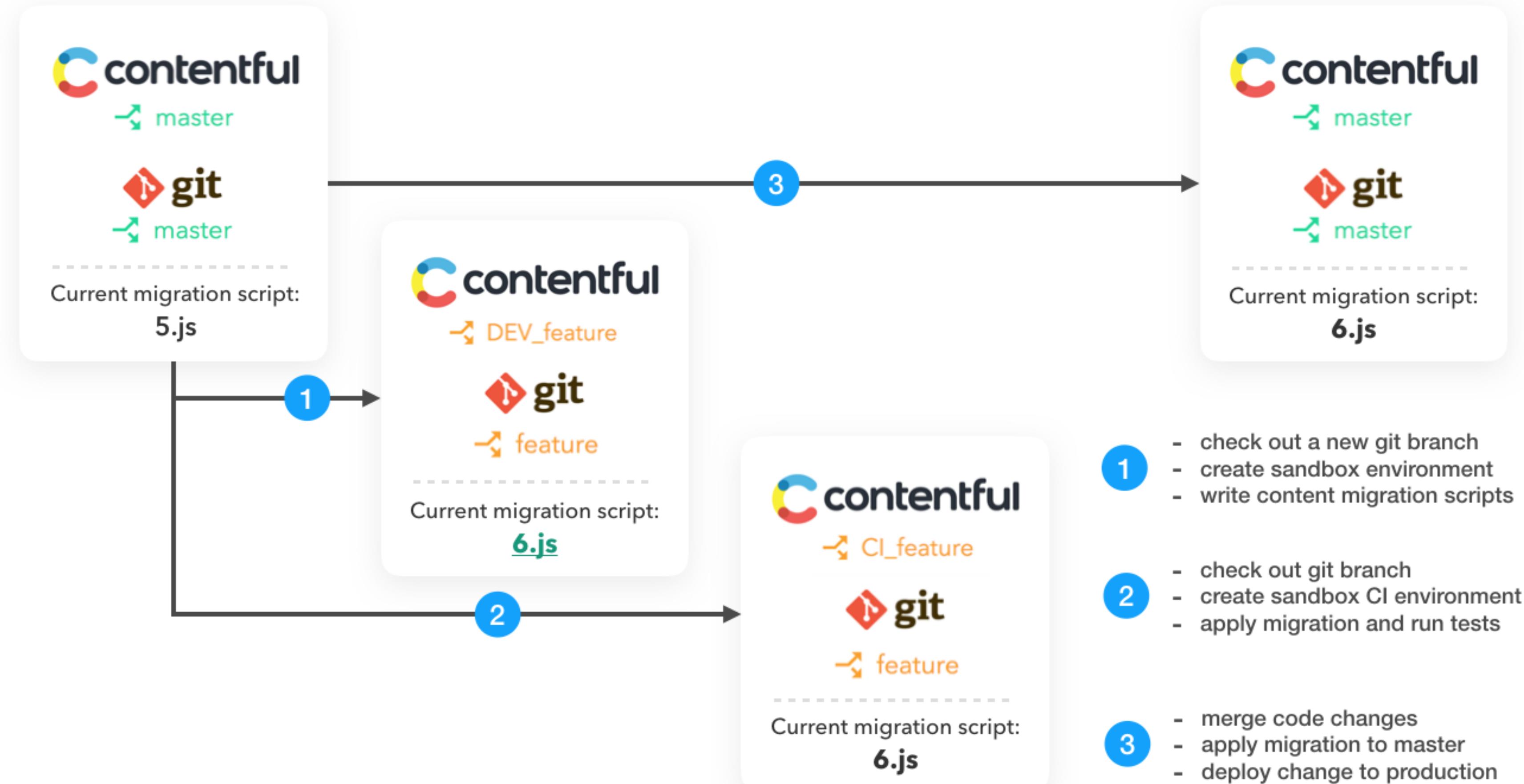
***Migrate new environment***

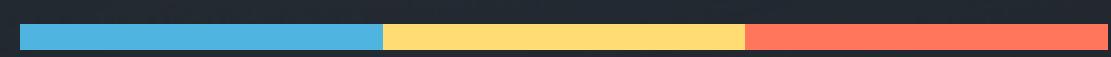
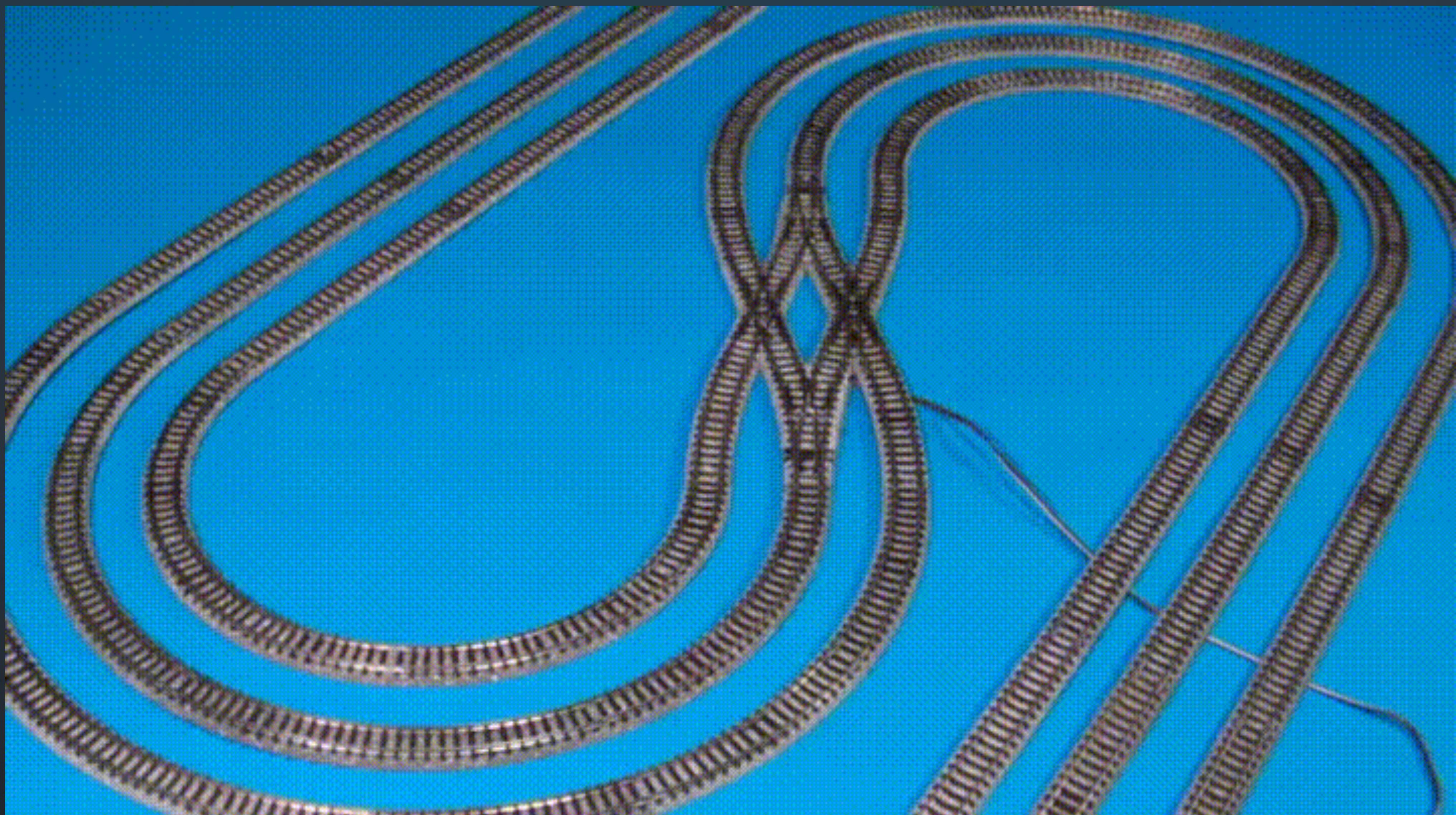
Test

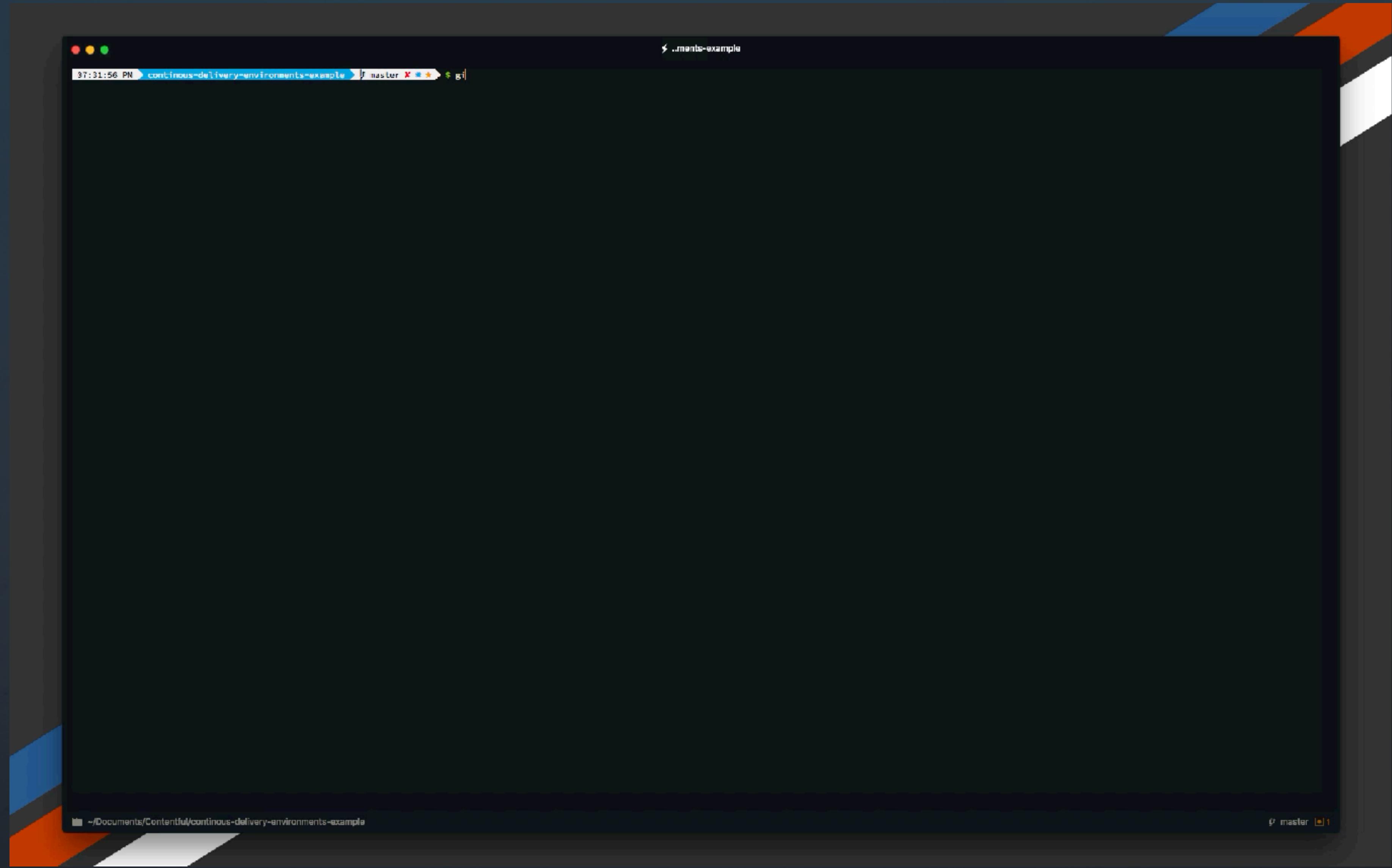
Deploy

***Migrate master  
environment***









# GITHUB.COM/CONTENTFUL-LABS/ CONTINUOUS-DELIVERY- ENVIRONMENTS-EXAMPLE

The screenshot shows a GitHub repository page. At the top, the URL 'www.ti4.nyc' is visible in the browser's address bar. The repository name 'contentful-labs / continuous-delivery-environments-example' is displayed in the header, along with metrics: 73 commits, 6 branches, 0 releases, 2 contributors, and an MIT license. The repository description reads: 'An example application for how you can integrating migrations in your continuous delivery pipeline.' Below the description, there is a 'Manage topics' section. The main area shows a list of recent commits:

Author	Commit Message	Date
Shy	remove movie from content model (#27)	Latest commit 1 week ago
.circleci	Convert migration_prep.py to JS (#24)	3 months ago
import	Added readme and export file	5 months ago
migrations	remove movie from content model (#27)	2 months ago
scripts	added fix for deploy (#25)	3 months ago
templates	Abstracted migration out and bumped upto 0.0.4	5 months ago
.env.example	Update readme (#17)	4 months ago
.gitignore	Add new line at the of files	4 months ago
LICENSE	Initial commit	6 months ago
Procfile	Heroku	6 months ago
README.MD	Corrected a few typos.	3 months ago
confest.py	Author feature and bumped to 0.0.7	5 months ago
myapp.py	Cleaned up python	5 months ago
package-lock.json	Improve migration handling to pick up migrations automatically	4 months ago
package.json	Convert migration_prep.py to JS (#24)	3 months ago
requirements.txt	Author feature and bumped to 0.0.7	5 months ago
runtime.txt	Heroku	6 months ago
test_app.py	remove movie from content model (#27)	2 months ago
README.MD		

Continuous Delivery Environments Example





**Editor  
Workflows**



**Developer  
Workflows**







# Shy Ruparel

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Developer Evangelist | Contentful

@ShyRuparel

He/Him

Slides: [GitHub.com/shy/talks](https://GitHub.com/shy/talks)

Background Images: [wocintechchat.com](https://wocintechchat.com)