TABLEAU CONFERENCE
A Voyage Through Embedded Analytics

Madhav Kannan
He/ Him
Associate Sales Consultant
Tableau

#data19

Christophe Ortegat
He/ Him
Product Consultant
Tableau
How to Build a Tableau Portal in 60 Minutes or Less
Thursday | 10:30am to 11:30am

Kickstart Your JavaScript Skills
Wednesday | 4pm to 5pm
Integrate and visualize the data from your R, Python, and Matlab models in Tableau.

Advanced Analytics
Integrate Tableau with advanced models in R, Python, and Matlab

Automation / Integration
Automate tedious tasks, create custom workflows and manage Tableau content

Extensibility
Give dashboards new capabilities, and integrate them with other applications

Embedding
Embed Tableau content into other applications

Data Connectivity
Get any data into Tableau via custom connector or extract

developer.tableau.com
Integrate and visualize the data from your R, Python, and Matlab models in Tableau.

**Automation / Integration**
- Automate tedious tasks, create custom workflows and manage Tableau content

**Extensibility**
- Give dashboards new capabilities, and integrate them with other applications

**Advanced Analytics**
- Integrate Tableau with advanced models in R, Python, and Matlab

**Embedding**
- Embed Tableau content into other applications
  - Embedding API
  - Mobile App Bootstrap
  - REST API

**Data Connectivity**
- Get any data into Tableau via custom connector or extract

[developer.tableau.com]
A Voyage Through Embedded Analytics

Embedded Portal → Embedding → Seamless Login → Scaling → Conclusion
A Voyage Through Embedded Analytics

Embedded Portal

Embedding  Seamless Login  Scaling  Conclusion
A Voyage Through Embedded Analytics

- Embedded Portal
- Embedding
- Seamless Login
- Scaling
- Conclusion
A Voyage Through Embedded Analytics

- Embedded Portal
- Embedding
- Seamless Login
- Scaling
- Conclusion
A Voyage Through Embedded Analytics

- Embedded Portal
- Embedding
- Seamless Login
- Scaling
- Conclusion
A Voyage Through Embedded Analytics

- Embedded Portal
- Embedding
- Seamless Login
- Scaling
- Conclusion
By the end of this journey you will …

**Learn** how you can embed Tableau into your custom web portal

**Identify** the different technologies that Tableau provides

**Understand** how these technologies combine to provide a solution
What is Embedded Analytics?

Integrate Tableau analytics and capabilities into your application.
Why do Embedded Analytics?

Value for--

Customers / End Users

- Quick and easy access to data
- Answers questions independently
- Increased engagement

Business

- Generate new revenue streams
- Better understand Clients
- Optimize products
A Voyage Through Embedded Analytics

- Embedded Portal
- Embedding
- Seamless Login
- Scaling
- Conclusion
Demo
A Voyage Through Embedded Analytics

Embedded Portal

Embedding

Seamless Login

Scaling

Conclusion

JavaScript Island
What is the JavaScript API?

Tableau’s JavaScript API allows your Tableau visualization to be integrated in your custom web application!
Basic JavaScript API Concepts

Initial Disclaimer: This is a JavaScript API overview.

```javascript
function initViz() {
  var containerDiv = document.getElementById("vizContainer"),
  url = "https://my-server/t/my-site/views/my-workbook/my-view",

  options = {
    hideTabs: false,
    toolbarPosition: TOP,
    hideToolbar: false,
    onFirstInteractive : function () {
      console.log("We're at TC!");
    }
  }

  var viz = new tableau.Viz(containerDiv, url, options);
}
```

```html
<body onload="initViz();">
  <div id="vizContainer" style="width:800px; height:700px;"></div>
</body>
```
Demo
The JavaScript API allows HTML elements in a portal to interact with and modify the Tableau viz.
function changeFilter(value) {
    var sheet = viz.getWorkbook().getActiveSheet().getWorksheets().get("sheet-name");
    if (value === "") {
        sheet.clearFilterAsync("filter-name");
    } else {
        sheet.applyFilterAsync("filter-name", value, tableau.FilterUpdateType.REPLACE);
    }
}

function exportToPDF() {
    viz.showExportPDFDialog();
}

<div id="controls" style="padding:20px;"> 
    Region: <select id="changeFilter" onchange="changeFilter(value);"> 
    <option value="">All</option> 
    <option value="value-1">Value 1</option> 
    <option value="value-2">Value 2</option> 
    </select> 
</div> 
<button onclick="exportToPDF();">Export</button>
JS API Utilities

- Display Tableau visualizations.
- Export visualizations to an image or PDF file.
- Filtering the data displayed in visualizations with HTML controls in the page.
- Selecting marks in visualizations.
- Responding to events in visualizations.
- Dynamically loading and resizing visualizations.
- Retrieving the data points of a selected mark.
A Voyage Through Embedded Analytics

- Embedded Portal
- Embedding
- Seamless Login
- Scaling
- Conclusion

Authentication Wall
What is SSO?

SSO allows a user to access multiple applications with one set of login credentials.
Authentication Methods

- Trusted Authentication
- SAML
- OAuth
- OpenID
Authentication Methods

- Trusted Authentication
- SAML
“Trusted tickets allows users to log in seamlessly into Tableau, through a token-based mechanism.”
Trusted Authentication

Server

1. Trusted Web Host
2. Trusted Authentication Web Portal
3. Server
4. Server
5. Server
6. Server
Setting up Trusted Tickets

- **Adding trusted IP address to Tableau Server** –
  - TSM Web UI
  - `tsm authentication trusted configure -th <trusted IP address/host name>`

- **Get a ticket from Tableau Server** –
  - `POST http://tabserv/trusted?username=<user-name>&target_site=<site-name>`

- **Redeem a viz from Tableau Server** –
  - `http(s)://tabserv/trusted/<ticket>/site-name/workbook-name/view-name`
Demo
Authentication Methods

Trusted Authentication

SAML
SAML enables SSO through a 3rd party identity provider that creates a Tableau session on successful authentication.
Setting up SAML on Tableau Server

• Configure the identity provider for connection to Tableau Server and generate the appropriate metadata file.

• Enable the Tableau Server for SAML configuration and import the metadata file created into Tableau Server.

• Ensure that the SAML assertions are correct—
  
idp.username = tableau.username

idp.email = tableau.email
Demo
A Voyage Through Embedded Analytics

- Embedded Portal
- Embedding
- Seamless Login
- Scaling
- Conclusion

Rest API
Kingdom
What is the REST API?

The REST API allows you to manage and change Tableau Server resources at scale programmatically, via HTTP.
Geeks and repetitive tasks

- Adding it manually
- Gets annoyed
- Writes a script to automate
- Runs script
- Makes fun of geek's complicated method
- Loses
- Wins

Time spent

Number of users added

1000 users

Geeks and repetitive tasks: Time spent vs. Number of users added.
Structure

**Verb**

http(s)://{your-server}/api/{version}/sites/{site-id}/projects/{project-id}/workbooks/{workbook-id}

A Voyage Through Embedded Analytics

Embedded Portal  →  Embedding  →  Seamless Login  →  Scaling  →  Conclusion

The Iron Throne
Demo
GOT IT?
Want to learn more?

Tableau Resources

- Embedded Analytics with Tableau
  https://www.tableau.com/embedded-analytics

- JavaScript API

- Single Sign on

- Rest API

- Embedding Playbook
  https://tableau.github.io/embedding-playbook/
Tableau Developer Program:

a safe space to innovate and learn

Free Development Site
Early API Access
Engineering Team Connection

First to know
Community
Wake up the TREX in you

developer.tableau.com
#DataDev Resources

Tableau on GitHub
github.com/tableau

Tableau Developer Tools
tableau.com/developer/tools

Tableau on YouTube
youtube.com/user/tableau

developer.tableau.com
Please complete the session survey in the mobile app

View ‘My Evaluations’ in the menu or find your session under ‘Schedule’
Thank You