

SAS[®] GLOBAL FORUM 2019

USERS PROGRAM

APRIL 28 - MAY 1, 2019 | DALLAS, TX



Discover Seven Gems for Getting the Most Out of SAS Visual Analytics Viewers

SAS 3160-2019

Lavanya Mandavilli

Test Engineer

SAS Institute Inc

Lavanya Mandavilli

Test Engineer for SAS Visual Analytics apps in the Business Intelligence R&D Division at SAS. Currently, she enjoys writing for SAS Blogs. Previously, she was a technical writer for SAS Visual Analytics and Middle-Tier Administration.

Discover Seven Gems in Visual Analytics Viewers

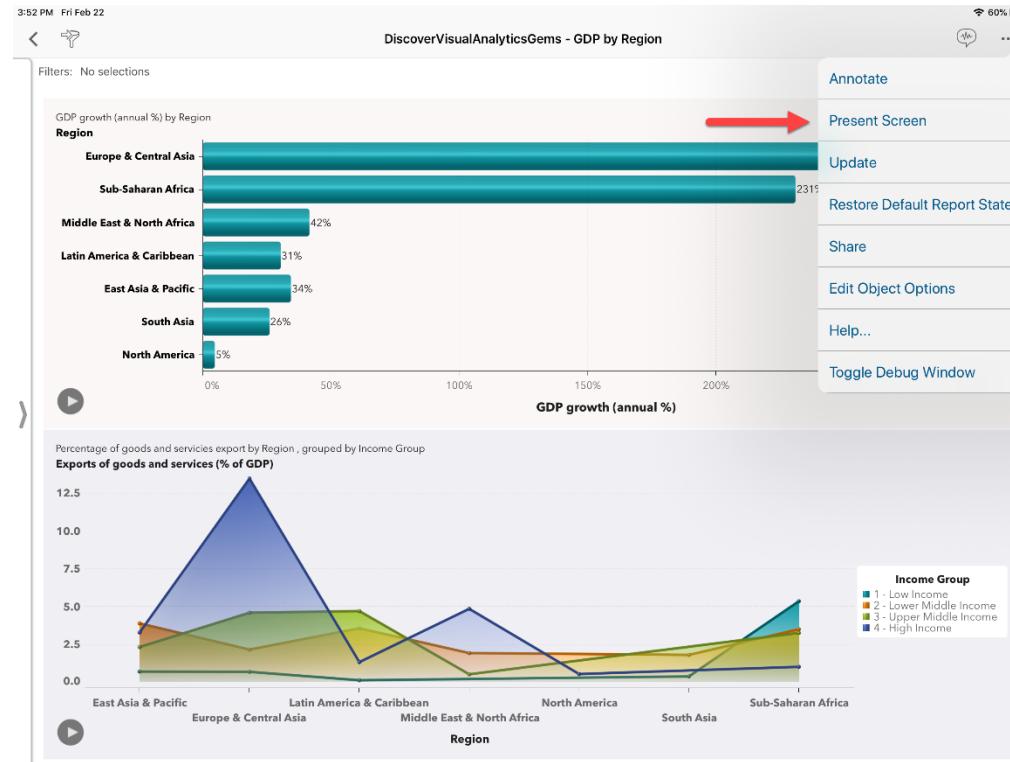
A List of the Gems

1. Present Screen
2. Playable Dashboard
3. Link Generation for Reports, Objects, Images
4. Saved Selection State
5. Report Summary
6. Automatic Data Refresh
7. Voice Assistant

1. Present Screen

A Gem for Sharing Your Screen
(iOS and Android apps)

Present Screen Presenter With the iPad



Present Screen

About This Feature

- Share your screen from the iOS or Android app to participants in your network
- Who can watch the screen presentation?
 - Participants with email link to the presentation server
 - Participants with AirDrop on iOS devices
 - Watch on mobile device or PC with a web browser

Present Screen

Server Requirements

- SAS Visual Analytics Server
 - Presenter connects to the server
 - Presenter shares the screen with reports from this server
- Presentation Server
 - Temporary server that hosts the screen presentation
 - Participants connect to this server
 - Disconnects after presentation has ended

Present Screen

The Presenter

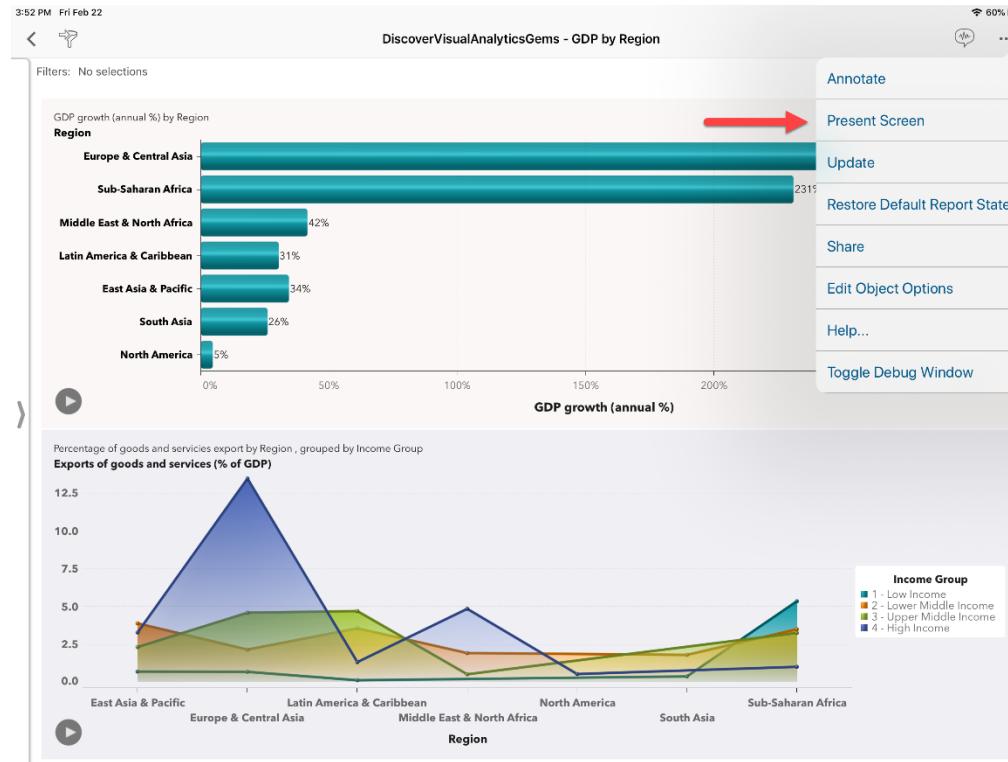
- Presenter's Device Requirements
 - iPad, iPhone, Android tablet or smartphone
 - SAS Visual Analytics app
 - Wi-fi or cellular connection to the SAS Visual Analytics server
 - Email client (or AirDrop on iOS devices)
 - VPN connectivity if the organization requires it

Present Screen

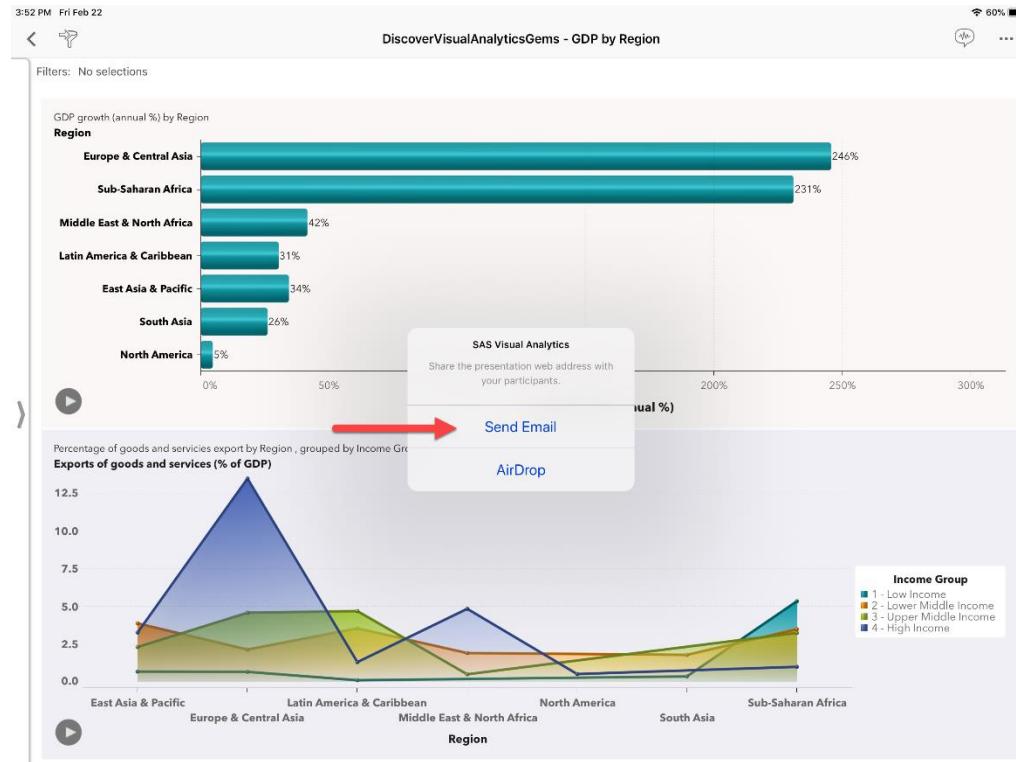
Participants

- Participants' Criteria
 - Same network as the presenter
 - Mobile device, PC, or laptop with a web browser, email client, and wi-fi (or cellular) connection
 - Not required to have the SAS Visual Analytics app
 - Maximum of 10 participants

Present Screen Presenter With the iPad

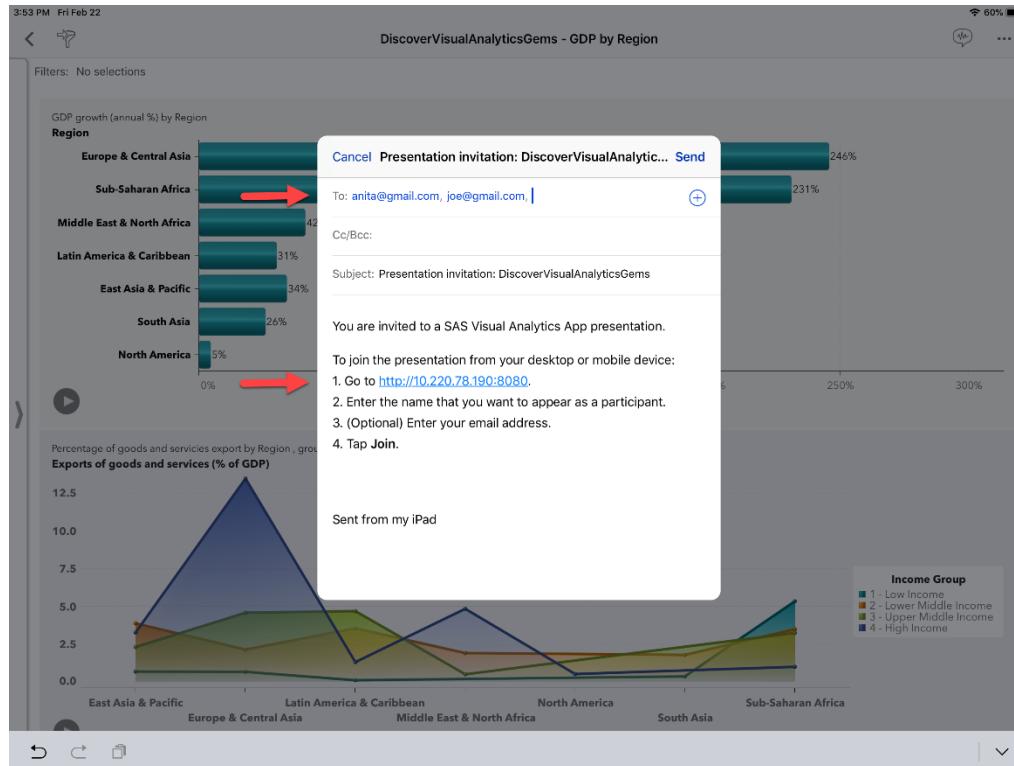


Present Screen Email or AirDrop



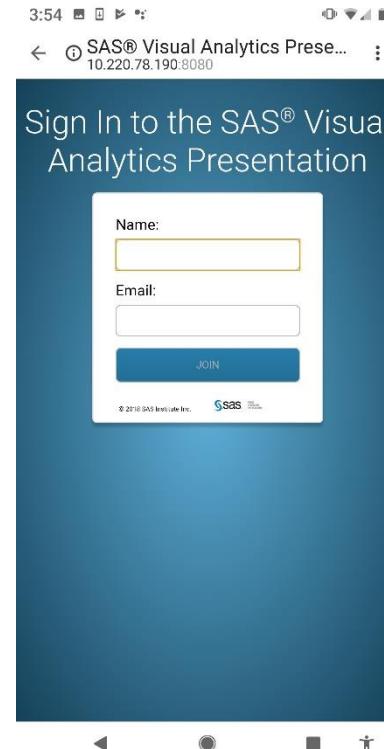
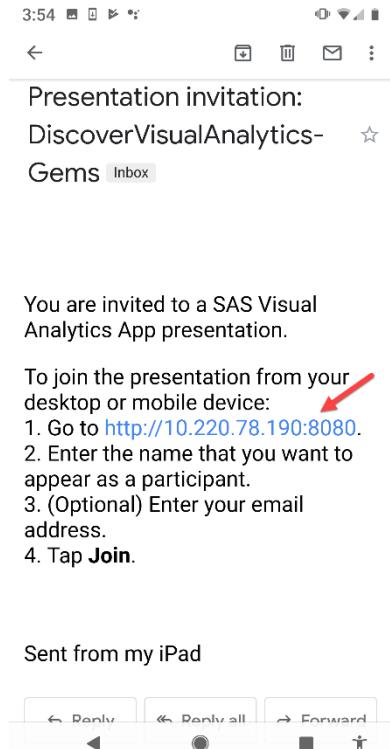
Present Screen

Send Email to Your Audience



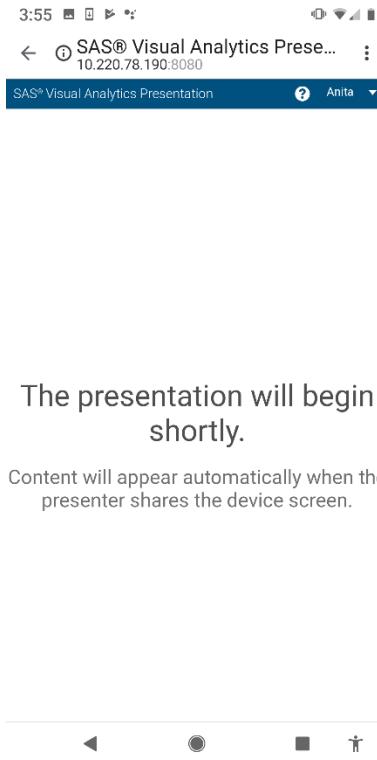
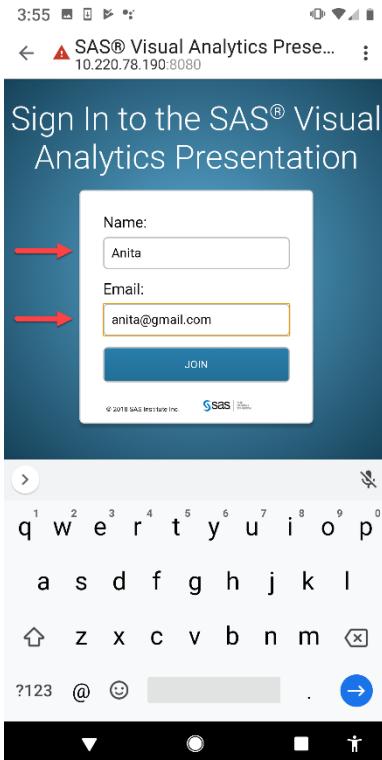
Present Screen

Anita's Android Phone

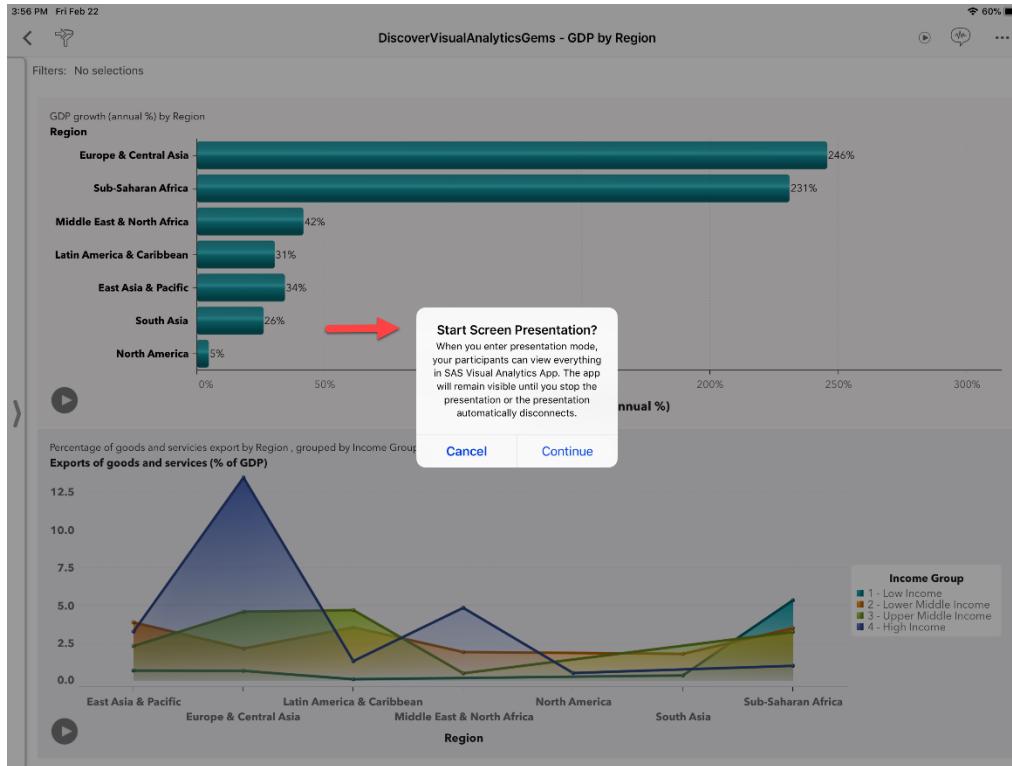


Present Screen

Anita at the Presentation Server

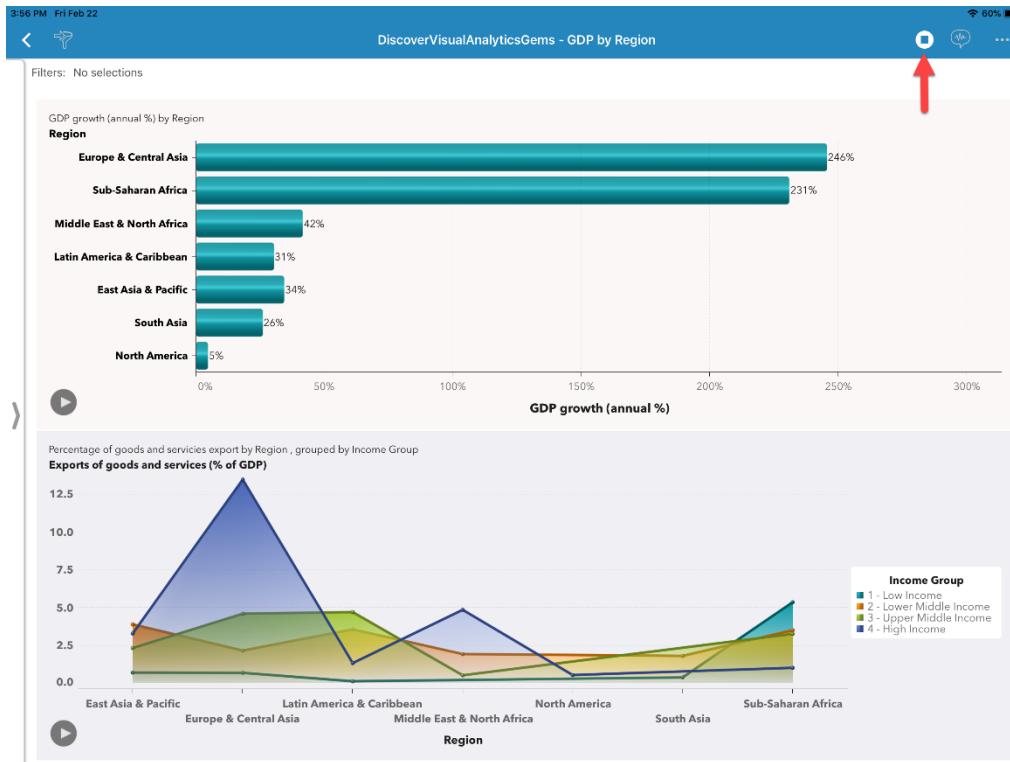


Present Screen Presenter on the iPad



Present Screen

Presenter and Participant

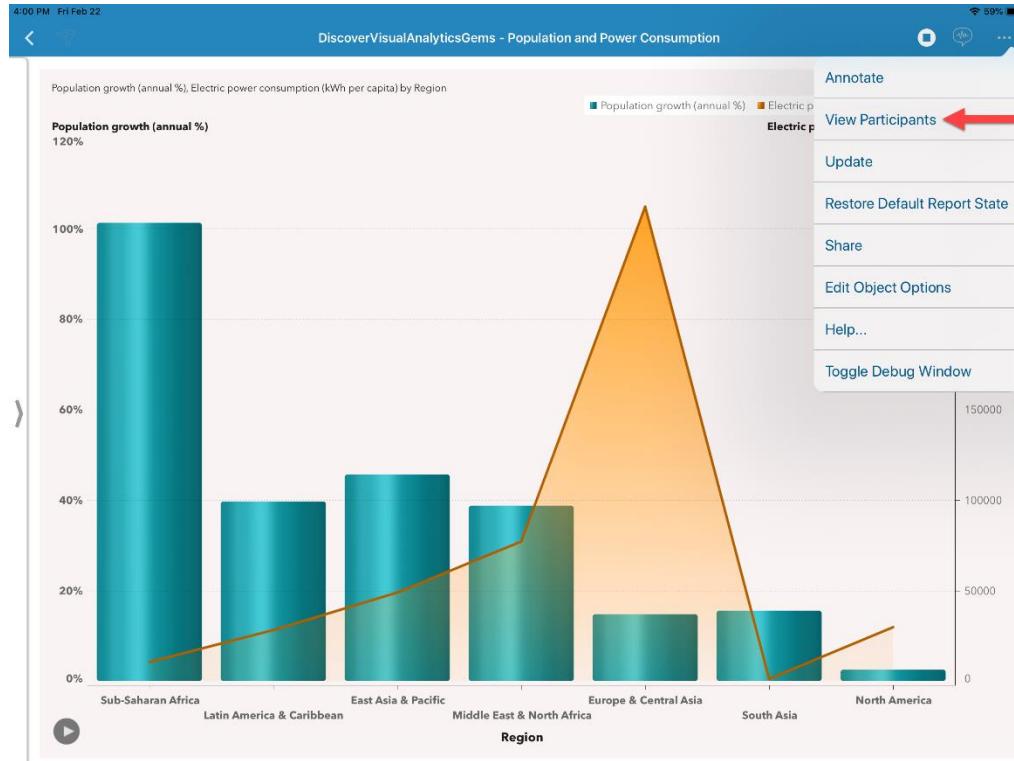


USERS PROGRAM

SAS® GLOBAL FORUM 2019

Present Screen

Presenter's iPad Shows Participants



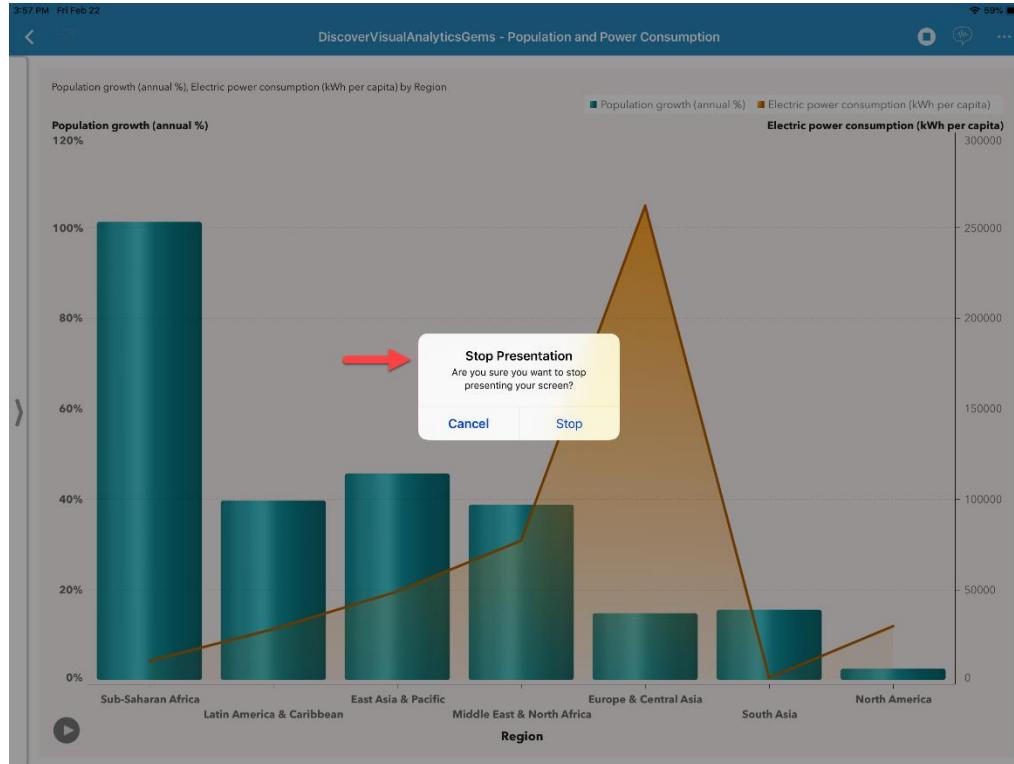
Present Screen

Participants Who Connected to View the Presentation



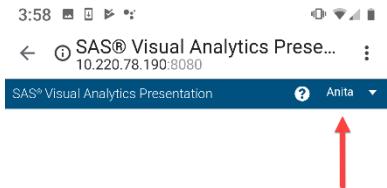
Present Screen

End the Presentation



Present Screen

Anita's Android Phone



The presentation has ended.

If you do nothing, you will be signed out
automatically in one minute.



Playable Dashboard

A Gem that Plays Your Report
(Visual Analytics 8.3 Web Viewer)

Playable Dashboard

About this Feature

- A SAS Visual Analytics report that is customized to present each report page or report object in a moving sequence for a specified number of seconds.
- The report runs on a loop until you stop it.

Playable Dashboard

About this Feature

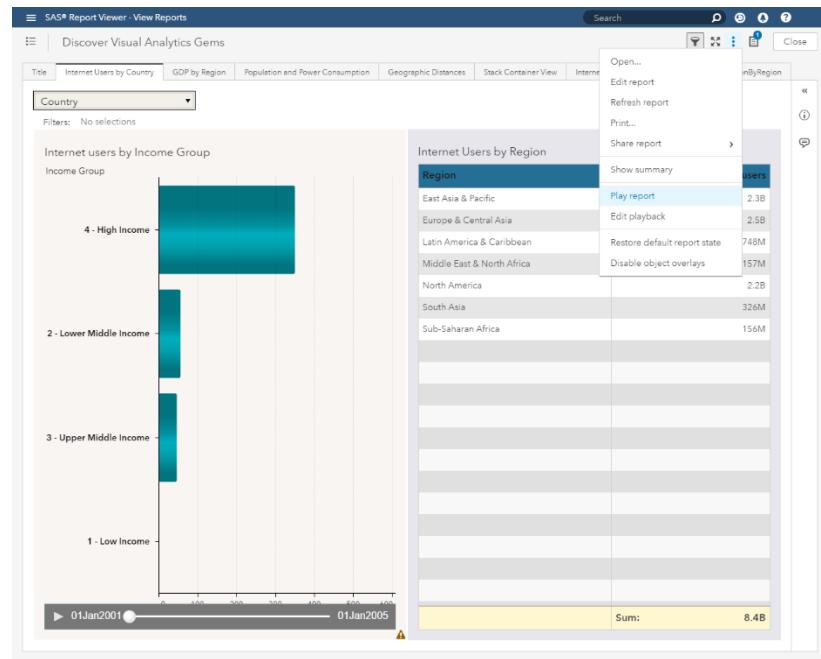
Usable in a variety of environments

- Trade shows, kiosks, booths, lobby areas, welcome centers, retail showrooms, waiting rooms
- Ideal for any place that has a floating population

Playable Dashboard

Play Report

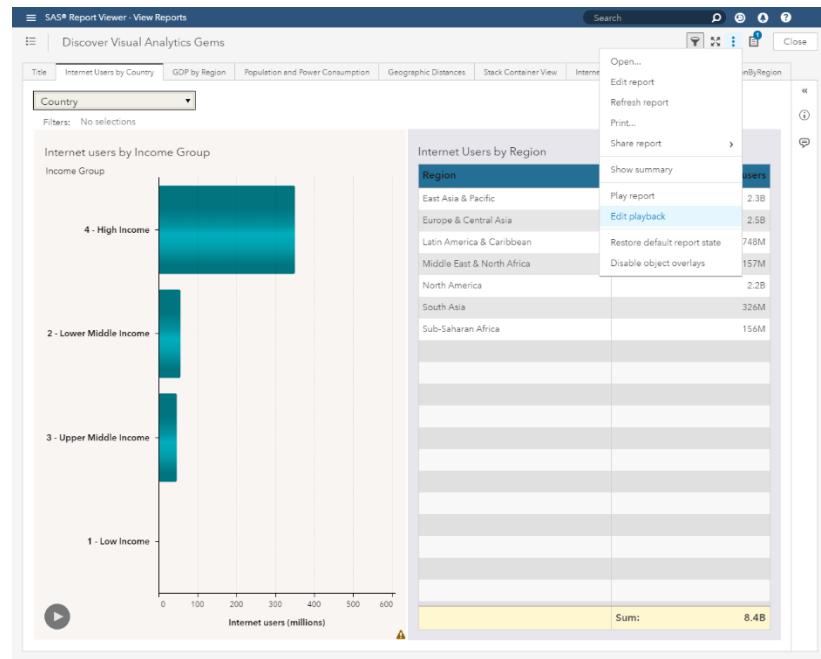
Users can play the report by choosing Play report from the menu option in SAS Visual Analytics Viewer



Playable Dashboard

Edit Playback

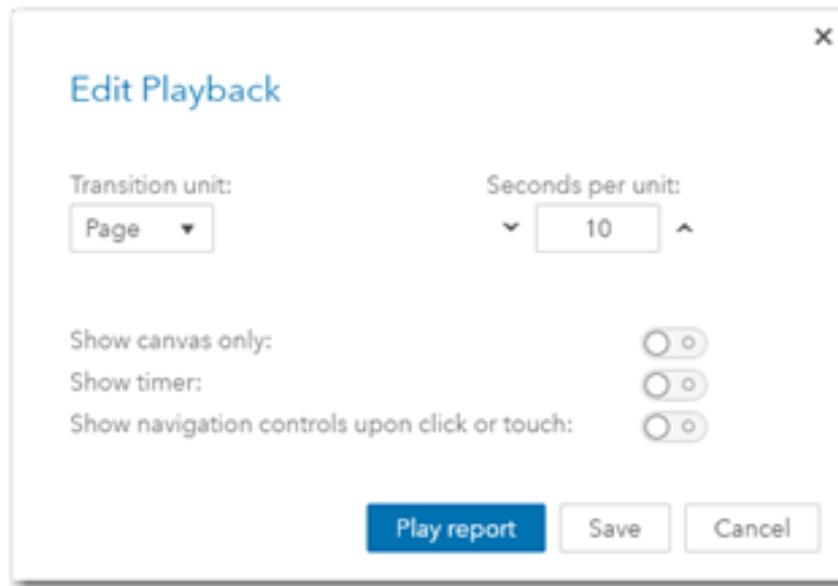
Users can edit the report playback options by choosing Edit playback from the menu option in SAS Visual Analytics Viewer



Playable Dashboard

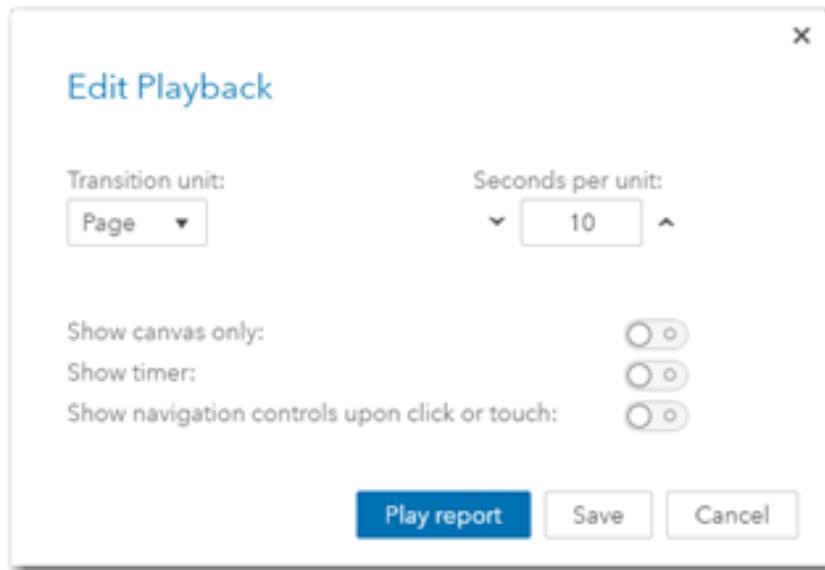
Edit Playback

Edit Playback window with settings for a playable dashboard that presents each page:



Playable Dashboard

Options for Dashboard Based on Pages



Transition unit

specifies whether the playback displays one page at a time (**Page**) or one object at a time (**Object**).

Seconds per unit

specifies how long each page or object is displayed.

Show canvas only

hides the report control area, page tabs, and the page control area.

Show timer

displays a countdown for each page or object transition

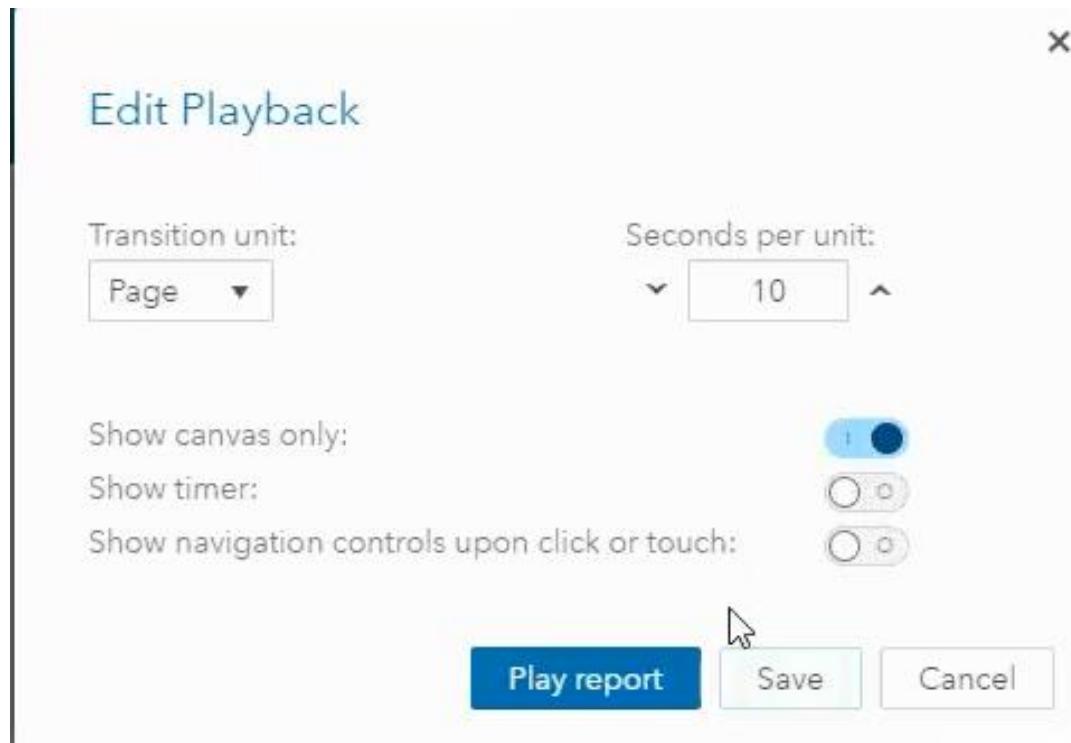
Show navigation

controls upon click or touch

enables navigation controls for the report playback.

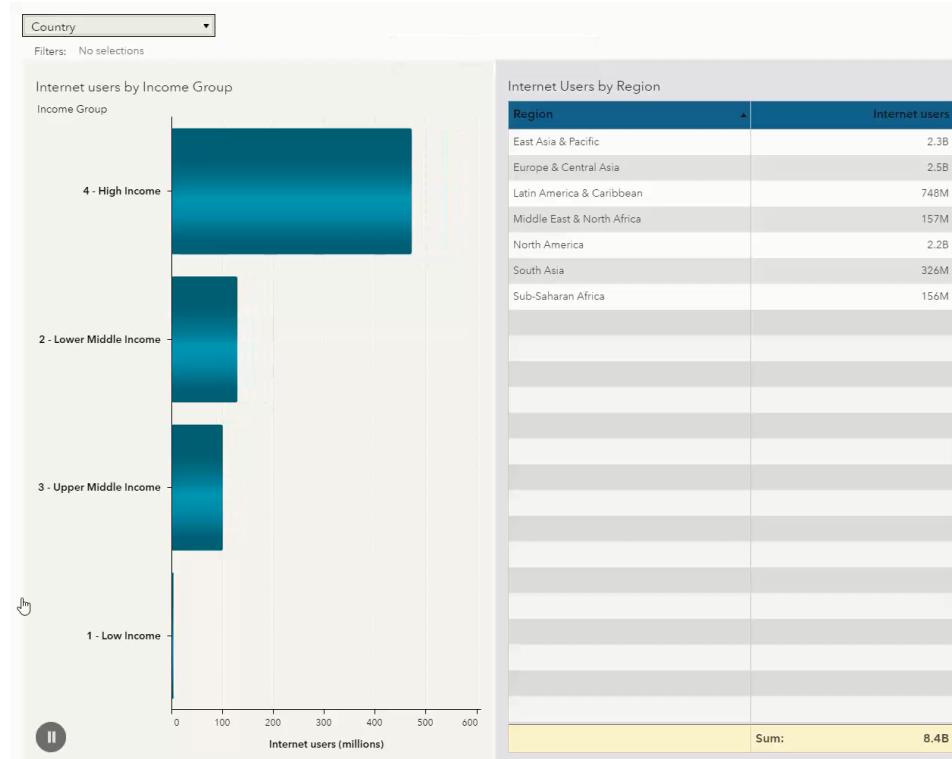
Playable Dashboard

Page Options – Canvas



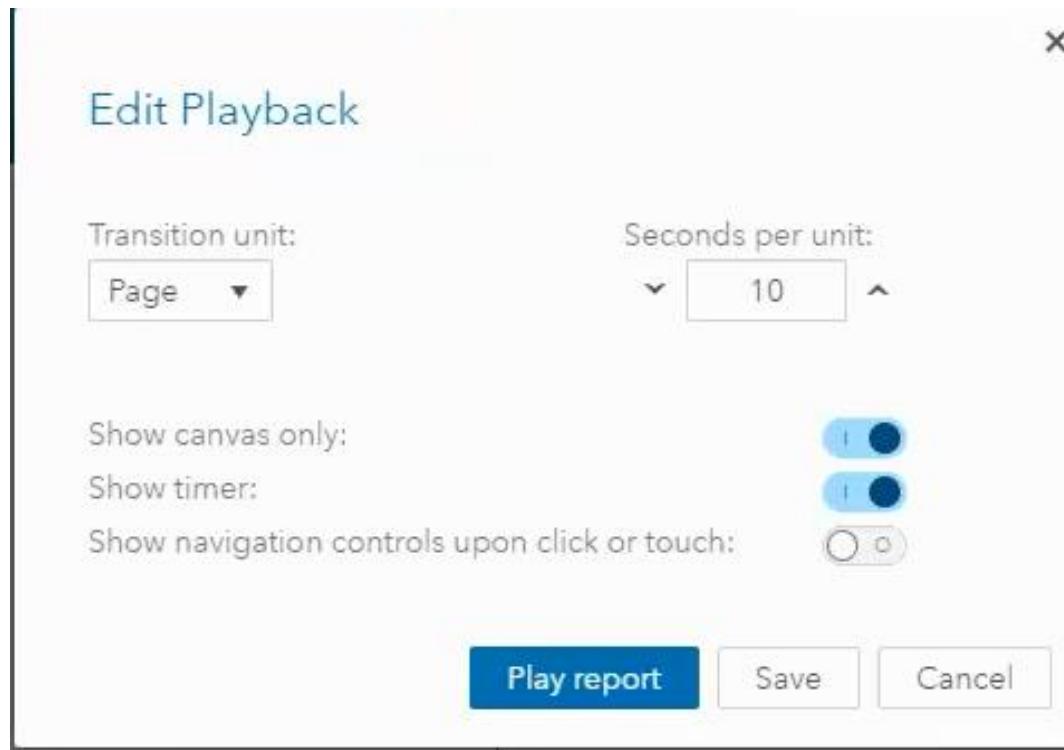
Playable Dashboard

Example



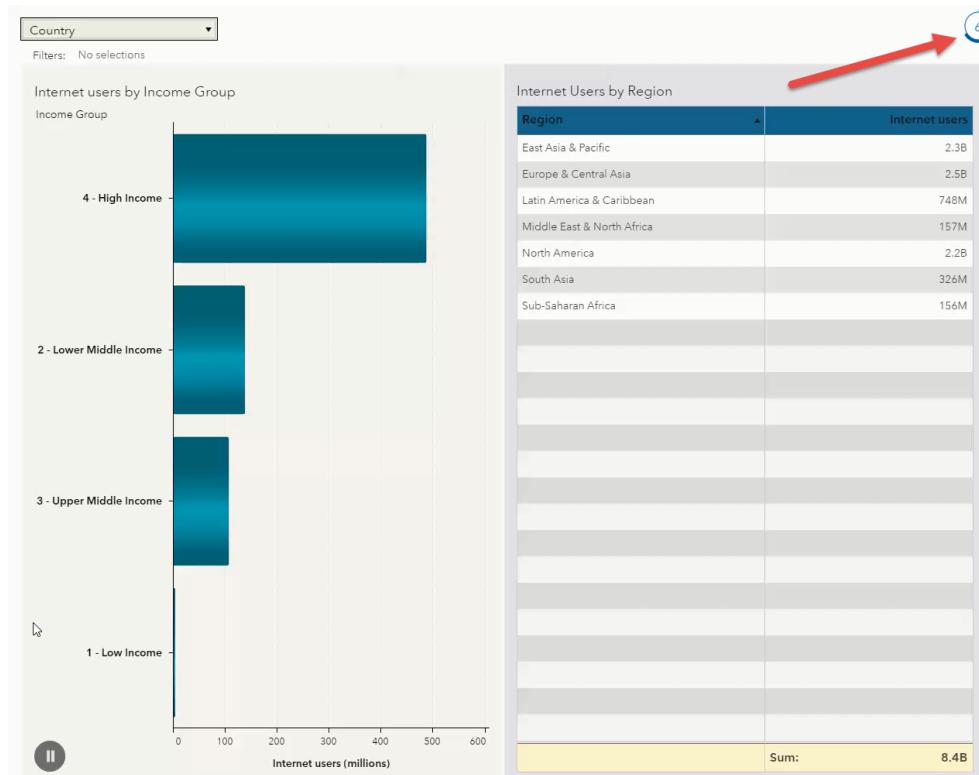
Playable Dashboard

Page Options – Canvas and Timer



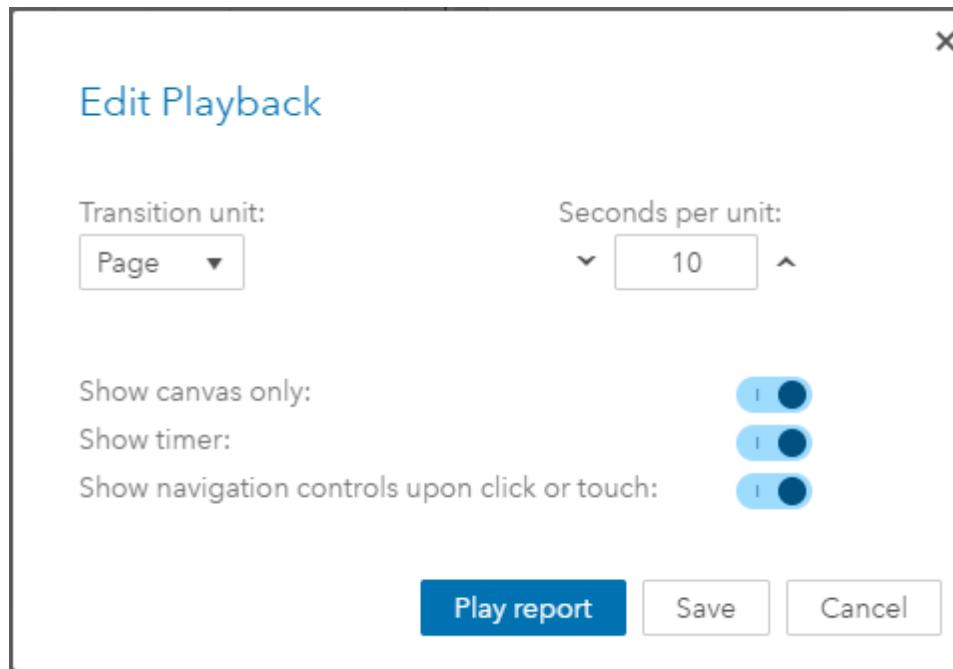
Playable Dashboard

Example



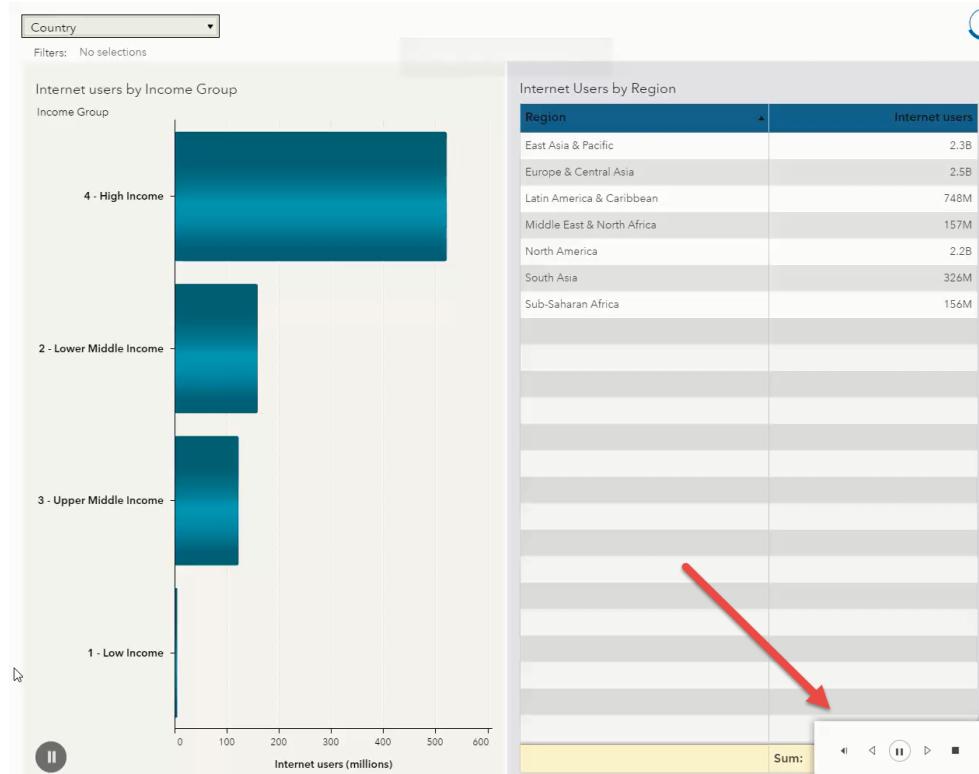
Playable Dashboard

Page Options – Canvas, Timer, Navigation Controls

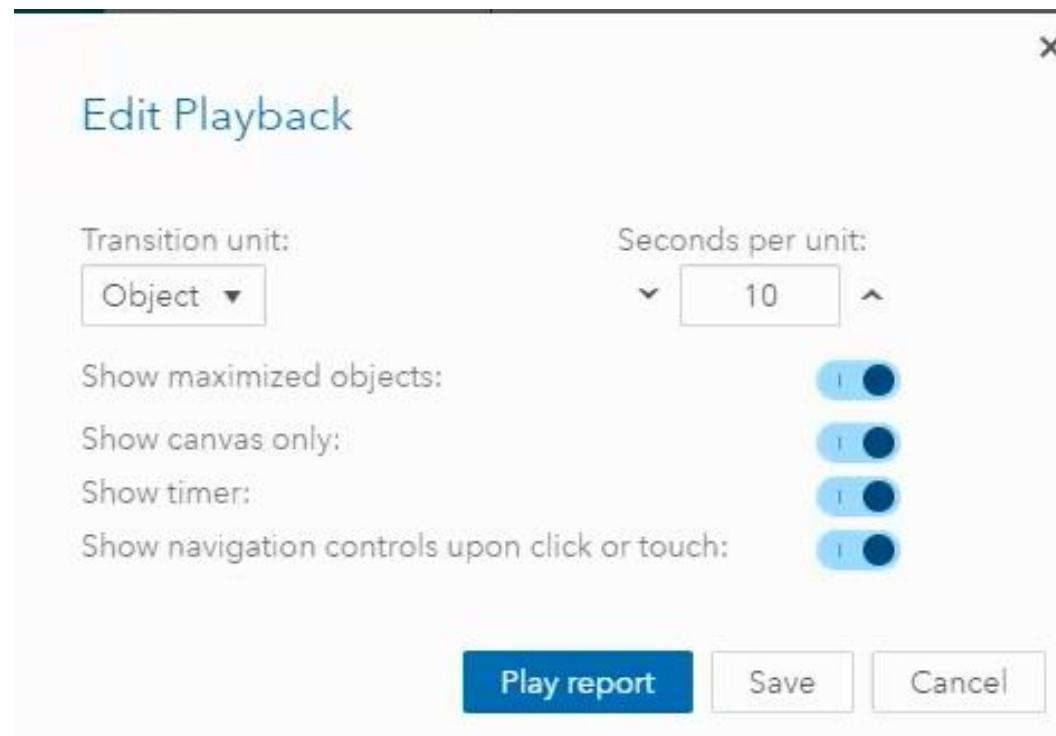


Playable Dashboard

Example

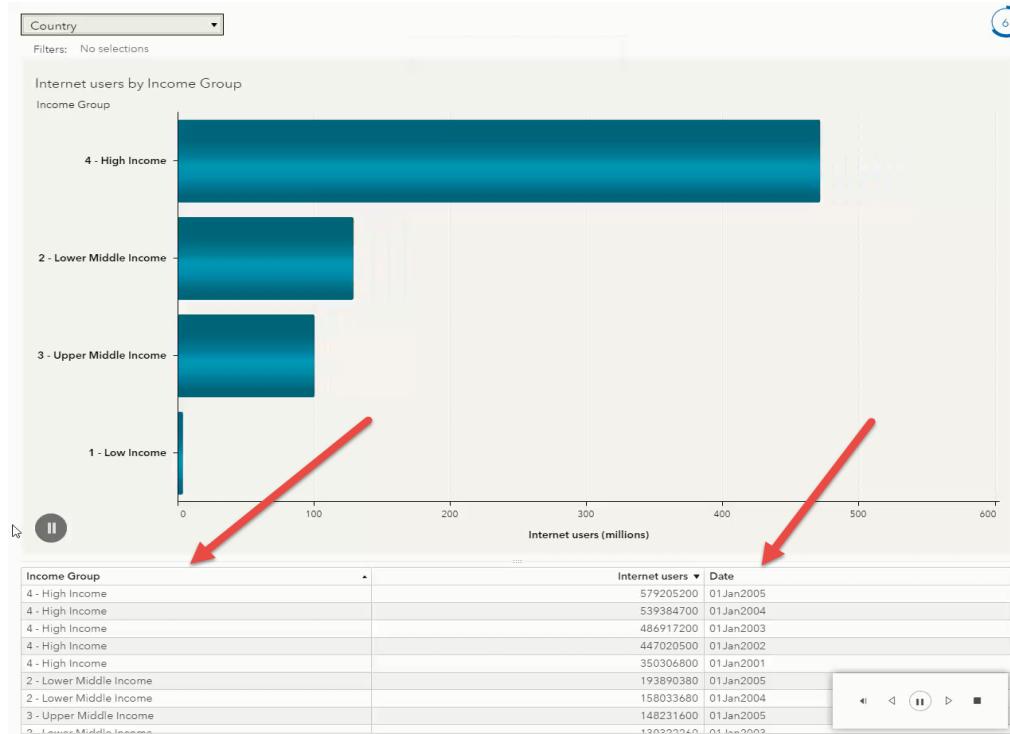


Playable Dashboard Object Options Selected



Playable Dashboard

Object in the Playable Dashboard

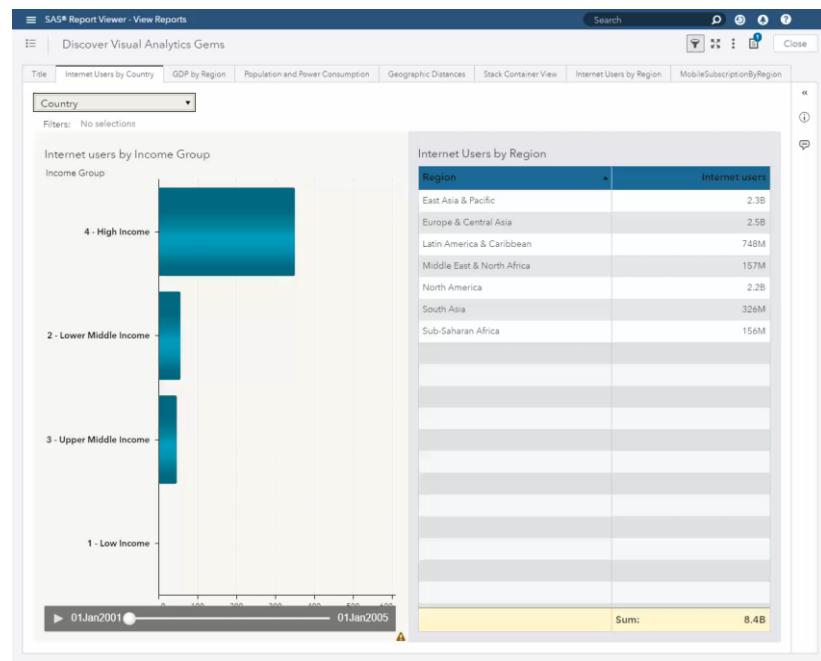


Playable Dashboard

Example Based on Objects

Example of playable dashboard with:

- Transition unit Object*
- Seconds per unit 10*
- Show maximized objects*
- Show canvas only*
- Show timer*
- Show navigation controls upon click or touch*



Link Generation

A Gem With Multiple Facets

(Visual Analytics 8.3 Web Viewer)

Link Generation for Reports, Objects, Images

About This Feature

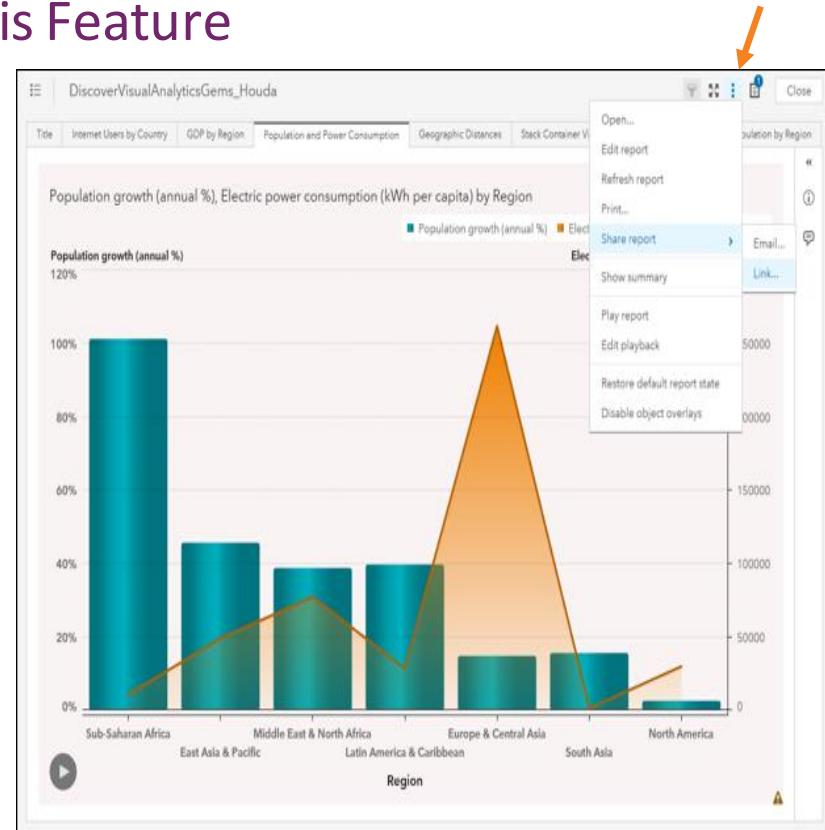
Users can generate links for:

- An interactive report
- A static image of the current report view
- An interactive object
- A static image of an object

Link Generation for Reports, Objects, Images

About This Feature

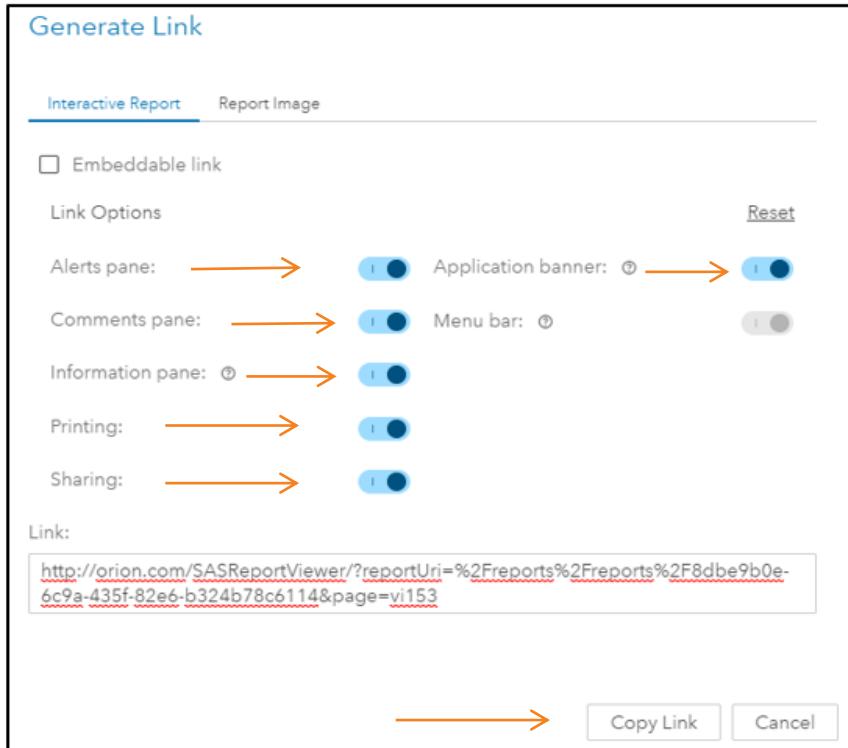
Users can generate a link for an interactive report by selecting More Options > Share Report > Link in SAS Visual Analytics Viewer



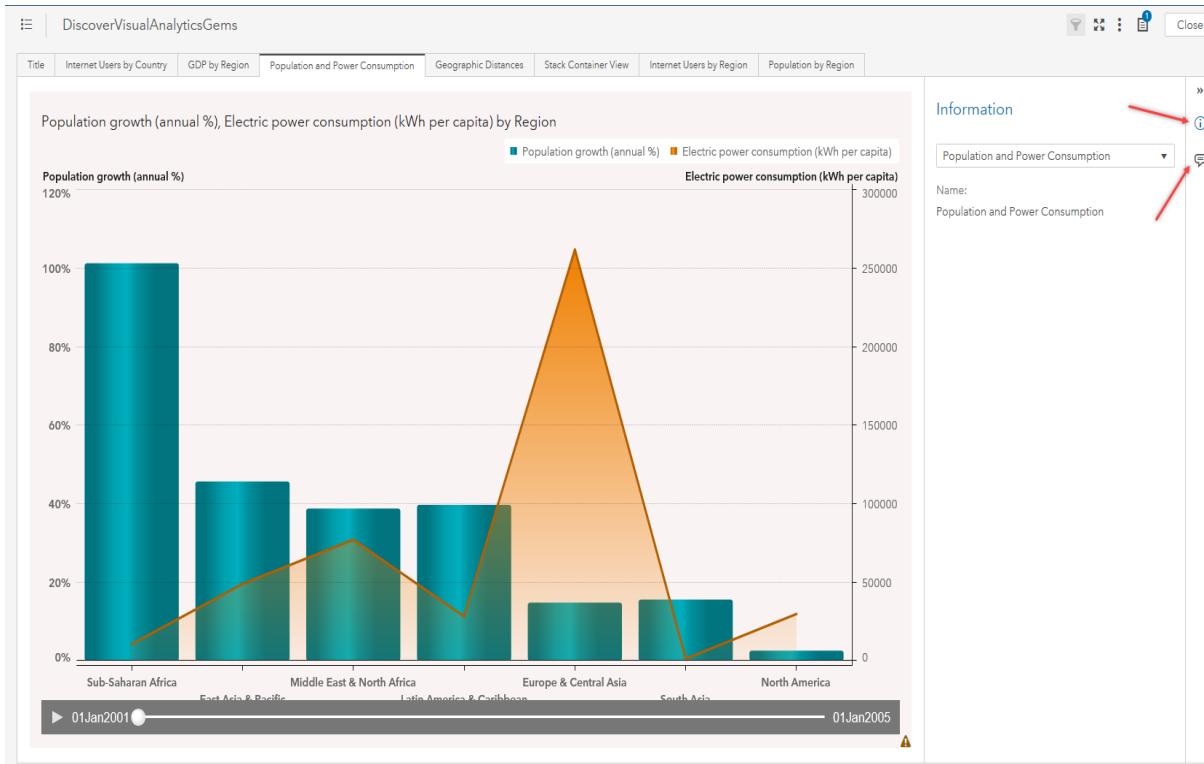
Link Generation for Reports, Objects, Images

Link to an Interactive Report

All options parameters are turned on by default in The Generate Link dialog for the Interactive Report

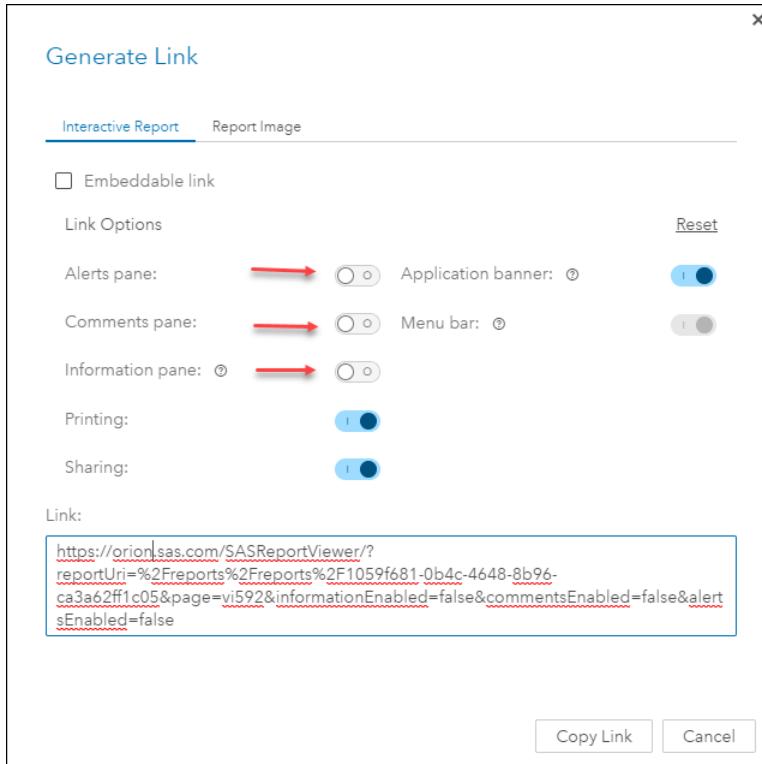


Link Generation for Reports, Objects, Images Example

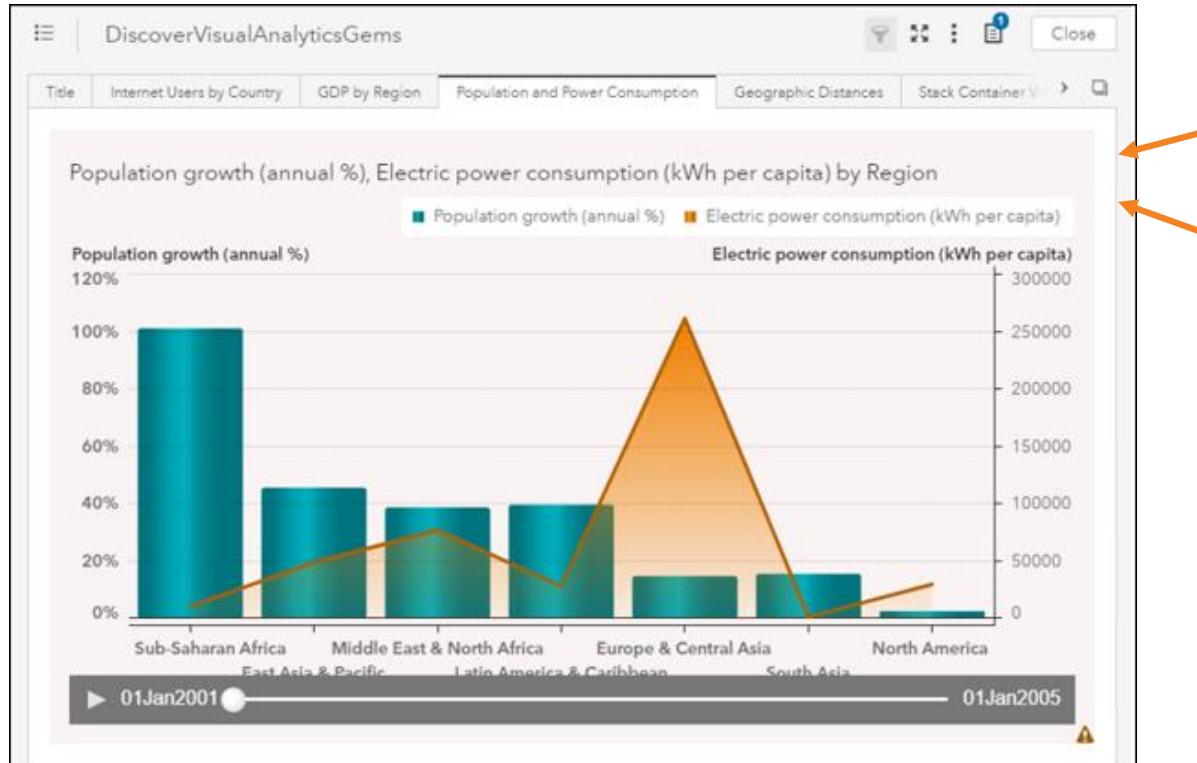


Link Generation for Reports, Objects, Images

Link to an Interactive Report With Fewer Options



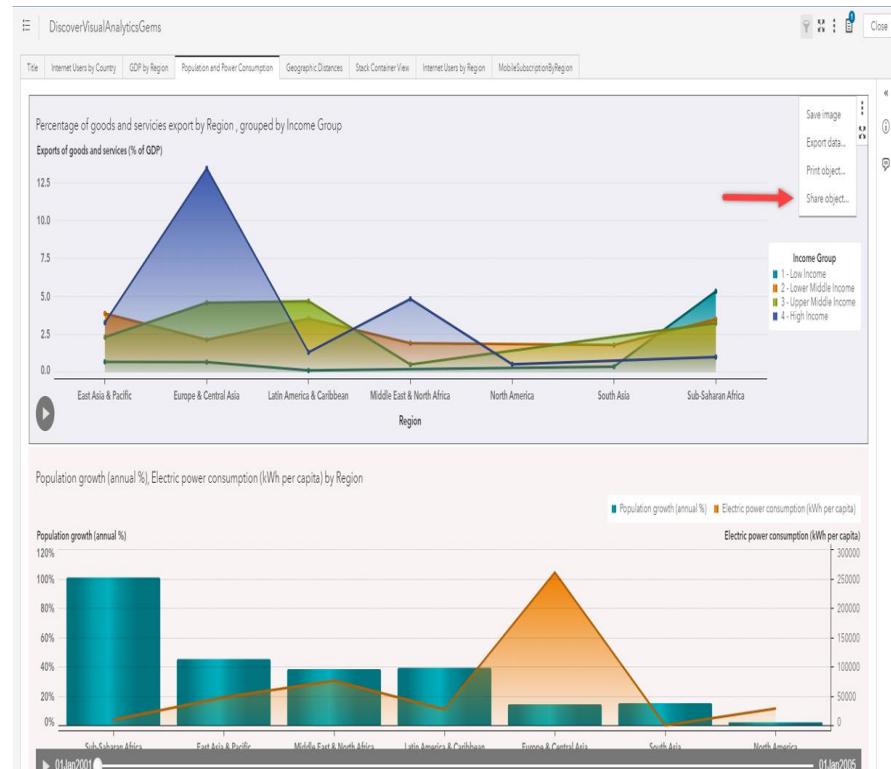
Link Generation for Reports, Objects, Images Example



Link Generation for Reports, Objects, Images

Link to an Interactive Object

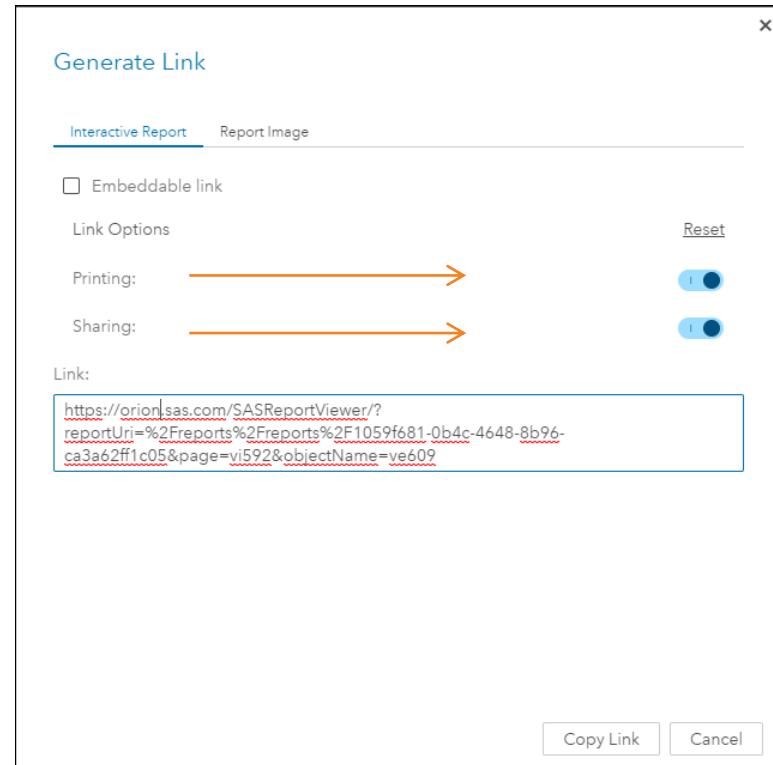
- Users can choose a specific report object in their report, and share that object with users who can print or share it.
- To generate a link to a report object, select the Object > Select More > Share Object.



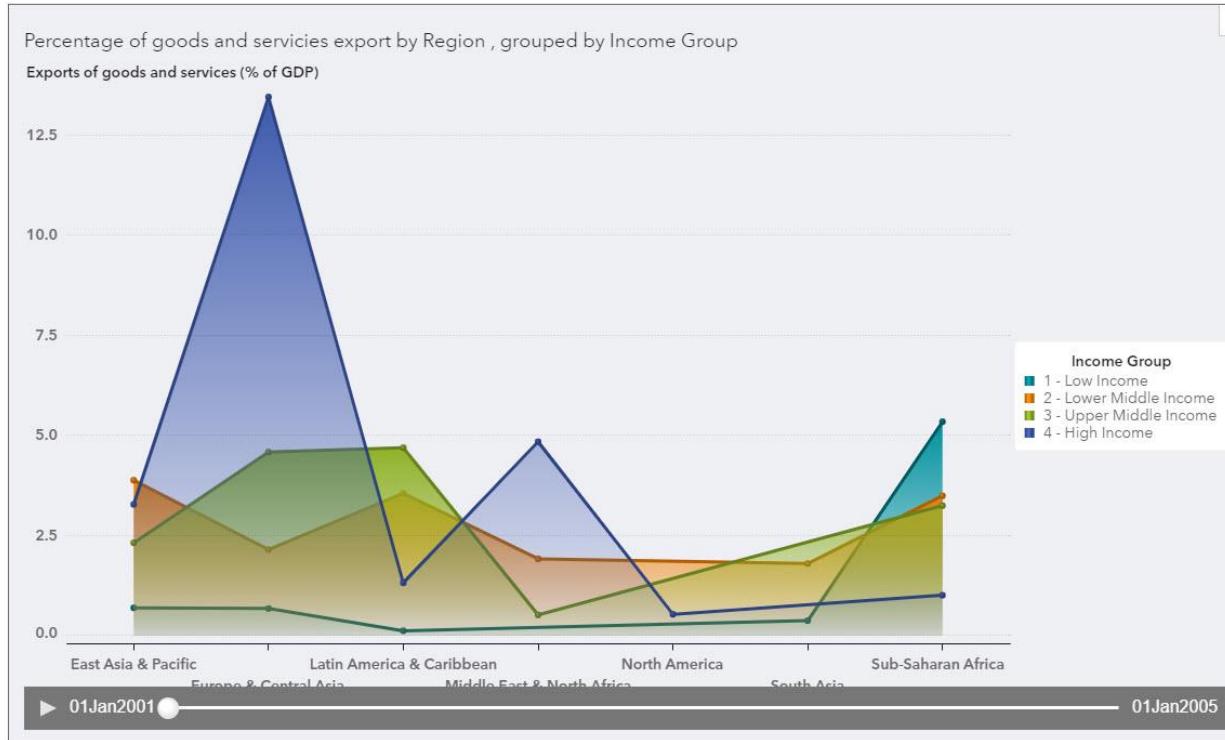
Link Generation for Reports, Objects, Images

Link to an Interactive Object

- Printing and sharing are the only options available in the dialog. So when users open the shared link to that object, they can print and share the object.



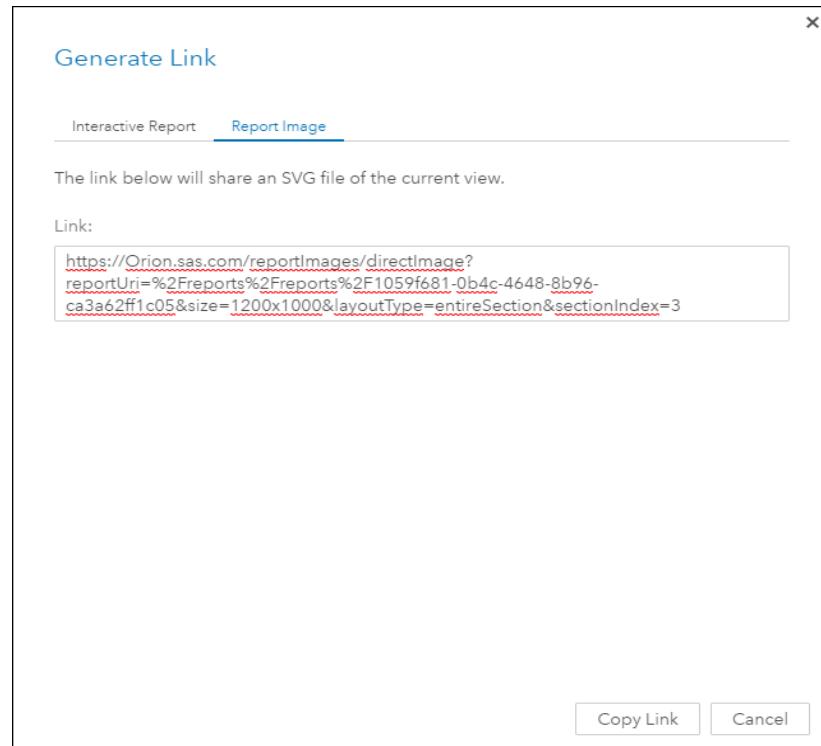
Link Generation for Reports, Objects, Images Example



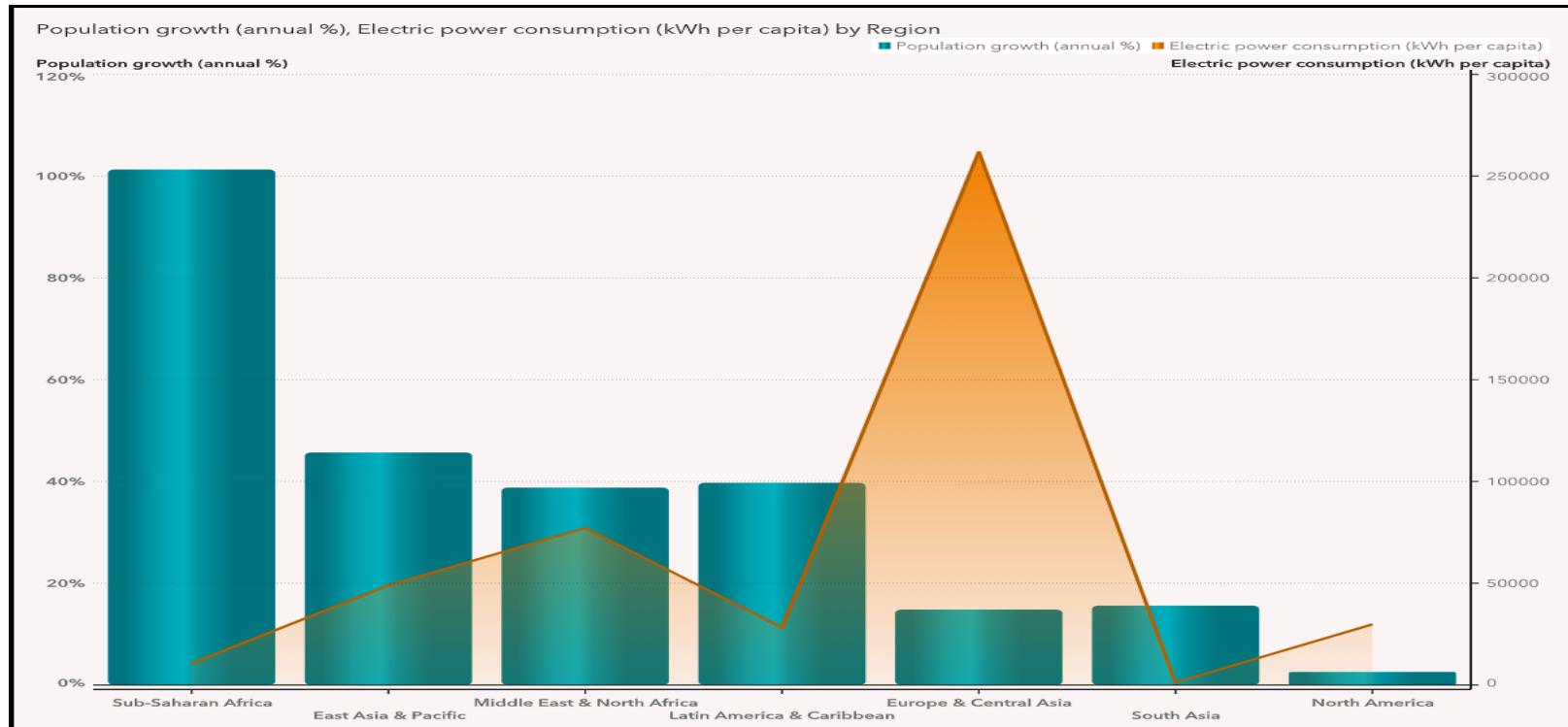
Link Generation for Reports, Objects, Images

Link to a Static Image (SVG File)

- Users can generate a link for an **SVG** file of their current view of the report or an Object by selecting **Report Image** in the **Generate Link** dialog.



Link Generation for Reports, Objects, Images Example



Saved Selection State

A Simple Gem

SAS Visual Analytics 8.3 Web Viewer and iOS app

Saved Selection State

About This Feature

- SAS Visual Analytics remembers the state in which a user interacted with a report
- When closed and reopened, the report displays the selections previously made when viewing that report

Saved Selection State

About This Feature

Here are three examples of actions performed in our report to illustrate saved selection states:

- *Filter Selection*
- *Drilling On A Hierarchy*
- *Zoom And Pin A Driving Location In A Geo Map*

Saved Selection State

Example 1: Filter Selection

The screenshot shows a SAS Visual Analytics dashboard titled "DiscoverVisualAnalyticsGems". The interface includes a top navigation bar with tabs like Title, Internet Users by Country, GDP by Region, etc., and a sidebar with Data, Objects, and Outline sections.

Three visualizations are displayed:

- Internet users by Income Group:** A horizontal bar chart showing internet users in millions for four income groups: 4 - High Income, 2 - Lower Middle Income, 3 - Upper Middle Income, and 1 - Low Income. The chart has a red arrow pointing to its title.
- Internet Users by Region:** A table showing the number of internet users in millions for various regions. The table has a red arrow pointing to its title.
- Internet Users by Country:** A dropdown menu currently set to "Country", indicated by a red arrow.

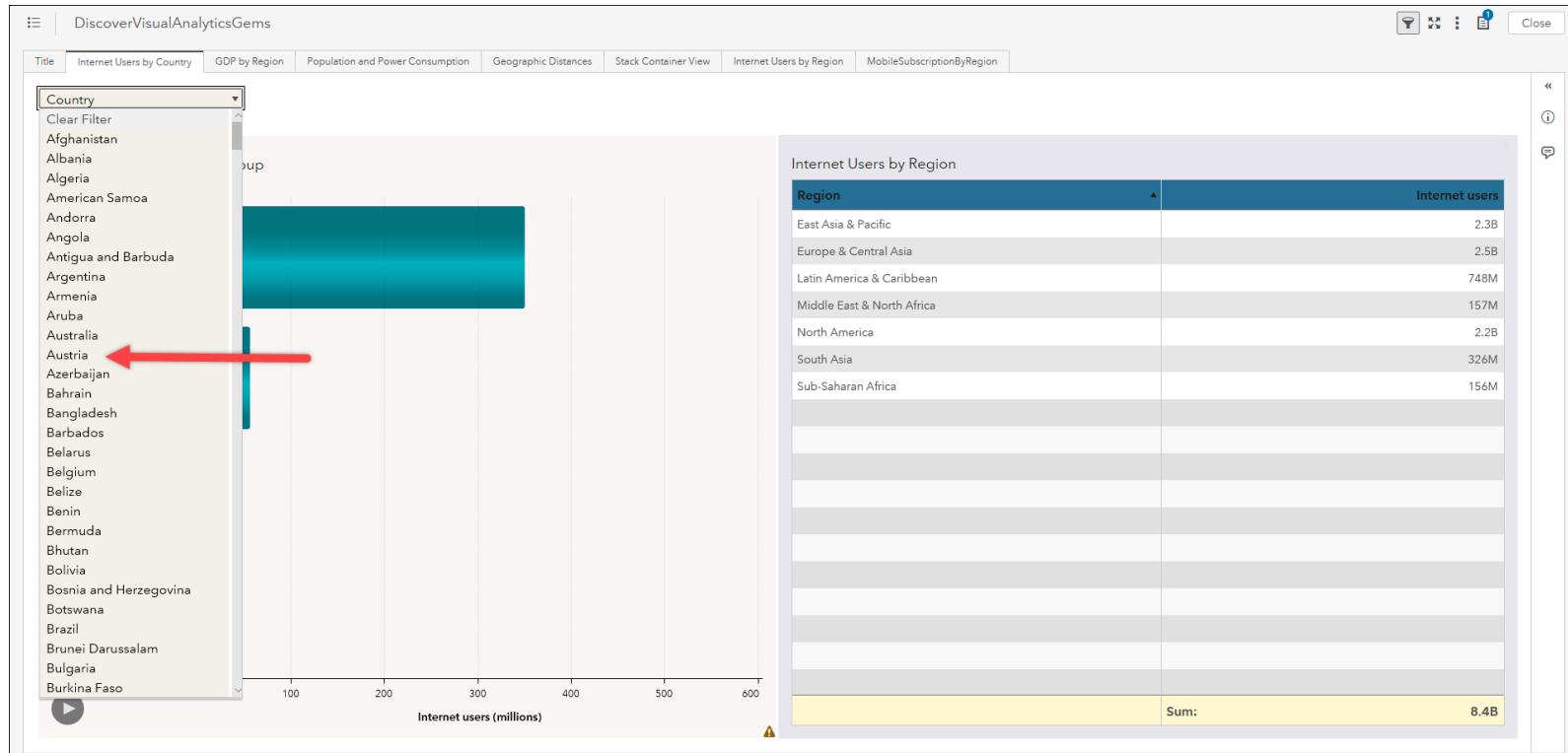
Filters: No selections

Region

Region	Internet users
East Asia & Pacific	2.3B
Europe & Central Asia	2.5B
Latin America & Caribbean	748M
Middle East & North Africa	157M
North America	2.2B
South Asia	326M
Sub-Saharan Africa	156M

Sum: 8.4B

Saved Selection State Filter Selection



Saved Selection State Filter Selection

The screenshot illustrates a saved selection state for filter selection in SAS Visual Analytics. A red arrow points from the 'Austria' dropdown in the top-left chart to the 'Internet users by Region' chart on the right.

Top Left Chart: Internet users by Income Group

- Panel Title: Internet users by Income Group
- Panel Subtitle: Income Group
- Panel Content: A large teal bar chart showing '4 - High Income' with a value of approximately 17 million.
- Panel Footer: Internet users (millions)

Top Right Panel: Filter Selection

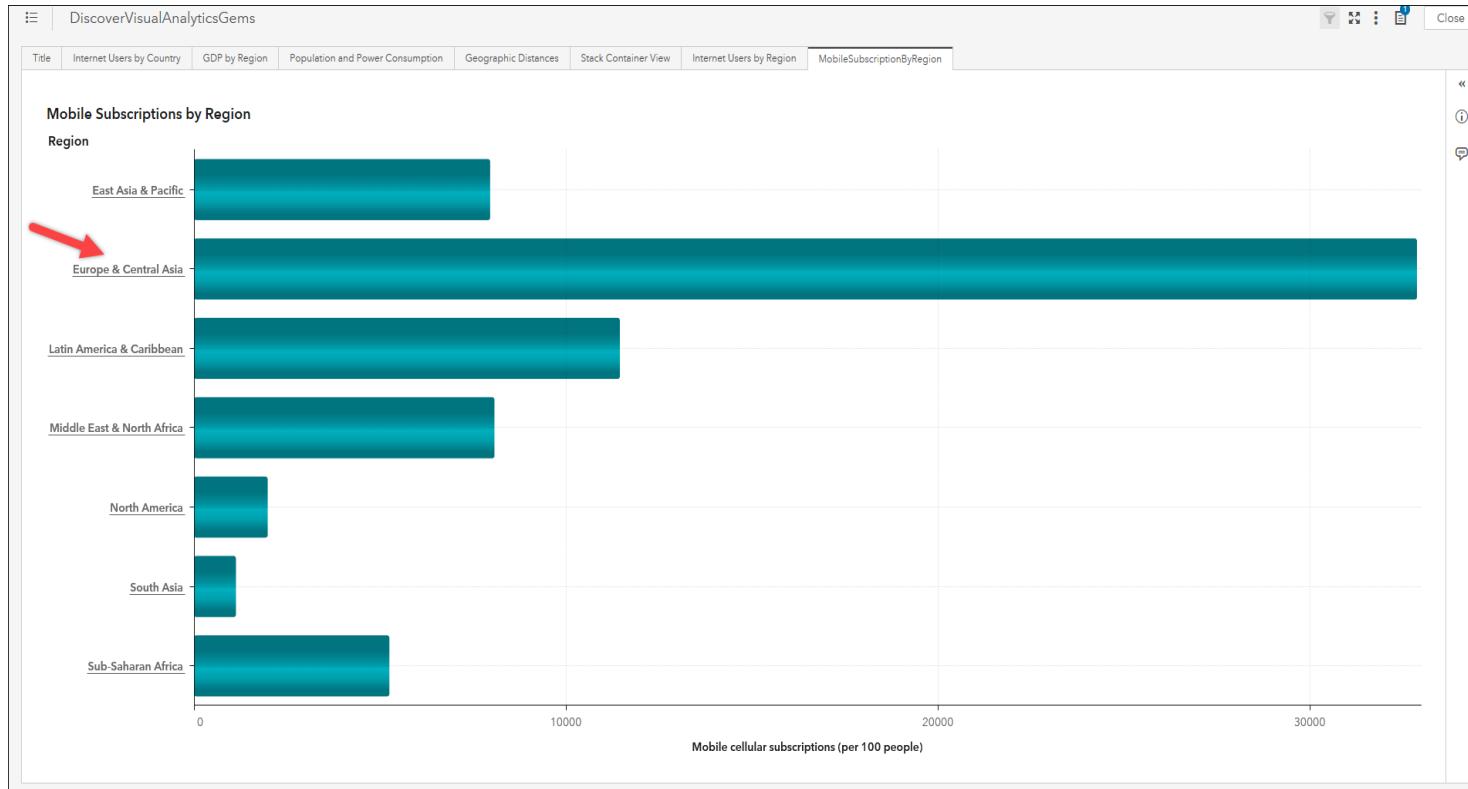
- Panel Title: Internet Users by Region
- Panel Subtitle: Region
- Panel Content: A list of regions with their corresponding internet user counts. The first item is 'Europe & Central Asia' with 42M.
- Panel Footer: Internet users

Bottom Right Panel: Internet Users by Region

- Panel Title: Internet Users by Region
- Panel Subtitle: Region
- Panel Content: A list of regions with their corresponding internet user counts. The last item is 'Sum:' with 42M.
- Panel Footer: Internet users

Saved Selection State

Example 2: Drilling A Hierarchy



Saved Selection State

#SASGF

Drilling A Hierarchy

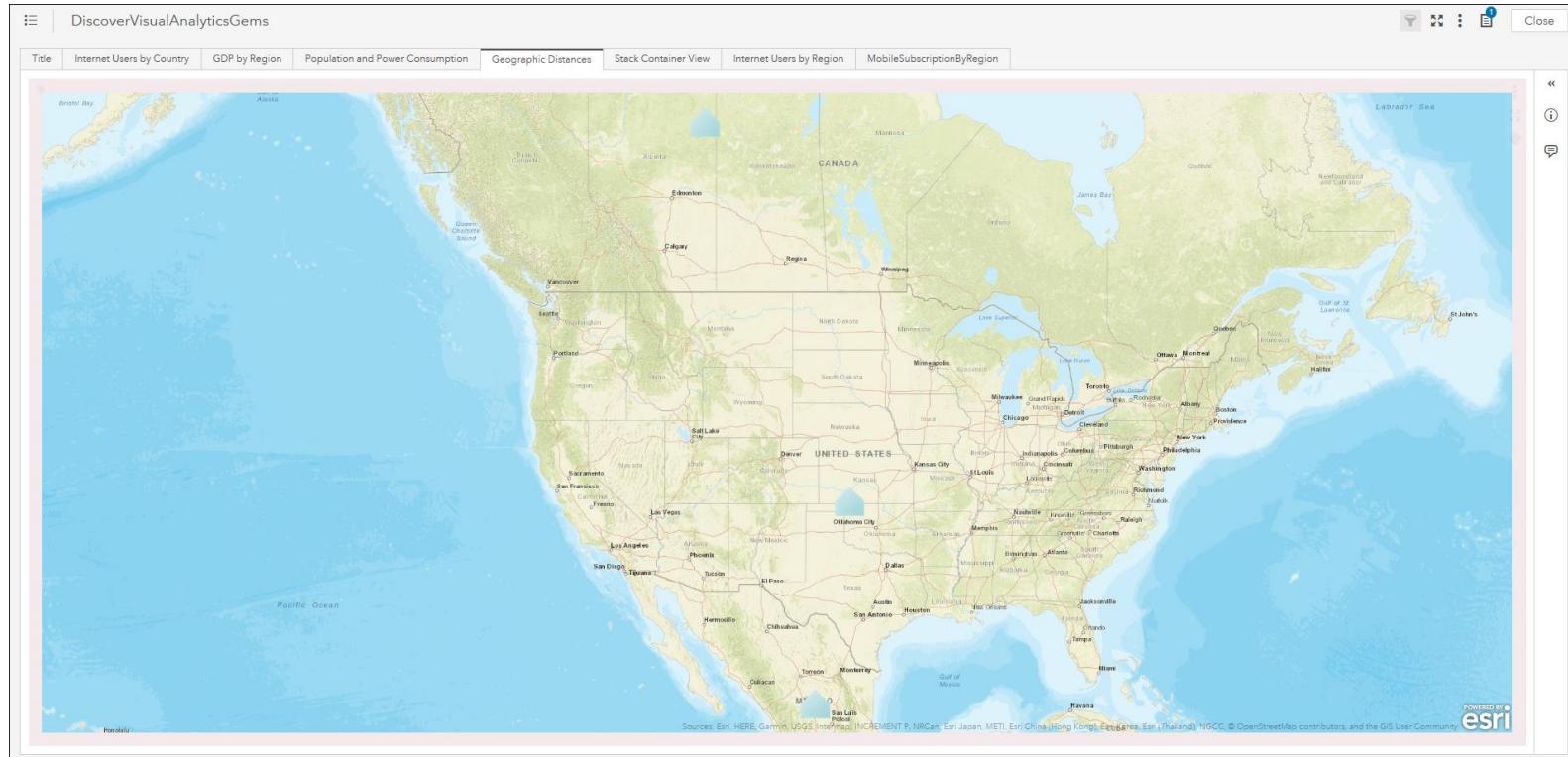


USERS PROGRAM

SAS® GLOBAL FORUM 2019

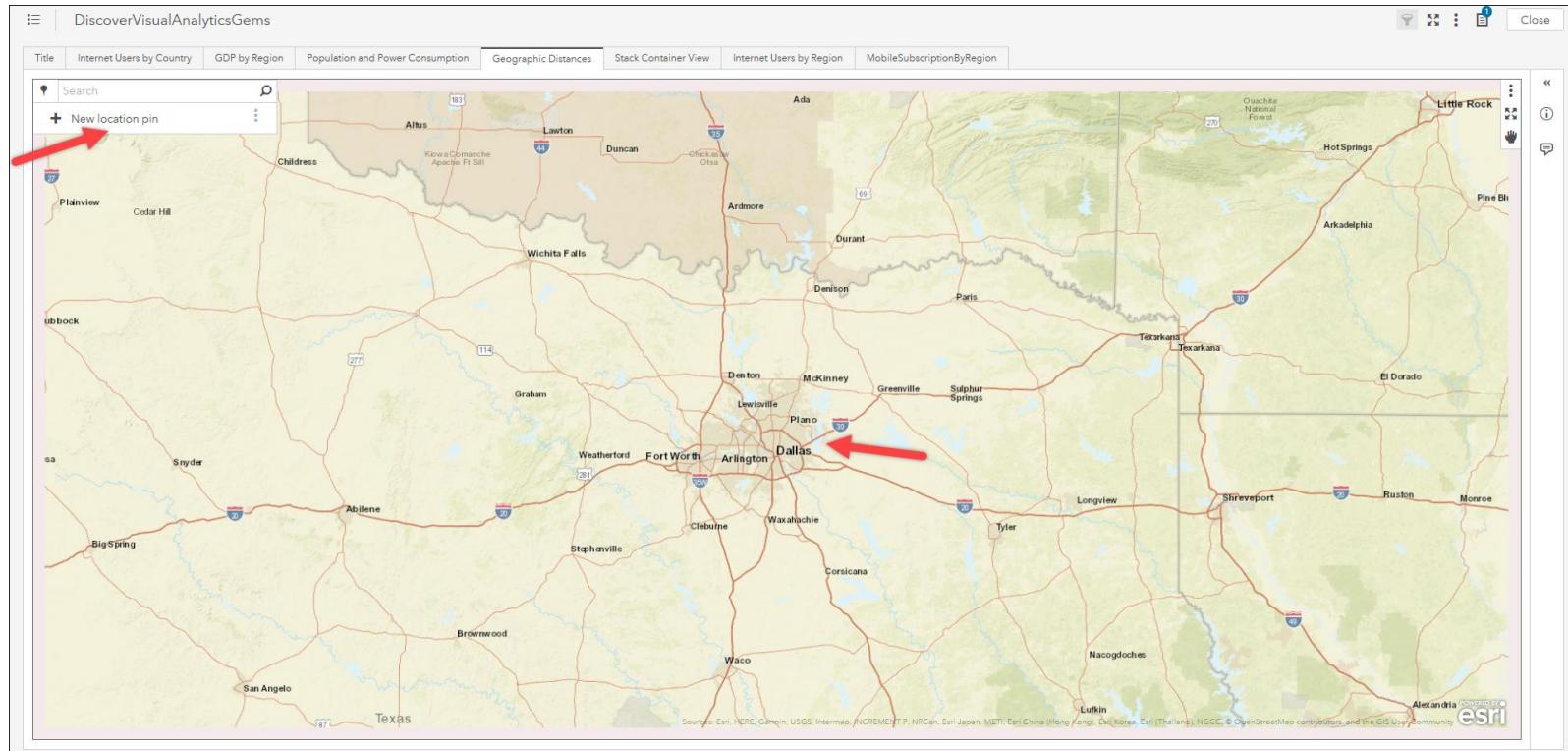
Saved Selection State

Example 3: Zoom and Pin a Location in a Geo Map



Saved Selection State

Zoom and Pin a Location in a Geo Map

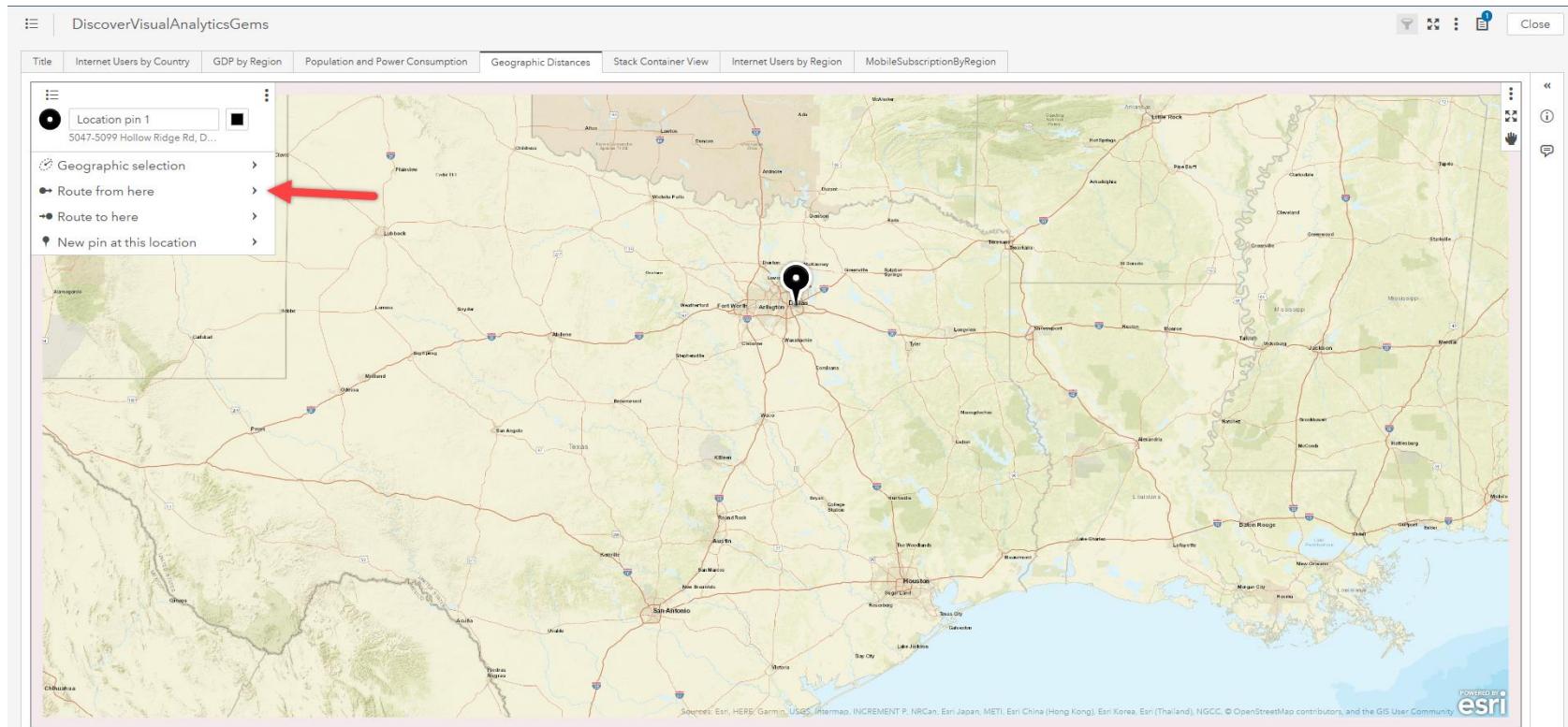


USERS PROGRAM

SAS® GLOBAL FORUM 2019

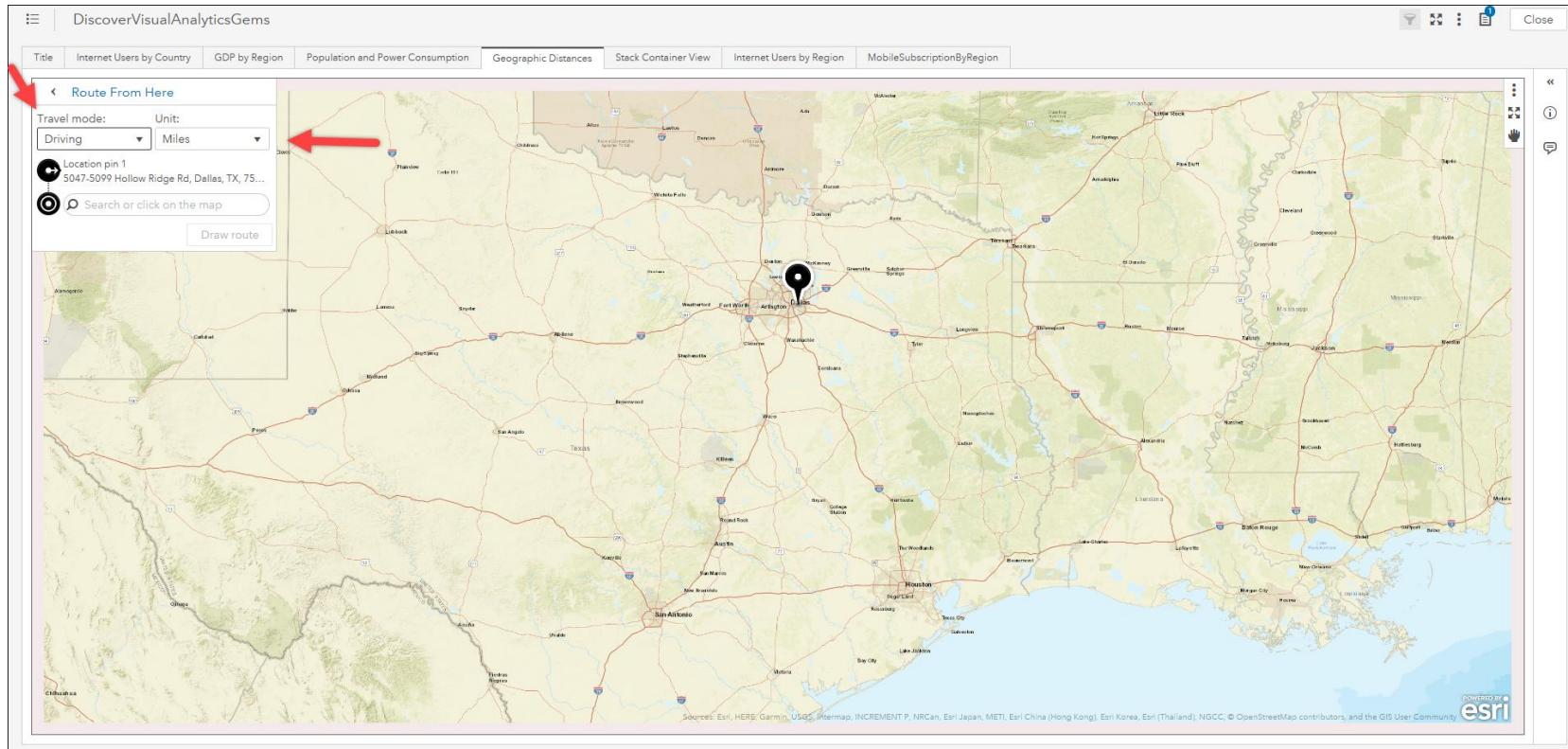
Saved Selection State

Zoom and Pin a Location In a Geo Map



Saved Selection State

Zoom and Pin a Location in a Geo Map

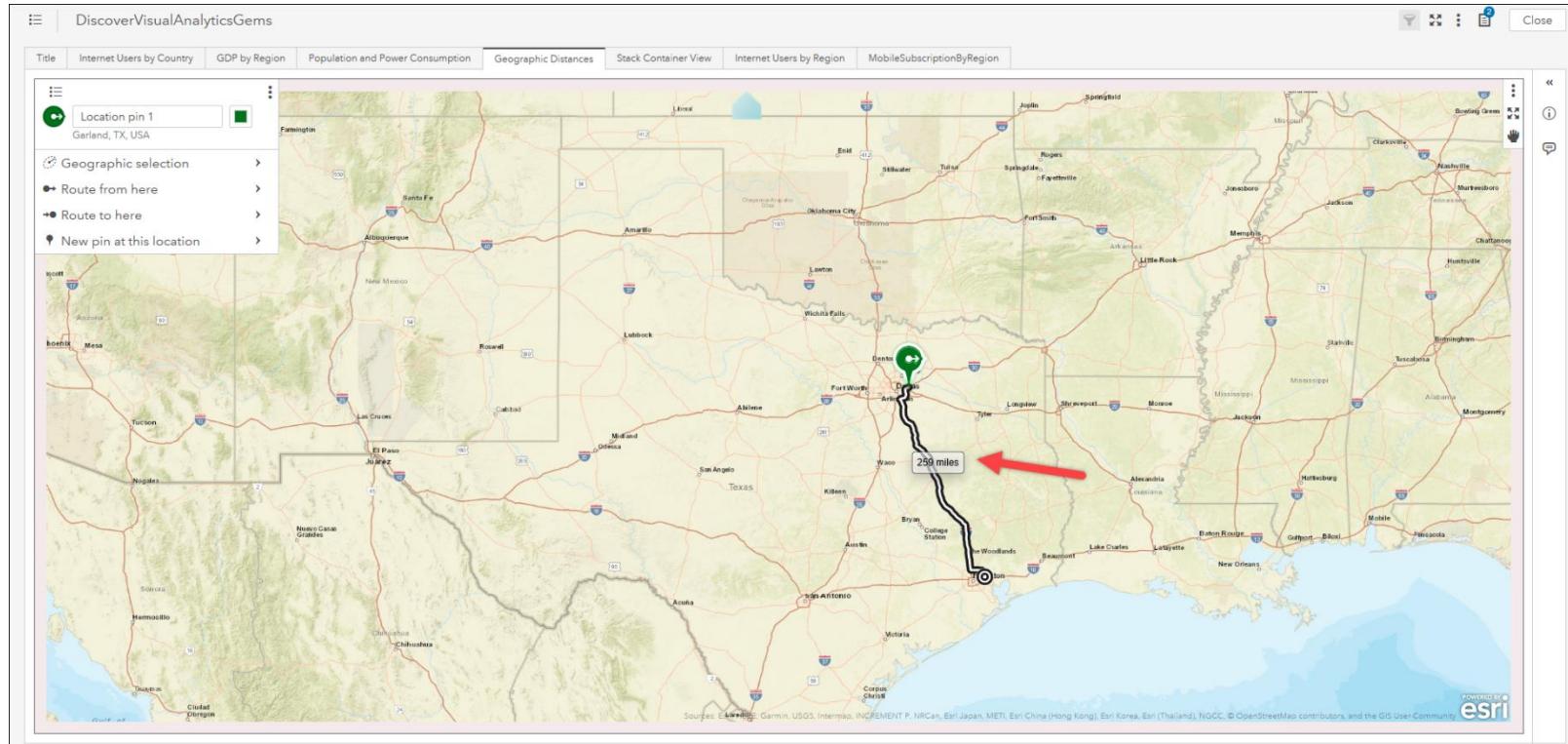


USERS PROGRAM

SAS® GLOBAL FORUM 2019

Saved Selection State

Zoom and Pin a Location in a Geo Map

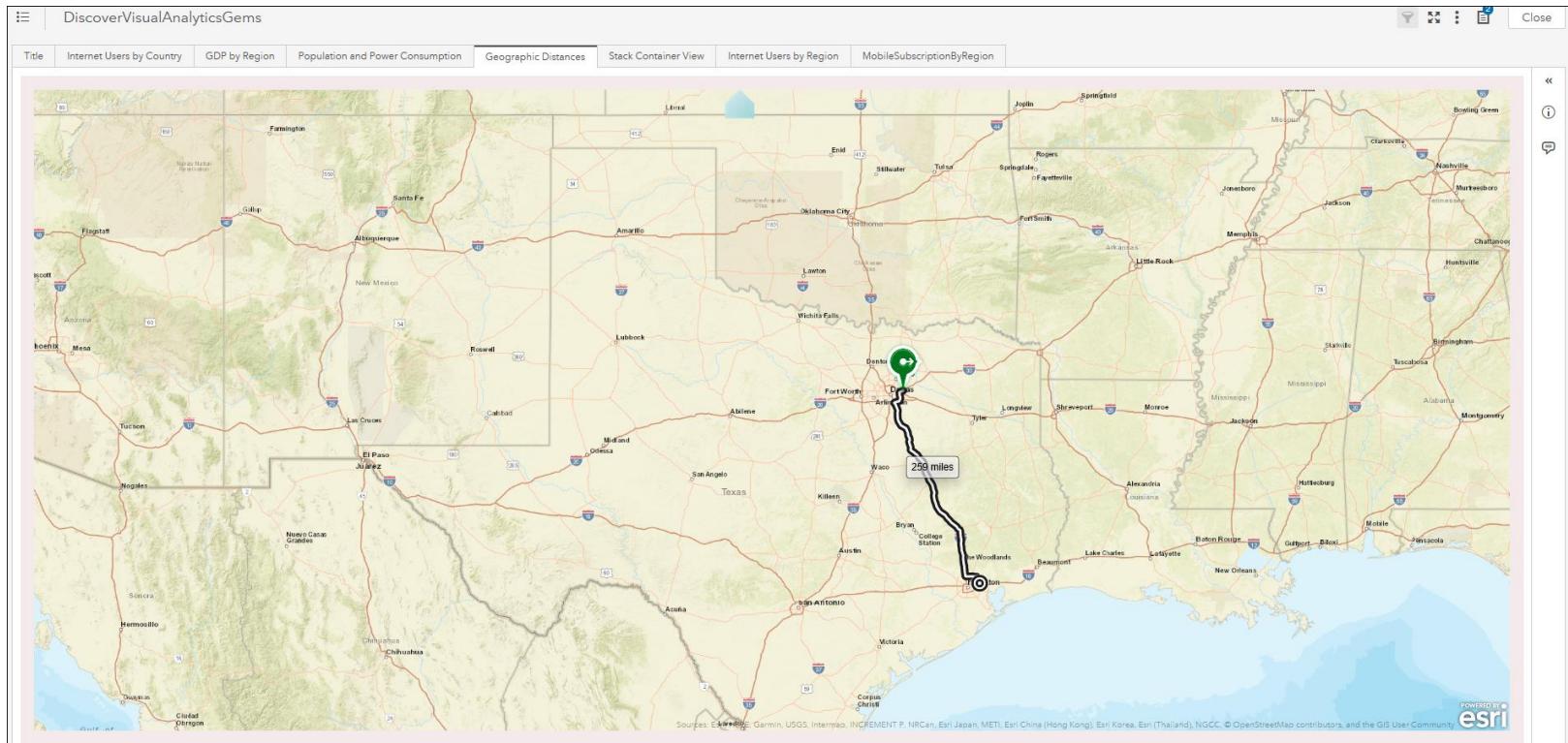


USERS PROGRAM

SAS® GLOBAL FORUM 2019

Saved Selection State

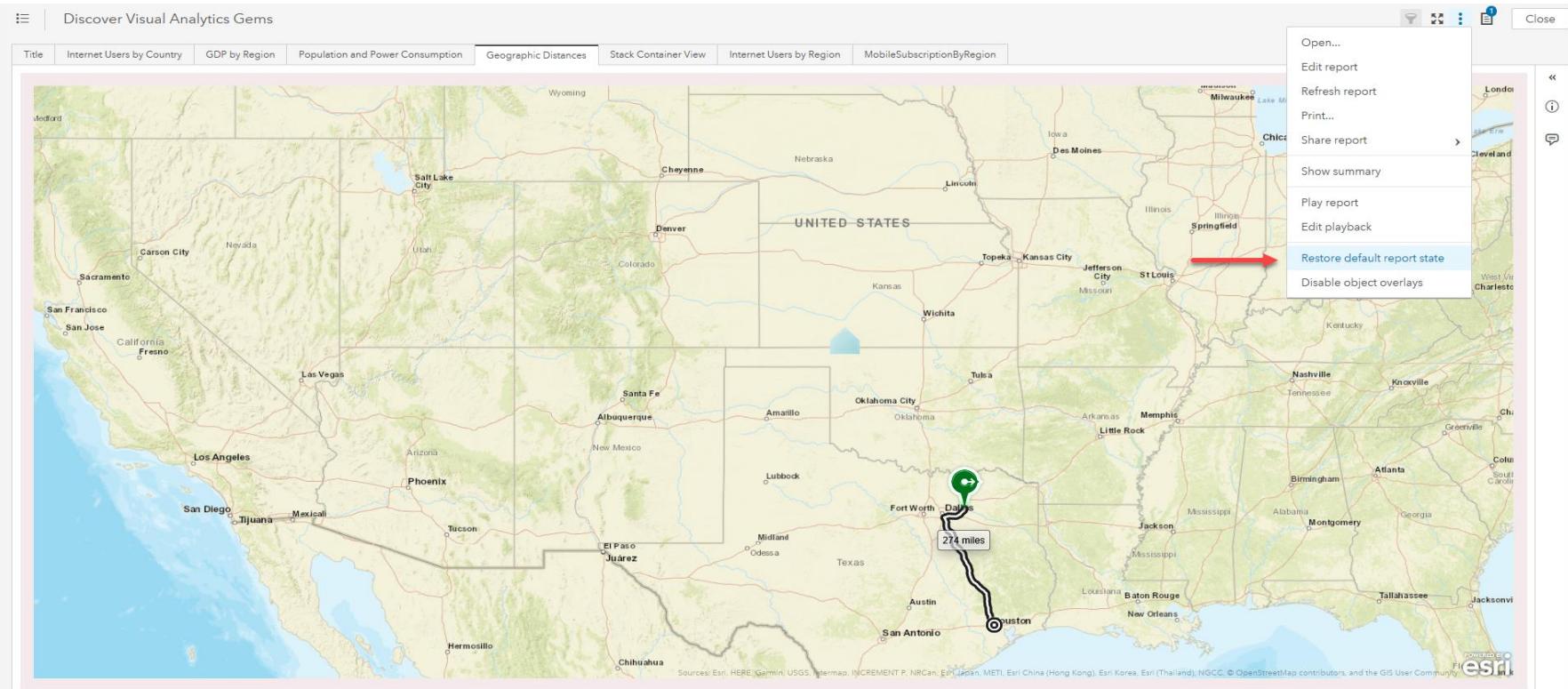
Zoom And Pin a Location in a Geo Map



USERS PROGRAM

SAS® GLOBAL FORUM 2019

Saved Selection State Restore Default Report State

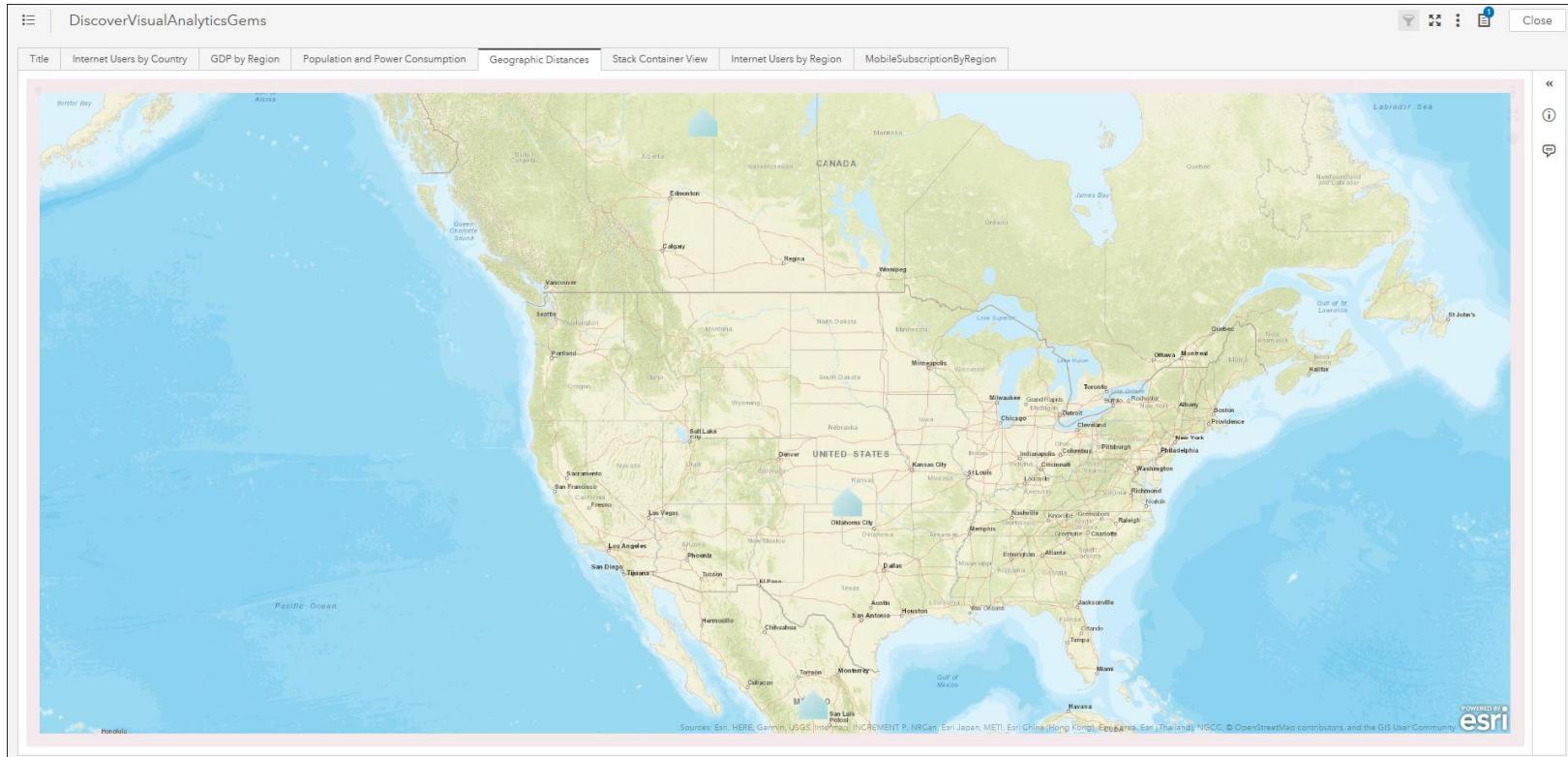


USERS PROGRAM

SAS® GLOBAL FORUM 2019

Saved Selection State

Restore Default Report State



USERS PROGRAM

SAS® GLOBAL FORUM 2019

Report Summary

A Gem that Shines in Many Locations

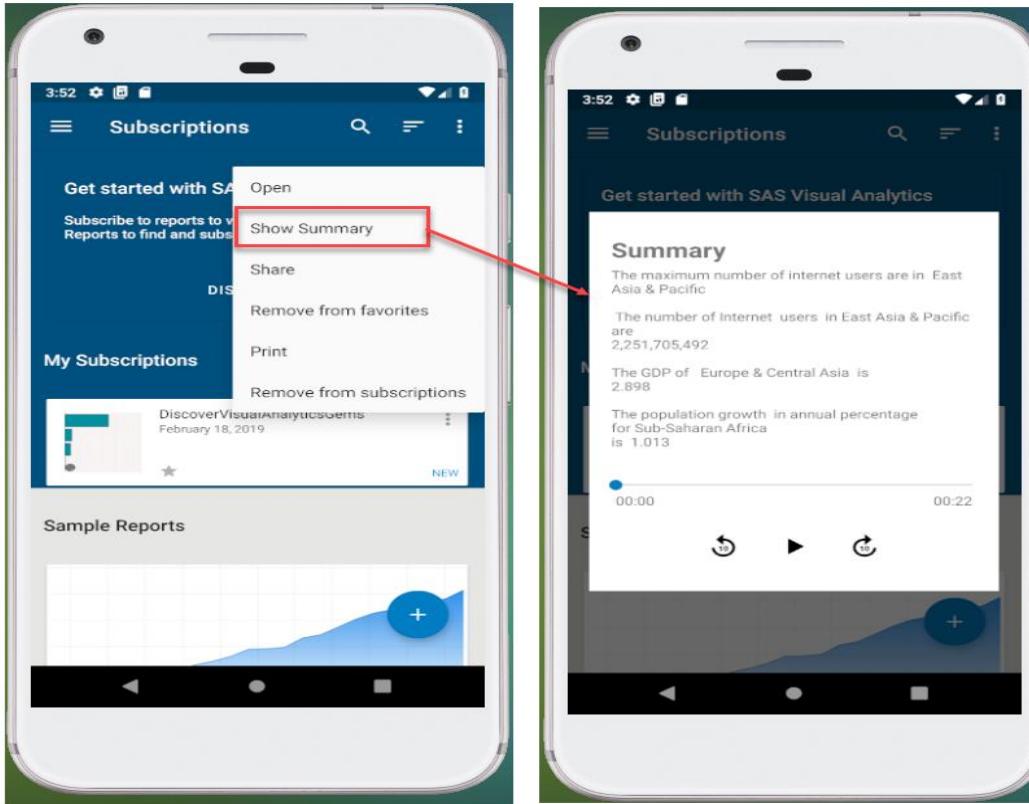
SAS Visual Analytics 8.3

Report Summary

Introduction

- A report summary is useful to show a text summary of key facts and figures generated from data elements for a report
- When the report summary is created and saved for a report, it can be viewed from many different locations
- Apache Velocity syntax language is supported

Report Summary



How to Create a Report Summary

DiscoverVisualAnalyticsGems

Internet Users by Country GDP by Region Population and Power Consumption Geographic Distances Stack Container View Internet Users by Region Population by Region

Filters: Date; Region (5)

GDP growth (annual %) by Region

Region	GDP growth (annual %)
Europe & Central Asia	24%
Sub-Saharan Africa	231%
Middle East & North Africa	42%
Latin America & Caribbean	31%
East Asia & Pacific	34%
South Asia	26%
North America	5%

Percentage of goods and services export by Region , grouped by Income Group

Exports of goods and services (% of GDP)

Region

Income Group

- 1 - Low Income
- 2 - Lower Middle Income
- 3 - Upper Middle Income
- 4 - High Income

The GDP of [Bar - Region 1]"["Region"][] is \$NumberTool.format([Bar - Region 1]"["GDP growth (annual %)][])

The population growth in annual percentage for [Dual Axis Bar-Line - Region 1]"["Region"][] is \$NumberTool.format([Dual Axis Bar-Line - Region 1]"["Population growth (annual %)][])

Preview Summary

Options

Select item

GDP growth (annual %)

Region

Date

OK Cancel

DiscoverVisualAnalyticsGems

General

Style

Output

Summary

Maximum number of internet users in [List Table - Region 1]"["Region"][]

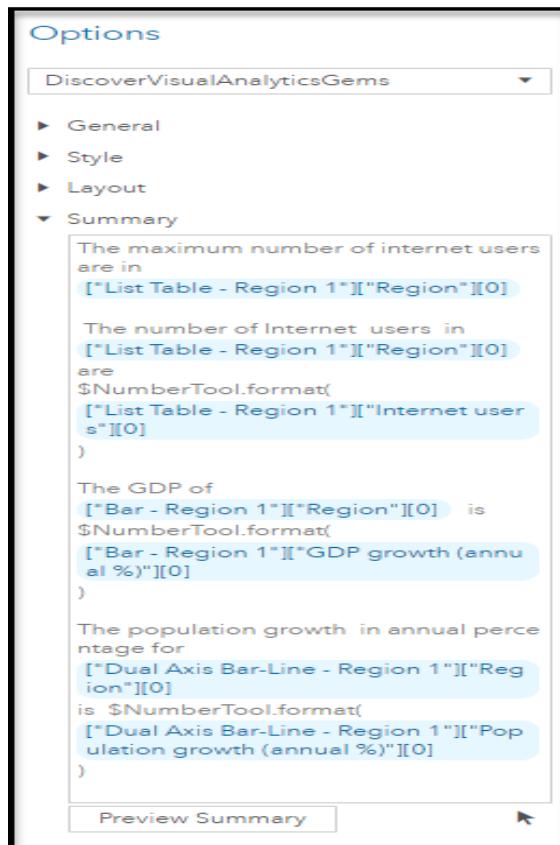
Number of Internet users in [List Table - Region 1]"["Region"][]

NumberTool.format([List Table - Region 1]"["Internet user count"][])

The GDP of [Bar - Region 1]"["Region"][] is \$NumberTool.format([Bar - Region 1]"["GDP growth (annual %)][])

The population growth in annual percentage for [Dual Axis Bar-Line - Region 1]"["Region"][] is \$NumberTool.format([Dual Axis Bar-Line - Region 1]"["Population growth (annual %)][])

How to Create a Report Summary



Preview the Report Summary

The screenshot shows a report summary interface with the following components:

- Header:** A navigation bar with tabs: "Geographic Distances", "Stack Container View", "Internet Users by Region", "Population by Region", and a "+" button.
- Left Panel:** A "List Table - Region 1" titled "Internet Users by Region". It lists regions with their corresponding internet user counts:
 - East Asia & Pacific: 2,251,705,492
 - Europe & Central Asia: 2.898
 - Latin America & Caribbean: 1.013
 - Middle East & North Africa: 1.013
 - North America: 1.013
 - South Asia: 1.013
 - Sub-Saharan Africa: 1.013
- Speech Text:** A section containing three text snippets:
 - The maximum number of internet users are in East Asia & Pacific
 - The number of Internet users in East Asia & Pacific are 2,251,705,492
 - The GDP of Europe & Central Asia is 2.898
- Right Panel:** An "Options" panel with a dropdown menu set to "DiscoverVisualAnalyticsGems". It includes sections for General, Style, Layout, and Summary. The Summary section contains the same three text snippets as the speech text, each preceded by a blue code snippet indicating its source or context.
- Bottom Right:** A red arrow points from the "Preview Summary" button in the Options panel towards the bottom right of the main content area.
- Bottom Center:** A "Close" button at the bottom center of the main content area.
- Bottom Right:** A red box highlights the "Preview Summary" button in the Options panel.

Report Summary

Web-based Viewer

SAS® Report Viewer - View Reports

Search

Filter Select all

[DiscoverVisualAnalyticsGems](#)

Modified by: Last modified: 02/18/19 08:38 AM

⋮

- [Open](#)
- [Edit](#)
- [Summary](#) 
- [Properties](#)
- [Email...](#)
- [Print](#)



Summary

The maximum number of internet users are in East Asia & Pacific

The number of Internet users in East Asia & Pacific are 2,251,705,492

The GDP of Europe & Central Asia is 2.898

The population growth in annual percentage for Sub-Saharan Africa is 1.013

00:00 00:22

Report Summary

Viewed Inside a Report

SAS® Report Viewer - View Reports

DiscoverVisualAnalyticsGems

Internet Users by Country GDP by Region Population and Power Consumption Geographic Distances Stack Container View Internet Users by Region

Percentage of goods and services export by Region , grouped by Income Group

Exports of goods and services (% of GDP)

The maximum number of internet users are in Europe & Central Asia

The number of Internet users in Europe & Central Asia are 42,260,000

The GDP of Europe & Central Asia is 2.898

The population growth in annual percentage for Sub-Saharan Africa is 1.013

Population growth (annual %), Electric power consumption (kWh per capita)

Population growth (annual %)

Electric power consumption (kWh per capita)

Summary

The maximum number of internet users are in Europe & Central Asia

The number of Internet users in Europe & Central Asia are 42,260,000

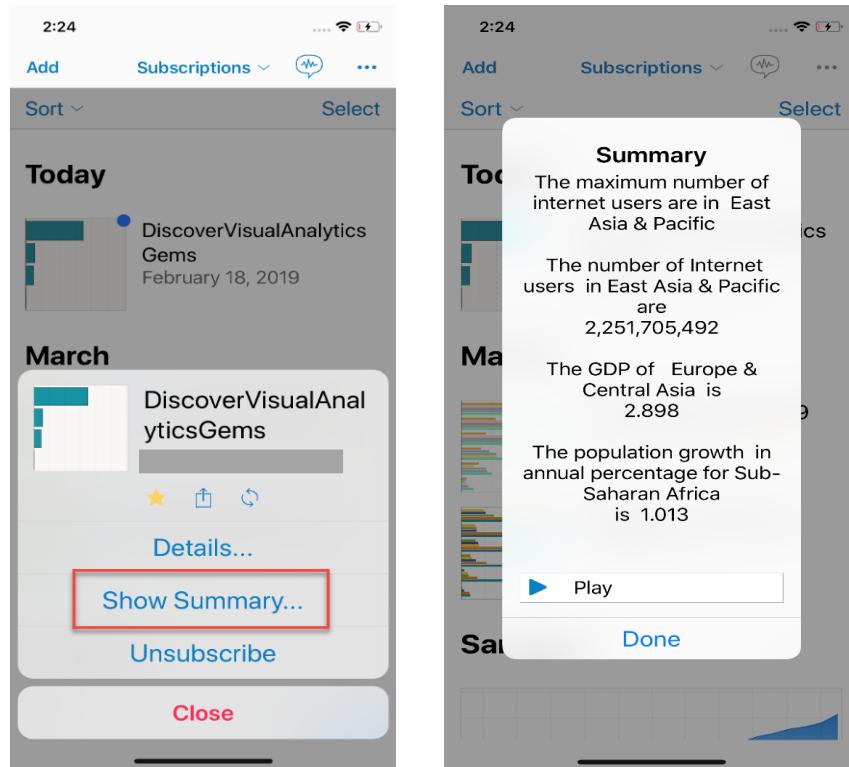
The GDP of Europe & Central Asia is 2.898

The population growth in annual percentage for Sub-Saharan Africa is 1.013

Open... Edit report Refresh report Print... Share report Show summary Play report Edit playback Restore default report state Disable object overlays

Close

Report Summary From an iPhone



Report Summary

From an iPad in the Tray

1:38 PM Thu Apr 11 100%

[Discover Visual Analytics Gems - Population and Power Consumption](#)

Discover Visual Analytics Gems

Details

Summary

The maximum number of internet users are in East Asia & Pacific

The number of Internet users in East Asia & Pacific are 2,251,705,492

The GDP of Europe & Central Asia is 2.898

The population growth in annual percentage for Sub-Saharan Africa is 1.013

Created By
A

Created On
Apr 10, 2019 at 11:59 AM

Modified By
A

Discover Visual Analytics Gems - Population and Power Consumption

Percentage of goods and services export by Region , grouped by Income Group
Exports of goods and services (% of GDP)

Region	1 - Low Income	2 - Lower Middle Income	3 - Upper Middle Income	4 - High Income
East Asia & Pacific	~0.5	~2.5	~2.5	~13.0
Latin America & Caribbean	~0.5	~2.5	~5.0	~0.5
Middle East & North Africa	~0.5	~1.5	~0.5	~5.0
North America	~0.5	~1.5	~0.5	~0.5
Sub-Saharan Africa	~0.5	~2.5	~2.5	~5.0
South Asia	~0.5	~2.5	~5.0	~0.5

Population growth (annual %), Electric power consumption (kWh per capita) by Region

Region	Population growth (annual %)	Electric power consumption (kWh per capita)
Sub-Saharan Africa	~100%	~10,000
East Asia & Pacific	~40%	~20,000
Middle East & North Africa	~35%	~30,000
Europe & Central Asia	~35%	~100,000
Latin America & Caribbean	~35%	~10,000
North America	~10%	~10,000
South Asia	~10%	~10,000

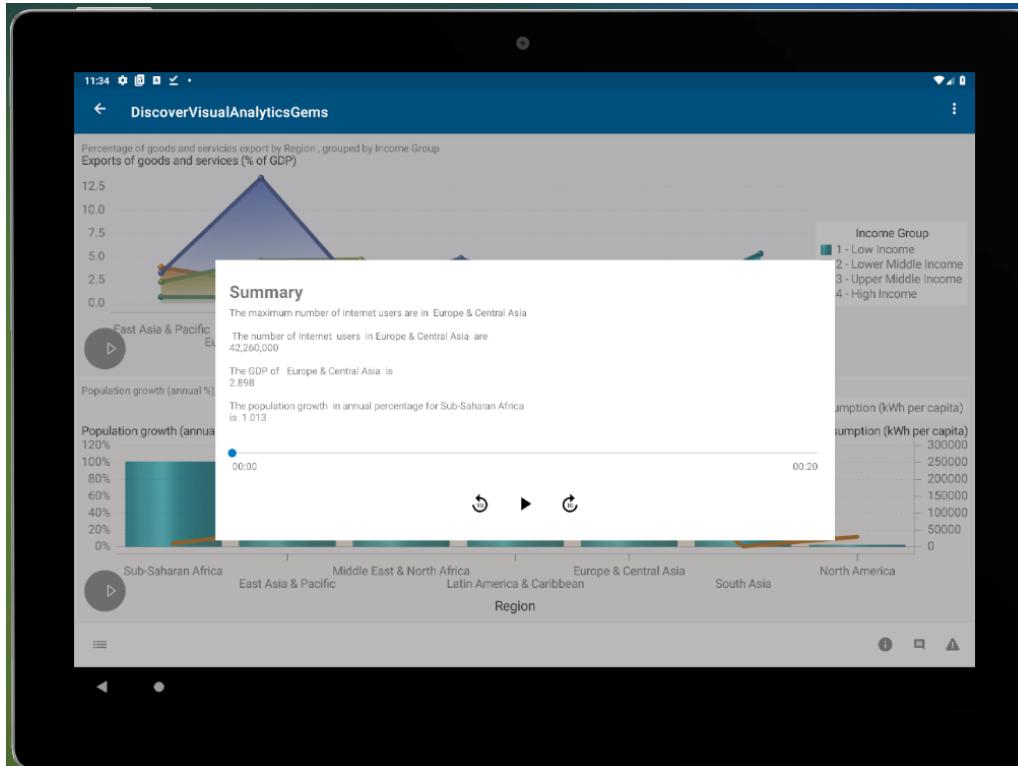
Report Summary

From an Unopened Report on an iPad

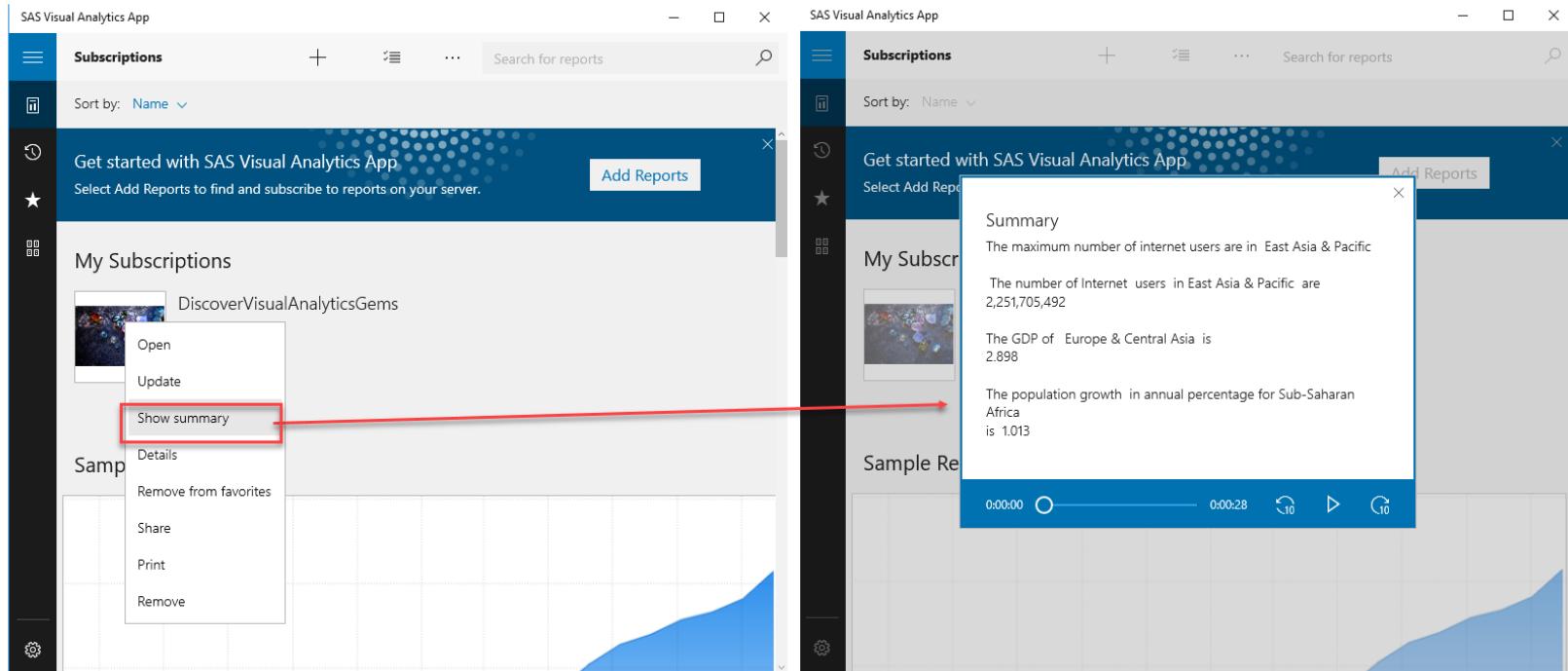
The screenshot shows an iPad screen with a report summary. At the top, there's a navigation bar with 'Recent' and 'Sort by: Most Recently Viewed'. Below it, a section titled 'Today' displays a card for a report titled 'DiscoverVisualAnalyticsGems' from February 18, 2019. The card includes a small chart thumbnail, a star icon, a download icon, and a 'Show Summary...' button, which is circled in red. A red arrow points from this button to a larger callout box on the right. The callout box is titled 'Summary' and contains the following text:
The maximum number of internet users are in East Asia & Pacific
The number of Internet users in East Asia & Pacific are 2,251,705,492
The GDP of Europe & Central Asia is 2.898
The population growth in annual percentage for Sub-Saharan Africa is 1.013
At the bottom of the callout box are 'Play' and 'Done' buttons.

Report Summary

From an Opened Report on an Android Tablet



Report Summary From the Windows App



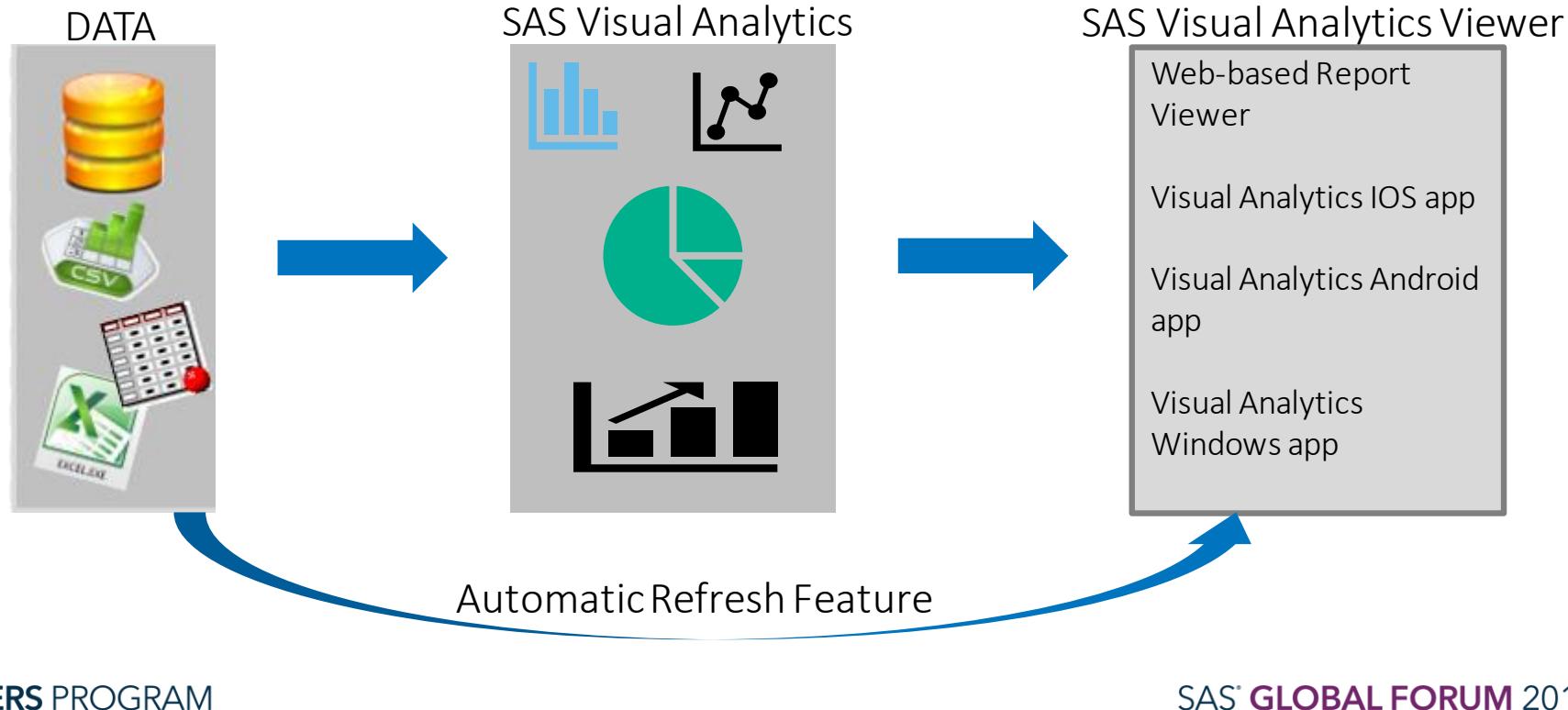
Automatic Refresh with Data Update

A refreshing gem

SAS Visual Analytics 8.3

Automatic Refresh with Data Update Feature

Overview



Automatic Refresh with Data Update

Introduction

When data updates in the backend, we want that new data to reflect in the Visual Analytics report. This feature helps to keep the report current with any data changes.

Automatic Data Refresh Feature

- You can set up automatic data refresh for:
 - The entire report
 - Specific section pages in a report
 - Specific objects in a report
- Report pages or objects are refreshed without the need for any manual updates
- Useful when the data is live and changes frequently in the background

Automatic Data Refresh

Set up an object to refresh and update automatically

The screenshot shows the SAS Visual Analytics interface. On the left, there's a bar chart titled "Internet users by Income Group" with four categories: 4 - High Income, 2 - Lower Middle Income, 3 - Upper Middle Income, and 1 - Low Income. Below the chart is a table with the same data. On the right, the "Object" panel is open for "Bar - Income Group 1". Under "Object", the "Name" is set to "Bar - Income Group 1" and the "Title" is "Automatic title". Under "Description", there is a text input field. Below these are several checkboxes: "Enable selection in the viewers" (unchecked), "Override system data limit" (unchecked), "Automatically refresh object:" (checked), and "Style" (set to "AvenirNext"). A red arrow points to the "Automatically refresh object:" section, which includes a dropdown menu for time units (Seconds, Minutes) and a numeric input field set to 20.

Income Group	Internet users	Date
4 - High Income	579205200	01 Jan 2005
4 - High Income	539384700	01 Jan 2004
4 - High Income	486917200	01 Jan 2003
4 - High Income	447020500	01 Jan 2002
4 - High Income	350206800	01 Jan 2001
2 - Lower Middle Income	193890380	01 Jan 2005

Automatic Data Refresh Example

SAS® Visual Analytics - Explore and Visualize Data

DiscoverVisualAnalyticsGem

Internet Users by Country

GDP by Region

Population and Pov

Search

Country

Filters: No selections

Internet users by Income Group

Income Group

4 - High Income

2 - Lower Middle Income

3 - Upper Middle Income

1 - Low Income

01Jan2001 01Jan2005

Internet Users by Region

Region	Internet users
East Asia & Pacific	2.3B
Europe & Central Asia	2.5B
Latin America & Caribbean	748M
Middle East & North Africa	157M
North America	2.2B
South Asia	326M
Sub-Saharan Africa	156M

Sum: 8.4B

Options

Bar - Income Group 1

Object

Name: Bar - Income Group 1

Title: Automatic title

Description:

Enable selection in the viewers

Override system data limit

Automatically refresh object:

5 Seconds

Style

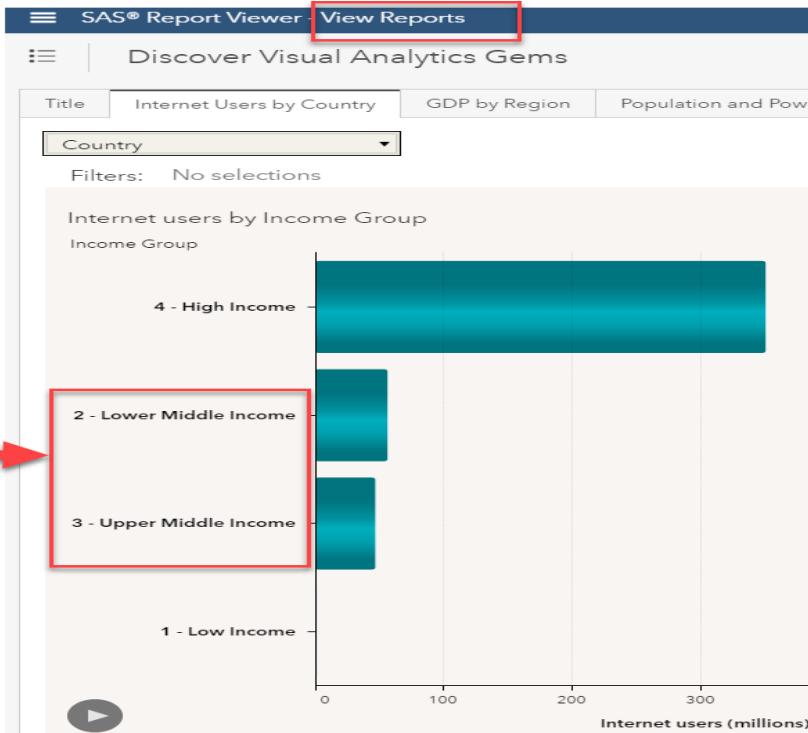
Layout

Automatic Data Refresh

Example

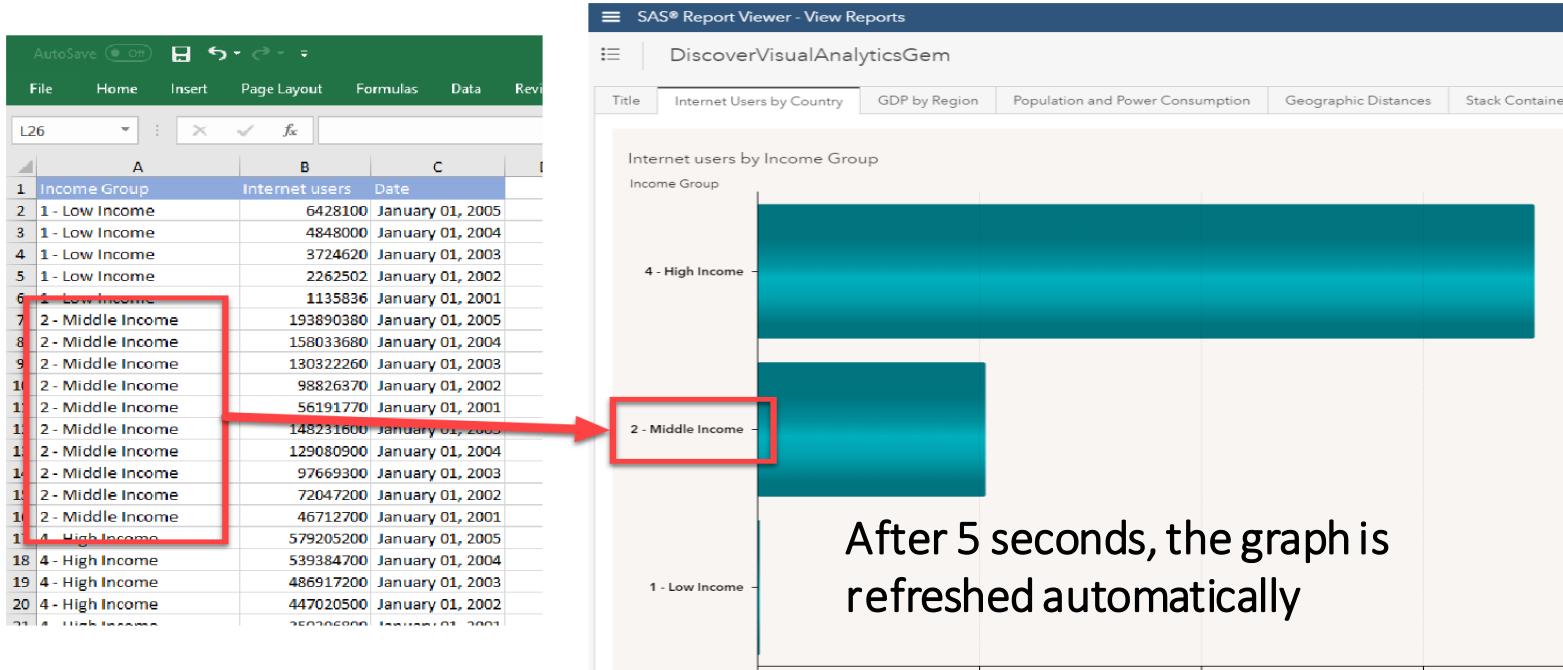
Screenshot of an Excel spreadsheet showing a data refresh. The table has columns for Income Group, Internet users, and Date. A red box highlights the first six rows of the 'Income Group' column.

	A	B	C	D
1	Income Group	Internet users	Date	
2	1 - Low Income	6428100	January 01, 2005	
3	1 - Low Income	4848000	January 01, 2004	
4	1 - Low Income	3724620	January 01, 2003	
5	1 - Low Income	2262502	January 01, 2002	
6	1 - Low Income	1135836	January 01, 2001	
7	2 - Lower Middle Income	193890380	January 01, 2005	
8	2 - Lower Middle Income	158033680	January 01, 2004	
9	2 - Lower Middle Income	130322260	January 01, 2003	
10	2 - Lower Middle Income	98826370	January 01, 2002	
11	2 - Lower Middle Income	56191770	January 01, 2001	
12	3 - upper Middle Income	148231600	January 01, 2005	
13	3 - upper Middle Income	125000300	January 01, 2004	
14	3 - upper Middle Income	97669300	January 01, 2003	
15	3 - upper Middle Income	72047200	January 01, 2002	
16	3 - upper Middle Income	46712700	January 01, 2001	
17	4 - High Income	579205200	January 01, 2005	
18	4 - High Income	539384700	January 01, 2004	
19	4 - High Income	486917200	January 01, 2003	
20	4 - High Income	447020500	January 01, 2002	
21	4 - High Income	350306800	January 01, 2001	



Automatic Data Refresh

Data changes are reflected without manual update



Voice Assistant

An Experimental Gem

SAS Visual Analytics App for iOS Devices

Voice Assistant

SAS Visual Analytics App for iOS

The English voice assistant is an experimental feature for iOS devices that are connected to a SAS Visual Analytics 8.3 server or later. In the mobile app, you can issue voice commands in English and interact with the app and the reports.

Voice Assistant

Activating Experimental Features



Voice Assistant

Voice Assistant Mode Activated

12:05 PM Fri Feb 15

DiscoverVisualAnalyticsGems - Population and Power Consumption

Some things you can ask me:

Examples Recents

List my favorite reports

Show the recently opened reports

Open the Banking report

Go to page 3 **Here are some examples of commands**

Go to the last page

I want to see the Overview page

Set the State to New York

I just want to see Commercial loans

Filter Year by 2019

Print this report

Email this report

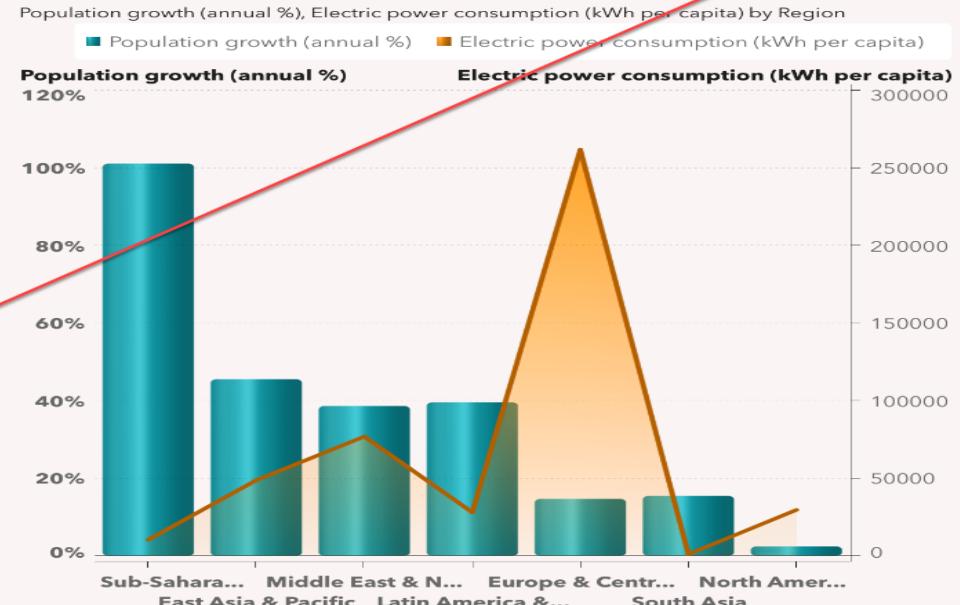
Type here or tap the Microphone t... 

Population growth (annual %), Electric power consumption (kWh per capita) by Region

Population growth (annual %) Electric power consumption (kWh per capita)

Population growth (annual %)

Electric power consumption (kWh per capita)



Region	Population growth (annual %)	Electric power consumption (kWh per capita)
Sub-Saharan Africa	~100%	~100,000
Middle East & North Africa	~45%	~120,000
East Asia & Pacific	~40%	~150,000
Latin America & the Caribbean	~38%	~180,000
Europe & Central Asia	~38%	~220,000
North America	~10%	~280,000
South Asia	~5%	~30,000

Voice Assistant

Example Command for Show Summary

The screenshot shows a mobile application interface. At the top, it displays the time (10:06 AM) and date (Tue Apr 9). The title of the app is "DiscoverVisualAnalyticsGems - MobileSubscriptionByRegion". On the left, there's a sidebar with a list of things you can ask the assistant, including "show summary", which is circled in red. A red arrow points from this list down to the main content area. The main content area features a horizontal bar chart titled "MobileSubscriptionsByRegion". The x-axis is labeled "Mobile cellular subscriptions (per 100 people)" and ranges from 0 to 25,000. The y-axis lists regions. The bars show the following approximate values:

Region	Mobile cellular subscriptions (per 100 people)
East Asia & Pacific	~22,517,054
Europe & Central Asia	~2,898
South & Central America	~11,500
Middle East & Africa	~8,000
North America	~5,000

The text in the sidebar also includes "go to end of the report" and "go to page 3". Below the chart, the text states: "The maximum number of internet users are in East Asia & Pacific" and "The number of Internet users in East Asia & Pacific are 2,251,705,492". There is also a text input field at the bottom.

Voice Assistant

Example Command for Filtering

10:08 AM Tue Apr 9

DiscoverVisualAnalyticsGems - Internet Users by Country

Some things you can ask me:

- Examples
- Recents
- filter by Africa
- go to page 1
- open geographic distances
- show summary
- go to end of the report
- go to page 3

Type here or tap the Microphone t...

Internet Users by Region

Region	Internet users
Sub-Saharan Africa	36M

Internet Users by Country

Country	Internet users
South Africa	36M

Thank you!

Contact Information
lavanya.mandavilli@sas.com

Reminder:

Complete your session survey in the conference mobile app.

A wide-angle photograph of the Dallas skyline at night, viewed across a body of water. The city lights are reflected in the water, creating a symmetrical pattern. In the foreground, there's a grassy area and some utility poles. The Reunion Tower is visible on the left, and various skyscrapers are illuminated with different colors like green, blue, and red.

#SASGF

SAS® GLOBAL FORUM 2019

APRIL 28 - MAY 1, 2019 | DALLAS, TX
Kay Bailey Hutchison Convention Center