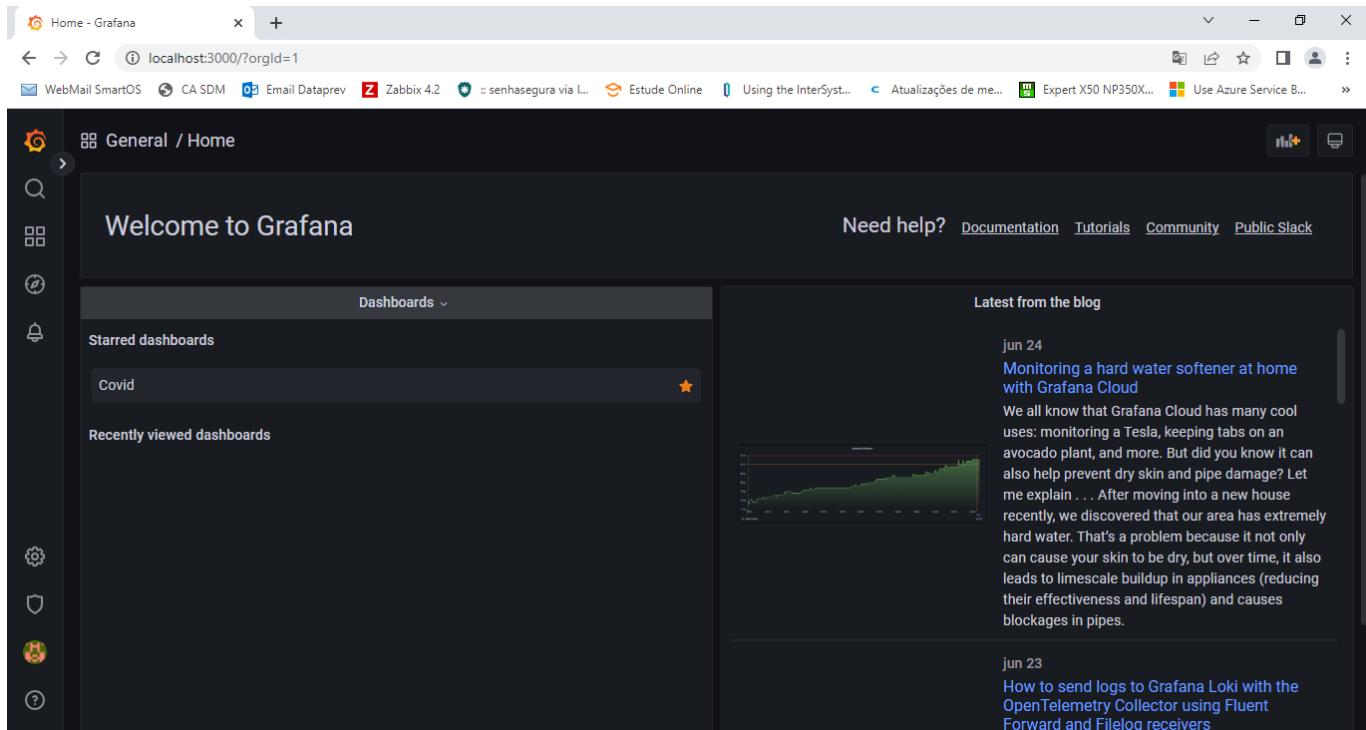

Artigo
[Julio Esquerdo](#) · Jun. 27, 2022 9min de leitura

Usando o Grafana com o IRIS através do Infinity DataSource

Usando o Grafana com o IRIS através do Infinity DataSource

Grafana é uma aplicação web de análise de [código aberto multiplataforma](#) e visualização interativa da web. Ele fornece tabelas, gráficos e alertas para a Web quando conectado a fontes de dados suportadas. É expansível através de um sistema de plug-in. Os usuários finais podem criar painéis de monitoramento complexos usando criadores de consultas interativas, segundo a Wikipédia O Grafana pode ser baixado diretamente do seu site grafana.com.

Uma vez instalado, o Grafana se apresenta como um serviço que pode ser acessado a partir da porta 3000 do servidor onde foi instalado:



O Infinity DataSource é um plugin do Grafana que permite o acesso a diversas fontes de dados, recebendo diversos tipos de informação, tais como JSON, CSV, XML e outros. Mais informações em <https://grafana.com/grafana/plugins/yesoreyeram-infinity-datasource>.

Uma das formas possíveis de comunicação através do Infinity DataSource é o uso de uma API REST devolvendo um JSON. É esta a forma que vamos usar.

Vamos montar uma API REST devolvendo informações em JSON no Iris. Esta é uma tarefa bastante simples com a classe %CSP.REST.

Baseado nos dados disponibilizados pela WHO criamos uma base de casos de COVID no mundo:

```
Class who.globalCases Extends (%Persistent, %XML.Adaptor)
{
```

```
Property dateEvent As %Date(FORMAT = 3);
Property countryCode As %String;
Property countryName As %String;
Property region As %String;
Property newCases As %Integer;
Property cumulativeCases As %Integer;
Property newDeaths As %Integer;
Property cumulativeDeaths As %Integer;
Query buscar() As %SQLQuery(COMPILEMODE = "IMMEDIATE", CONTAINID = 1,
ROWSPEC = "dateEvent:%Date, countryCode:%String, countryName:%String, region:%String,
newCases:%Integer, cumulativeCases:%Integer, newDeaths:%Integer,
cumulativeDeaths:%Integer", SELECTMODE = "RUNTIME") [ SqlName = buscar, SqlProc ]
{
SELECT %EXTERNAL(dateEvent) as dateEvent, countryCode, countryName, region,
newCases, cumulativeCases, newDeaths, cumulativeDeaths
FROM who.globalCases
}
Query top10() As %SQLQuery(COMPILEMODE = "IMMEDIATE", CONTAINID = 1,
ROWSPEC = "countryCode:%String, cumulativeDeaths:%Integer", SELECTMODE = "RUNTIME")
[ SqlName = top10, SqlProc ]
{
SELECT top 10 countryCode, cumulativeDeaths
FROM who.globalCases
ORDER BY cumulativeDeaths DESC
}
}
```

E, baseado nesta classe de dados persistentes, criamos a classe REST:

```
Class who.rest Extends %CSP.REST
{
Parameter CONTENTTYPE = "application/json";
Parameter CHARSET = "utf-8";
XData UrlMap [ XMLNamespace = "http://www.intersystems.com/urlmap" ]
{
<Routes>
<Route Url="/test" Method="GET" Call="Test" />
<Route Url="/data" Method="GET" Call="GetData" />
<Route Url="/top" Method="GET" Call="Top" />
</Routes>
}

ClassMethod Test() As %Status
{
    Set obj={
        "produto": "Api Who Demo",
        "versao": "1.00",
        "data": ($zdt($h,3,1))
    }
}
```

```
Write obj.%ToJSON()
Quit 1
}

ClassMethod GetData() As %Status
{
    Set saida={"respostas": []}
}

Set st=##class(%SQL.Statement).%New()
Set status=st.%PrepareClassQuery("who.globalCases", "buscar")
Set rs=st.%Execute()
While rs.%Next()
{
    Set obj = {
        "dateEvent": (rs.%Get("dateEvent")),
        "countryCode": (rs.%Get("countryCode")),
        "countryName": (rs.%Get("countryName")),
        "region": (rs.%Get("region")),
        "newCases": (rs.%Get("newCases")),
        "cumulativeCases": (rs.%Get("cumulativeCases")),
        "newDeaths": (rs.%Get("newDeaths")),
        "cumulativeDeaths": (rs.%Get("cumulativeDeaths"))
    }
    Do saida.respostas.%Push(obj)
}

Write saida.%ToJSON()
Quit 1
}

ClassMethod Top() As %Status
{
    Set saida={"respostas": []}
}

Set st=##class(%SQL.Statement).%New()
Set status=st.%PrepareClassQuery("who.globalCases", "top10")
Set rs=st.%Execute()
While rs.%Next()
{
    Set obj = {
        "countryCode": (rs.%Get("countryCode")),
        "cumulativeDeaths": (rs.%Get("cumulativeDeaths"))
    }
    Do saida.respostas.%Push(obj)
}

Write saida.%ToJSON()
Quit 1
}
```

Uma vez que montamos nossas classes e populamos as informações, podemos publicar a aplicação REST:

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The screenshot shows the 'Portal de Administração' interface. In the top navigation bar, there are links for Home, Sobre, Ajuda, Contato, and Logout. Below the navigation, there are tabs for Servidor (LAPTOP-1AM20UQL), Namespace (%SYS), Usuário (UnknownUser), Licitado para (InterSystems IRIS Community), and Configuração (IRIS_SEM_SSL). The main content area is titled 'Editar Aplicação Web' (Edit Application Web) with buttons for Salvar (Save) and Cancelar (Cancel). The configuration section is titled 'Edita a definição de aplicativo web /who:' and contains several tabs: Geral (General), Funções do Aplicativo (Application Functions), and Funções de Correspondência (Correspondence Functions). The 'Geral' tab is active. It includes fields for Nome (Name: /who), Descrição (Description: Obrigatório. (por exemplo /csp/appname)), Namespace (Namespace: USER, selected), Enable Application (checkbox checked), and Habilitar (radio button selected for REST, with 'Expedir Classe' set to 'who.rest'). Other sections include 'Configurações de segurança' (Security Settings) and 'Configurações da sessão' (Session Settings).

A partir deste momento podemos consumir os dados:

The screenshot shows a browser window with the URL 'localhost:52776/who/data'. The page displays a large JSON array containing data points for various countries and regions. Each point includes a date event, country code, country name, region, and various statistics for new cases and cumulative deaths.

```
{"respostas": [{"dateEvent": "2022-06-24", "countryCode": "AF", "countryName": "Afghanistan", "region": "EMRO", "newCases": "0", "cumulativeCases": "181934", "newDeaths": "0", "cumulativeDeaths": "7715"}, {"dateEvent": "2022-06-24", "countryCode": "AL", "countryName": "Albania", "region": "EURO", "newCases": "271", "cumulativeCases": "278211", "newDeaths": "0", "cumulativeDeaths": "3497"}, {"dateEvent": "2022-06-24", "countryCode": "AS", "countryName": "American Samoa", "region": "WPRO", "newCases": "9", "cumulativeCases": "266015", "newDeaths": "0", "cumulativeDeaths": "6875"}, {"dateEvent": "2022-06-24", "countryCode": "DZ", "countryName": "Algeria", "region": "AFRO", "newCases": "9", "cumulativeCases": "43774", "newDeaths": "0", "cumulativeDeaths": "153"}, {"dateEvent": "2022-06-24", "countryCode": "AO", "countryName": "Angola", "region": "AFRO", "newCases": "0", "cumulativeCases": "99761", "newDeaths": "0", "cumulativeDeaths": "1900"}, {"dateEvent": "2022-06-24", "countryCode": "AI", "countryName": "Anguilla", "region": "AMRO", "newCases": "10", "cumulativeCases": "3411", "newDeaths": "0", "cumulativeDeaths": "9"}, {"dateEvent": "2022-06-24", "countryCode": "AG", "countryName": "Antigua and Barbuda", "region": "AMRO", "newCases": "0", "cumulativeCases": "8590", "newDeaths": "0", "cumulativeDeaths": "141"}, {"dateEvent": "2022-06-24", "countryCode": "AR", "countryName": "Argentina", "region": "AMRO", "newCases": "0", "cumulativeCases": "9341492", "newDeaths": "0", "cumulativeDeaths": "129016"}, {"dateEvent": "2022-06-24", "countryCode": "AM", "countryName": "Armenia", "region": "EURO", "newCases": "0", "cumulativeCases": "423104", "newDeaths": "0", "cumulativeDeaths": "8625"}, {"dateEvent": "2022-06-24", "countryCode": "AU", "countryName": "Australia", "region": "WPRO", "newCases": "0", "cumulativeCases": "40179", "newDeaths": "0", "cumulativeDeaths": "221"}, {"dateEvent": "2022-06-24", "countryCode": "AT", "countryName": "Austria", "region": "EURO", "newCases": "9303", "cumulativeCases": "4400566", "newDeaths": "1", "cumulativeDeaths": "20015"}, {"dateEvent": "2022-06-24", "countryCode": "AZ", "countryName": "Azerbaijan", "region": "EURO", "newCases": "26", "cumulativeCases": "793089", "newDeaths": "0", "cumulativeDeaths": "9716"}, {"dateEvent": "2022-06-24", "countryCode": "BS", "countryName": "Bahamas", "region": "AMRO", "newCases": "52", "cumulativeCases": "35755", "newDeaths": "0", "cumulativeDeaths": "816"}, {"dateEvent": "2022-06-24", "countryCode": "BH", "countryName": "Bahrain", "region": "EMRO", "newCases": "0", "cumulativeCases": "811631", "newDeaths": "0", "cumulativeDeaths": "1492"}, {"dateEvent": "2022-06-24", "countryCode": "BD", "countryName": "Bangladesh", "region": "SEARO", "newCases": "0", "cumulativeCases": "1962213", "newDeaths": "0", "cumulativeDeaths": "29135"}, {"dateEvent": "2022-06-24", "countryCode": "BB", "countryName": "Barbados", "region": "AMRO", "newCases": "147", "cumulativeCases": "83242", "newDeaths": "0", "cumulativeDeaths": "472"}, {"dateEvent": "2022-06-24", "countryCode": "BY", "countryName": "Belarus", "region": "EURO", "newCases": "0", "cumulativeCases": "982867", "newDeaths": "0", "cumulativeDeaths": "6978"}, {"dateEvent": "2022-06-24", "countryCode": "BE", "countryName": "Belgium", "region": "EURO", "newCases": "12", "cumulativeCases": "4211511", "newDeaths": "2", "cumulativeDeaths": "31883"}, {"dateEvent": "2022-06-24", "countryCode": "BZ", "countryName": "Belize", "region": "AMRO", "newCases": "202", "cumulativeCases": "62667", "newDeaths": "0", "cumulativeDeaths": "679"}, {"dateEvent": "2022-06-24", "countryCode": "BJ", "countryName": "Benin", "region": "AFRO", "newCases": "0", "cumulativeCases": "27122", "newDeaths": "0", "cumulativeDeaths": "163"}, {"dateEvent": "2022-06-24", "countryCode": "BM", "countryName": "Bermuda", "region": "AMRO", "newCases": "195", "cumulativeCases": "15857", "newDeaths": "0", "cumulativeDeaths": "138"}, {"dateEvent": "2022-06-24", "countryCode": "BT", "countryName": "Bhutan", "region": "SEARO", "newCases": "0", "cumulativeCases": "59674", "newDeaths": "0", "cumulativeDeaths": "21"}, {"dateEvent": "2022-06-24", "countryCode": "BO", "countryName": "Bolivia (Plurinational State of)", "region": "AMRO", "newCases": "906", "cumulativeCases": "917537", "newDeaths": "0", "cumulativeDeaths": "21952"}, {"dateEvent": "2022-06-24", "countryCode": "BA", "countryName": "Bosnia and Herzegovina", "region": "EURO", "newCases": "42", "cumulativeCases": "8739", "newDeaths": "0", "cumulativeDeaths": "30"}, {"dateEvent": "2022-06-24", "countryCode": "XA", "countryName": "Bonaire", "region": "AMRO", "newCases": "0", "cumulativeCases": "378370", "newDeaths": "0", "cumulativeDeaths": "15799"}, {"dateEvent": "2022-06-24", "countryCode": "BW", "countryName": "Botswana", "region": "AFRO", "newCases": "0", "cumulativeCases": "313493", "newDeaths": "0", "cumulativeDeaths": "2705"}, {"dateEvent": "2022-06-24", "countryCode": "VG", "countryName": "British Virgin Islands", "region": "AMRO", "newCases": "0", "cumulativeCases": "6941", "newDeaths": "0", "cumulativeDeaths": "63"}, {"dateEvent": "2022-06-24", "countryCode": "BN", "countryName": "Brunei Darussalam", "region": "WPRO", "newCases": "1064", "cumulativeCases": "159591", "newDeaths": "0", "cumulativeDeaths": "166"}, {"dateEvent": "2022-06-24", "countryCode": "BG", "countryName": "Bulgaria", "region": "EURO", "newCases": "320", "cumulativeCases": "1169474", "newDeaths": "3", "cumulativeDeaths": "37238"}, {"dateEvent": "2022-06-24", "countryCode": "BF", "countryName": "Burkina Faso", "region": "AFRO", "newCases": "0", "cumulativeCases": "21044", "newDeaths": "0", "cumulativeDeaths": "387"}, {"dateEvent": "2022-06-24", "countryCode": "BI", "countryName": "Burundi", "region": "AFRO", "newCases": "0", "cumulativeCases": "42542", "newDeaths": "0", "cumulativeDeaths": "15"}, {"dateEvent": "2022-06-24", "countryCode": "CV", "countryName": "Cabo Verde", "region": "AFRO", "newCases": "0", "cumulativeCases": "58271", "newDeaths": "0", "cumulativeDeaths": "402"}, {"dateEvent": "2022-06-24", "countryCode": "KH", "countryName": "Cambodia", "region": "WPRO", "newCases": "0", "cumulativeCases": "136262", "newDeaths": "0", "cumulativeDeaths": "3056"}, {"dateEvent": "2022-06-24", "countryCode": "CM", "countryName": "Cameroon", "region": "AFRO", "newCases": "0", "cumulativeCases": "120002", "newDeaths": "0", "cumulativeDeaths": "1930"}, {"dateEvent": "2022-06-24", "countryCode": "CA", "countryName": "Canada", "region": "AMRO", "newCases": "0", "cumulativeCases": "3897870", "newDeaths": "0", "cumulativeDeaths": "41363"}, {"dateEvent": "2022-06-24", "countryCode": "KY", "countryName": "Cayman Islands", "region": "AMRO", "newCases": "0", "cumulativeCases": "26797", "newDeaths": "0", "cumulativeDeaths": "28"}, {"dateEvent": "2022-06-24", "countryCode": "CF", "countryName": "Central African Republic", "region": "AFRO", "newCases": "0", "cumulativeCases": "14371", "newDeaths": "0", "cumulativeDeaths": "113"}]}
```

Agora podemos usar o Grafana para consumir estas informações.

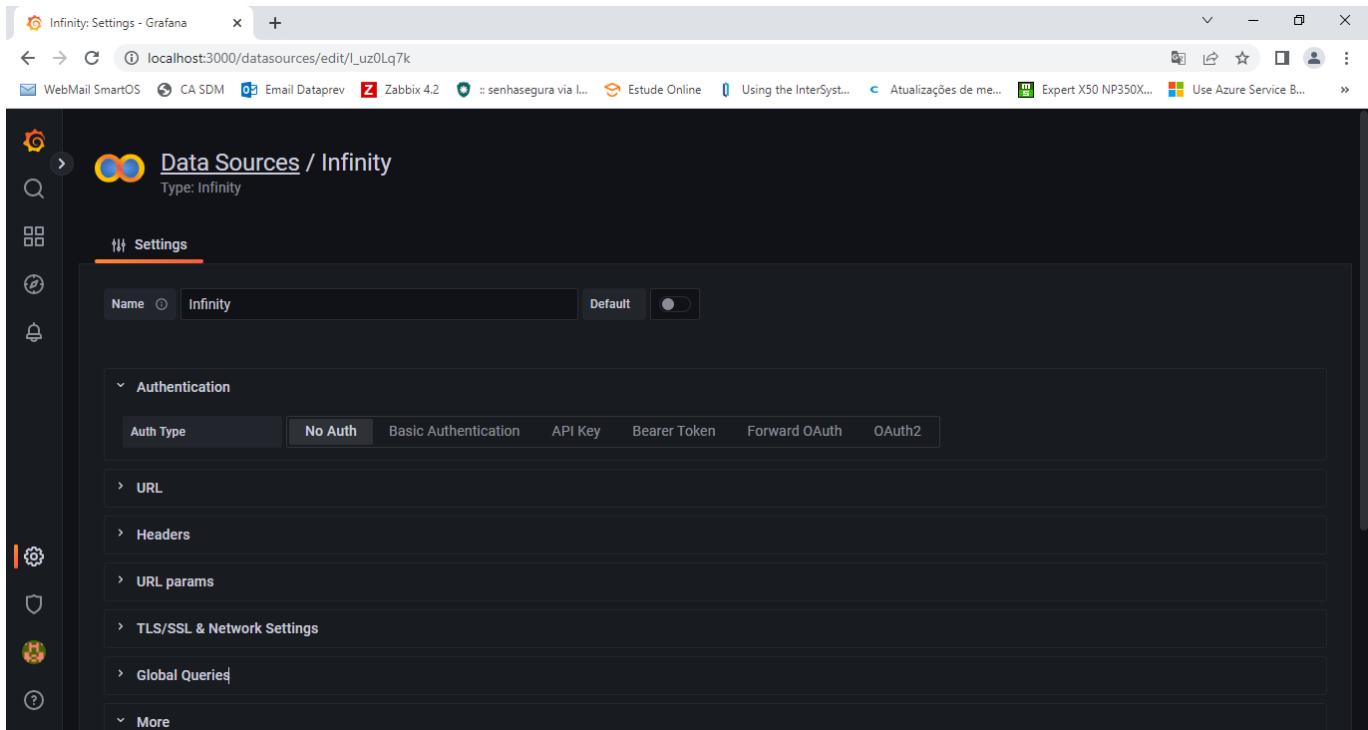
No Grafana, entre em Configuração->Data sources:

The screenshot shows the Grafana interface. On the left, a sidebar menu includes 'General / Home', 'Dashboards', 'Data sources' (which is selected), and 'Configuration'. The main area displays a 'Welcome to Grafana' card and a 'Latest from the blog' section with two entries. The first entry, dated 'jun 24', is titled 'Monitoring a hard water softener at home with Grafana Cloud' and discusses preventing dry skin and pipe damage. The second entry, dated 'jun 23', is titled 'How to send logs to Grafana Loki with the OpenTelemetry Collector using Fluent Forward and Filelog receivers'.

Crie um novo DataSource do tipo Infinity:

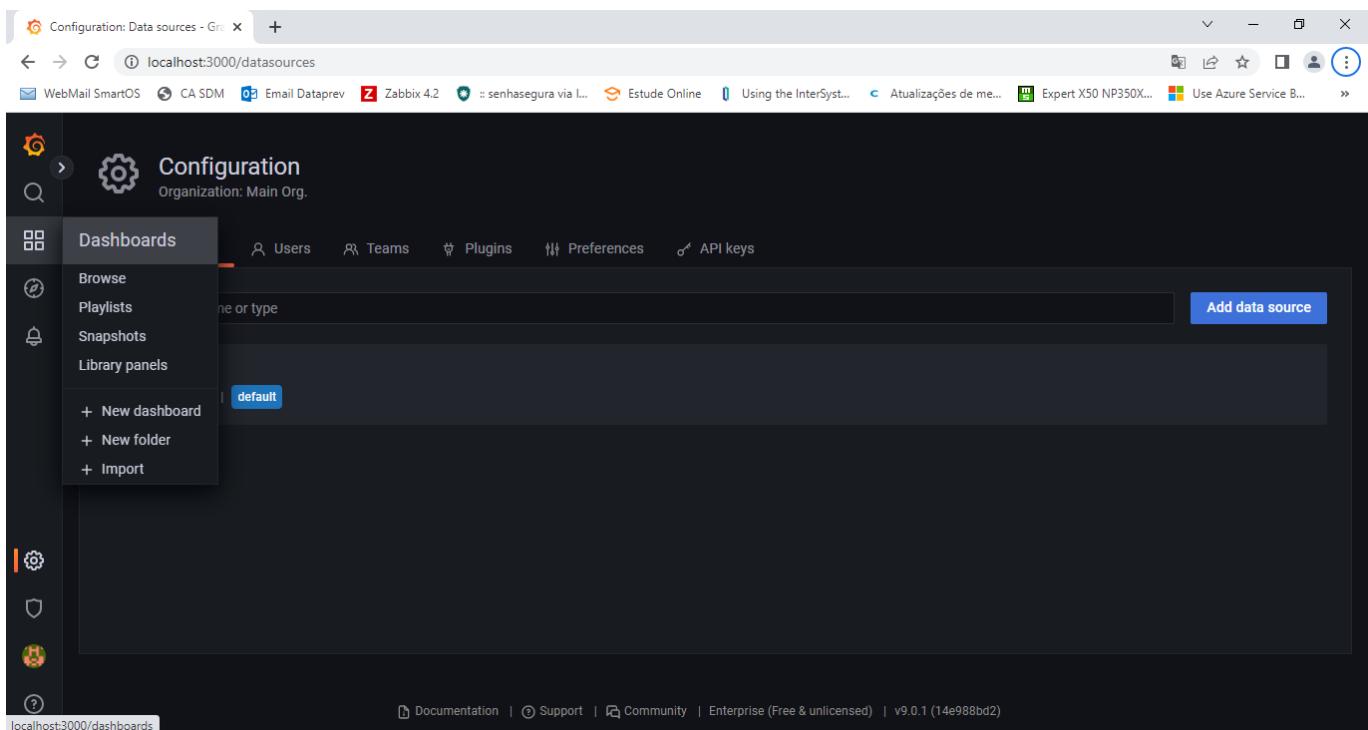
The screenshot shows the 'Add data source' page. A search bar at the top contains the text 'infinity'. Below it, a list shows the 'Infinity' provider, which is described as a JSON, CSV, XML, GraphQL, HTML and REST API datasource for Grafana. It mentions transforming data with UQL/GROQ and visualizing data from many APIs. A 'Signed' button is visible next to the provider's icon.

Preencha os dados de acesso a nossa API REST:



The screenshot shows the 'Data Sources / Infinity' configuration page in Grafana. The 'Settings' tab is active. The 'Name' field is set to 'Infinity'. Under 'Authentication', 'No Auth' is selected. Other tabs include Basic Authentication, API Key, Bearer Token, Forward OAuth, and OAuth2. A sidebar on the left shows various monitoring and configuration icons.

Vá para Dashboards:



The screenshot shows the 'Configuration: Data sources' page in Grafana. The 'Dashboards' tab is active. A search bar at the top right has 'Add data source' highlighted. The sidebar on the left includes 'Dashboards', 'Users', 'Teams', 'Plugins', 'Preferences', and 'API keys'.

Agora clique em New Dashboard->Add a new panel. Edite a URL que aparecerá no Datasource para apontar para o caminho do nosso serviço REST:

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Panel Title

Data is missing a number field

Switch to table Open visualization suggestions

Query 1 Transform 0 Alert 0

Data source Demo > Query options MD = auto = 934 Interval = 20s Query inspector

Type JSON Source URL Format Table JSON options Open

URL http://localhost:52776/who/data HTTP method, Query param, Headers

Panel options

Title: Panel Title

Description

Transparent background

Panel links

Repeat options

Tooltip

Tooltip mode

Vá adicionando as colunas que deseja visualizar:

Panel Title

Nome do País

Afghanistan
Albania
Algeria
American Samoa
Andorra

Query 1 Transform 0

Type JSON Source URL Format Table JSON options Open

URL http://localhost:52776/who/data HTTP method, Query param, Headers

Rows / Root

Column 1 Selector countryName as Nome do País format as String

Add Columns

Results Filter

Table

Q Search options

All Overrides

Description

Transparent background

Panel links

Repeat options

Table

Show table header

Enable pagination

Minimum column width

Podemos ir incluindo novas colunas:

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The screenshot shows the Grafana 'Edit Panel' interface. On the left, there is a table titled 'Panel Title' with two columns: 'Nome do País' (Country Name) and 'Mortes' (Deaths). The data rows are: Afghanistan (7715), Albania (3497), Algeria (6875), American Samoa (31), and Andorra (153). Below the table is a 'Query' section with a single query defined:

Type	JSON	Source	URL	Format	Table	JSON options	Open
URL	http://localhost:52776/who/data					HTTP method, Query param, Headers	
Rows / Root							
Column 1	Selector	countryName	as	Nome do País	format as	String	<input type="button" value="Delete"/>
Column 2	Selector	cumulativeDeaths	as	Mortes	format as	Number	<input type="button" value="Delete"/>

On the right side of the interface, there is a sidebar with various configuration options for the table panel, such as 'Search options', 'Description', 'Transparent background', 'Panel links', 'Repeat options', 'Table' settings (Show table header, Enable pagination, Minimum column width), and 'Overrides' settings.

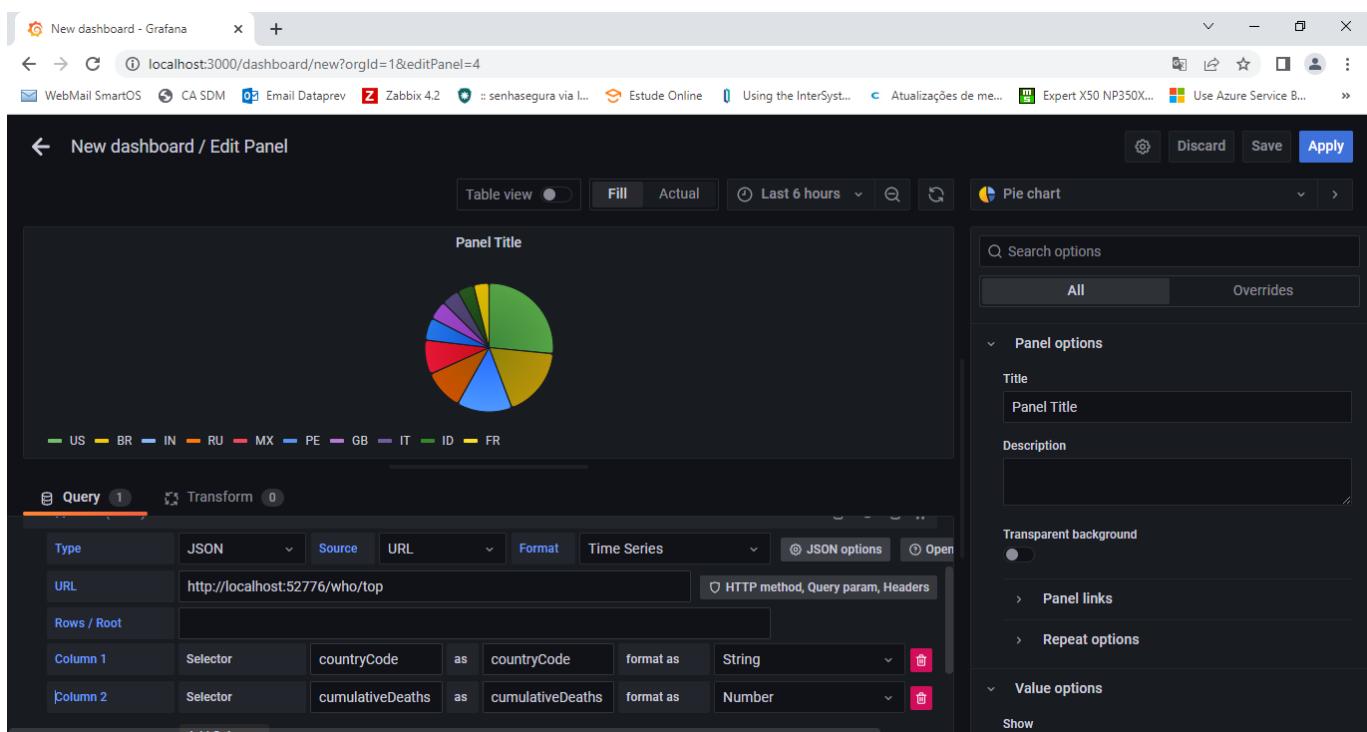
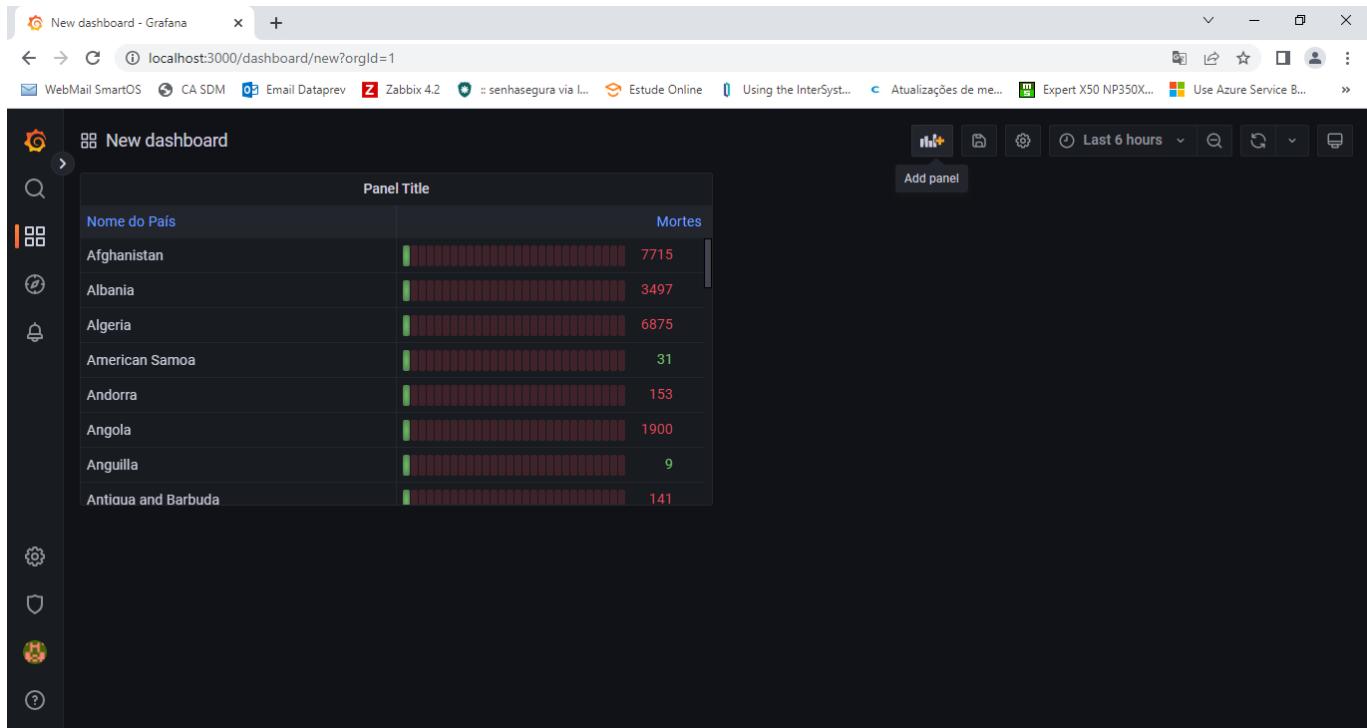
E podemos dar uma visualização para os dados (Opção Overrides):

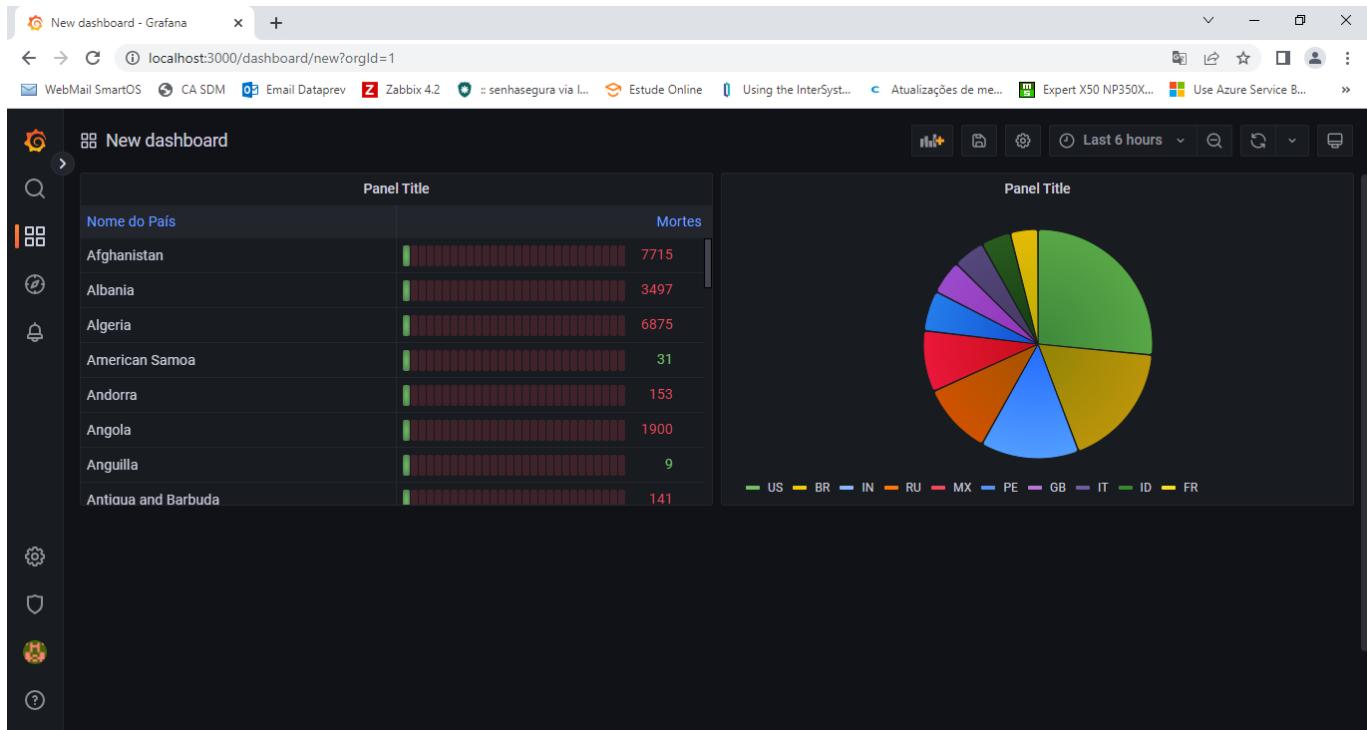
This screenshot shows the same 'Edit Panel' interface as the previous one, but with an override applied to the 'Mortes' column. The 'Overrides' tab in the sidebar is selected, and for the field 'Mortes', the 'Cell display mode' is set to 'LCD gauge'. The table now displays the same data as before, but the 'Mortes' column values are shown as green horizontal bars of varying lengths corresponding to the death counts.

Podemos incluir outros painéis:

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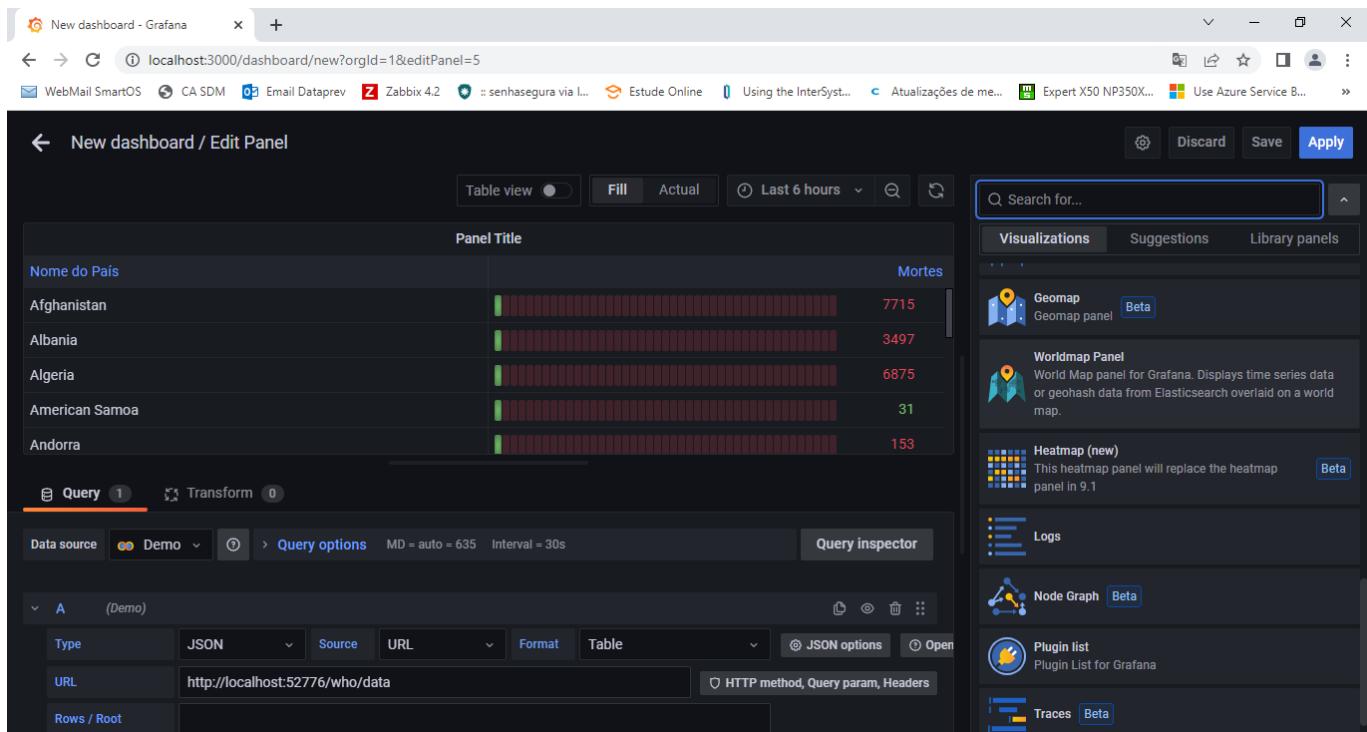
Podemos usar um painel existente como base para construção de outro. Clique no Panel Title->More->Duplicate. Para ajustar, clique em Panel Title->Edit:

The screenshot shows the "Edit Panel" interface for the first panel. The left side displays the same horizontal bar chart as the original panel. The right side contains editing tools. At the top right are buttons for "Discard", "Save", and "Apply". Below these are sections for "Search options" (with "All" selected) and "Overrides". Under "Panel options", the "Title" is set to "Panel Title" and "Description" is empty. A "Transparent background" checkbox is checked. On the far right, there are sections for "Panel links" and "Repeat options". At the bottom, there is a "Table" section with a "Show table header" checkbox.

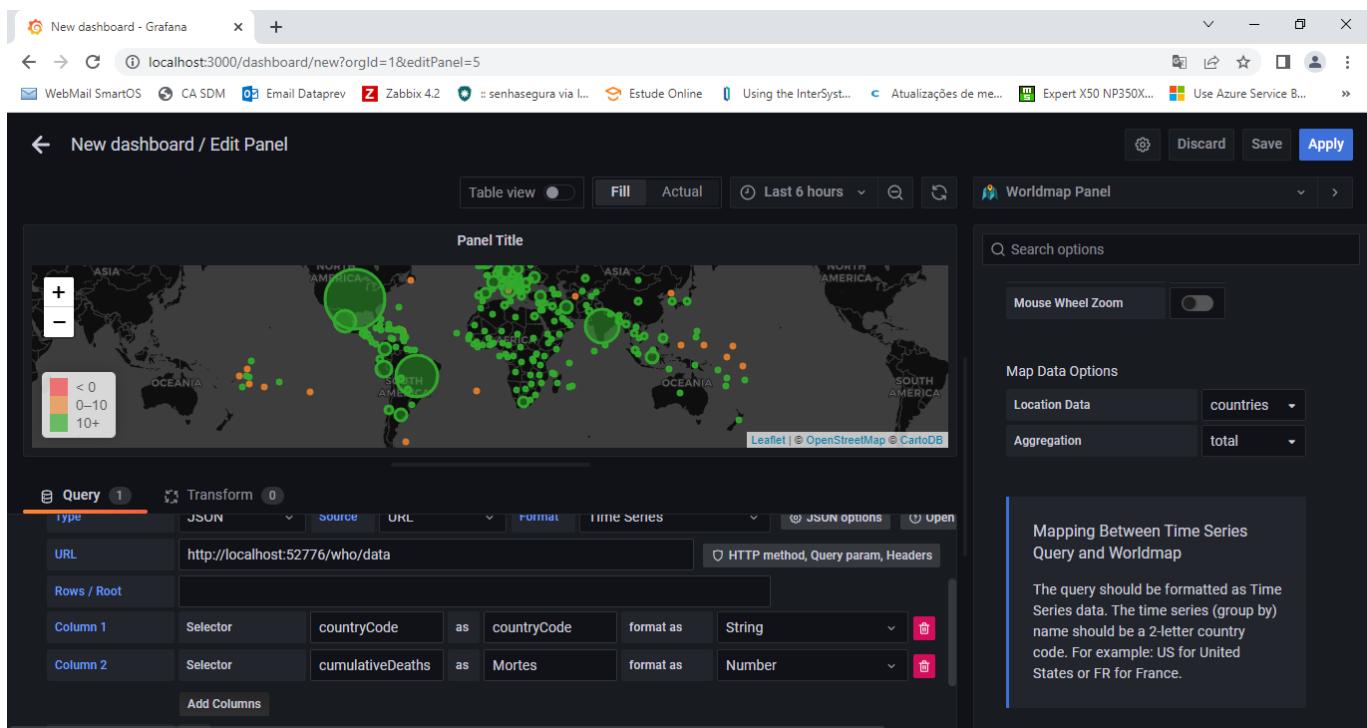
Troque o tipo de visualização para World Map:

Usando o Grafana com o IRIS através do Infinity DataSource

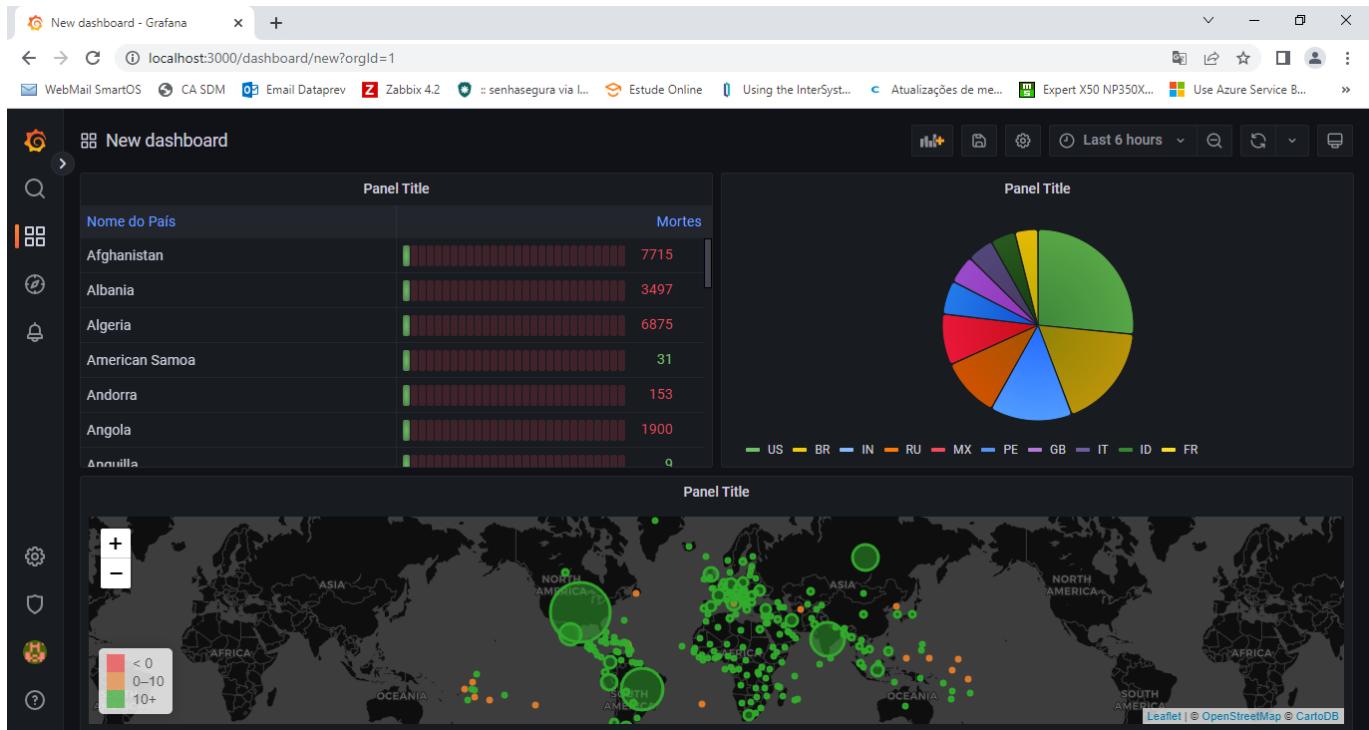
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Mude a coluna de visualização para countryCode e o Format para Time Series:



Pronto. Temos nosso dashboard montado, apresentando dados retornados do Iris via REST:



Podemos fazer mais ajustes, como trocar o título dos painéis, fazer customizações, etc. Agora é refinar o dashboard.

A grande vantagem aqui é que qualquer origem de dados do Iris pode virar um dashboard. Podemos pegar uma aplicação legada, construir uma classe REST que vá disponibilizar as informações e publicar um dashboard com mínimo esforço.

Utilizando o barramento de integração, o Iris pode se tornar o local para centralizar a publicação de diversos dashboards que conterão dados coletados de diversos sistemas.

Podemos ainda ter uma instância de Iris que seja um mirror de outra, de Produção, criada apenas para a geração de reports.

[#InterSystems IRIS](#)

URL de origem: <https://pt.community.intersystems.com/post/usando-o-grafana-com-o-irisatrav%C3%A9s-do-infinity-datasource>