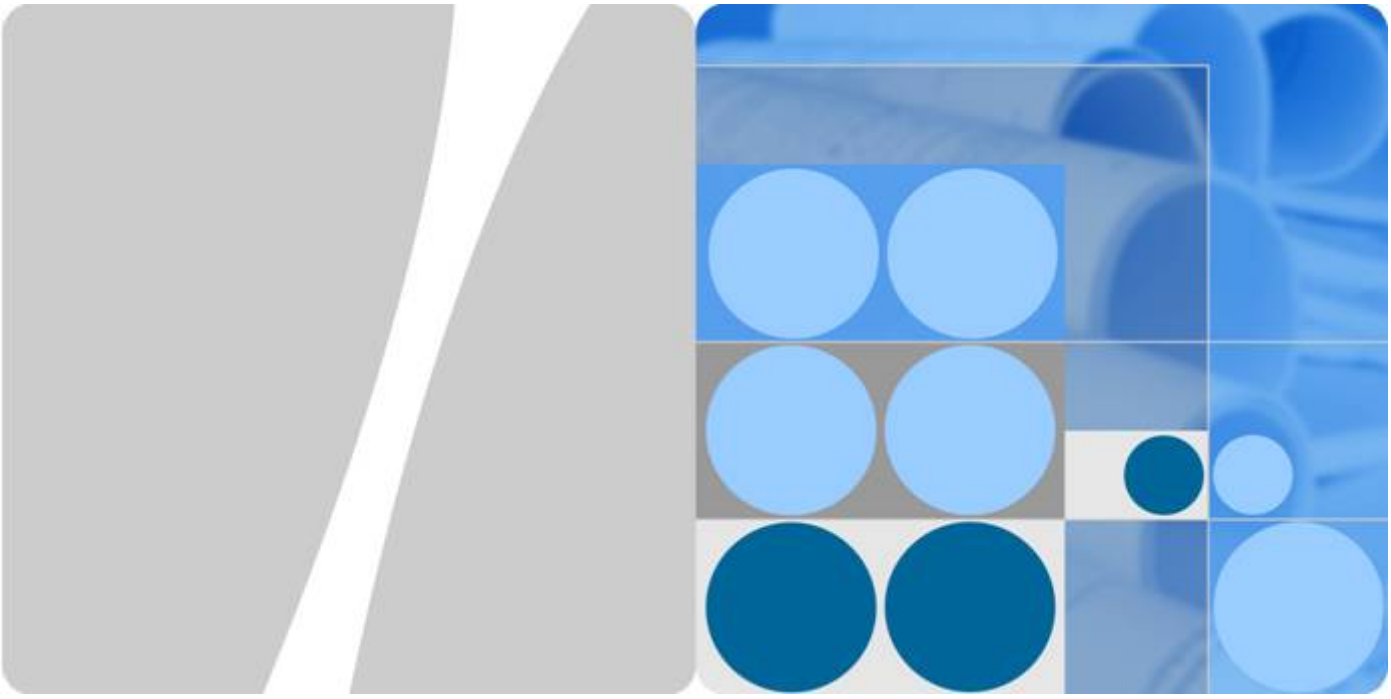

Data Lake Visualization

Best Practices

Issue 01

Date 2019-04-26

HUAWEI TECHNOLOGIES CO., LTD.

HUAWEI

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1 Viewing Enterprise Security Situations on DLV

This document describes how to create a screen for monitoring enterprise security situations. The created screen will provide visualized decision-making basis for processing enterprise security events.

DLV has the following characteristics:

- Real-time security awareness: real-time security detection, effectively preventing security incidents
- Access source tracking: 2D and 3D map components, intuitively tracking security threat sources
- High-risk attack source capturing: table components available to list risk levels and help quickly capture high-risk attack sources

Solution Design

When designing a solution, determine the content to be displayed and select components based on the content. The content to be displayed is classified into the following types: access information and attack information.

The following table lists the access information and the required component types:

Access Information	Component Type
Access region ranking	Region ranking
Website access region	China map
Access trend	Line chart
Real-time attack information	Rotation table

The following table lists the attack information and the required component types:

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Attack Information	Component Type
Attack region ranking	Region ranking
Attack type ranking	Rotation table
Attack trend	Line chart
Attack source	Globe

Preparations

- Relational Database Service (RDS) has been enabled and instance **rds-secure0** for which **DB Engine** is set to **MySQL** has been created.
- Cloud Data Migration (CDM) has been enabled and cluster **cdm-secure** has been created.

  NOTE

  When you create cluster **cdm-secure** on the **Buy CDM** page, ensure that information about the VPC, subnet, and intranet security group information must be the same as that configured on the page for buying instance **rds-secure0**.

Preparing Data

Download data from **https://dlv-public-image.obs.cn-north-1.myhuaweicloud.com/demo1.zip** to the local host.

Select **rds-secure0** and enter the username and password to log in to RDS for MySQL. In the root directory of **rds-secure0**, create database **dlv**, and choose **Import·Export** > **Export**.

Creating an RDS for MySQL Data Connection

1. Log in to the DLV console.
2. Choose **Data** > **New Data Connection**.
3. In the **Data Connection Type** drop-down list, select **RDS for MySQL**.
4. Set the name, port, username, password, and agent of RDS for MySQL. Click **Database**, select **dlv**, and click **OK**.

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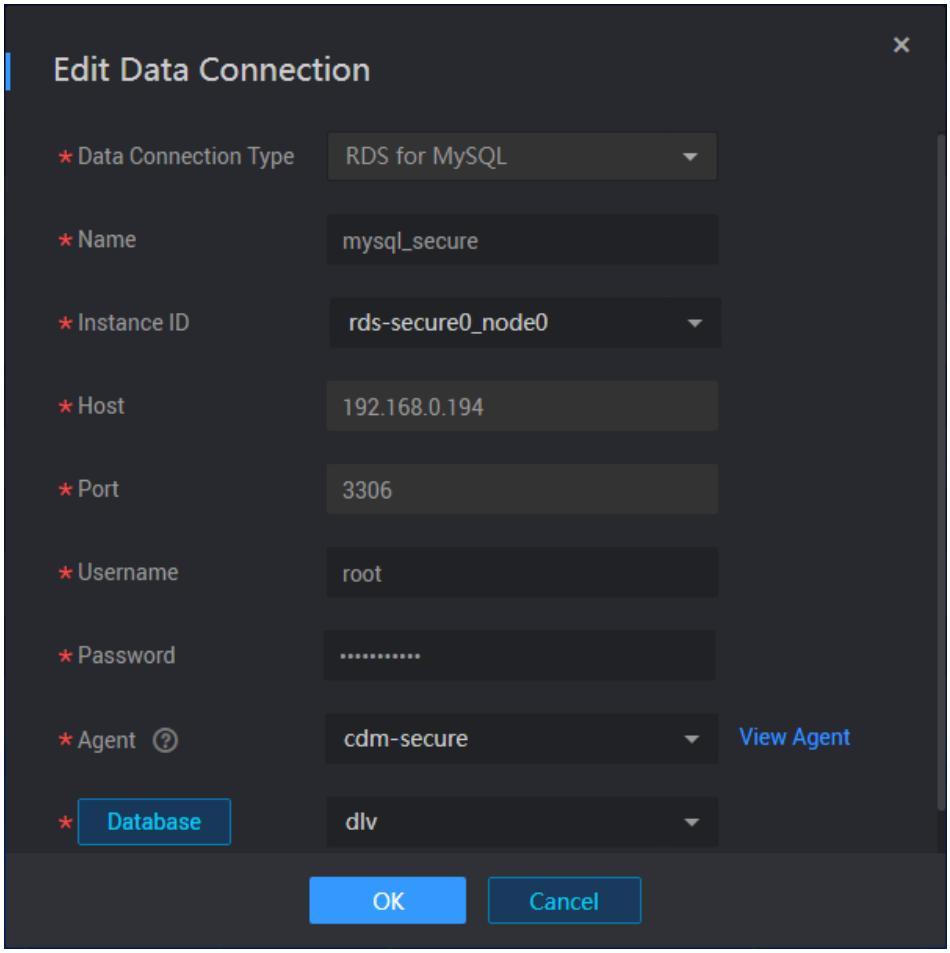
Figure 1-1 Creating an RDS for MySQL data connection



Creating a Screen

Step 1 Log in to the DLV console.

Step 2 **Screens** > **New Screen**.

Step 3 Select a blank template and create a screen.

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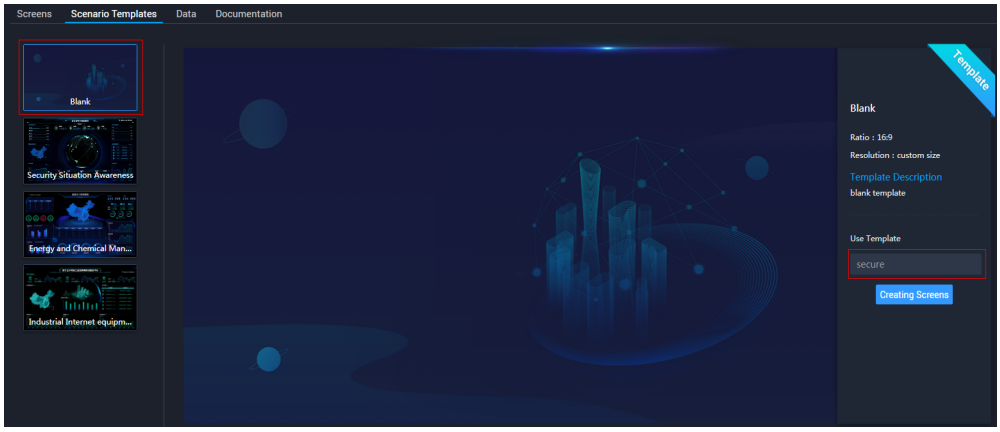
Figure 1-2 Creating a screen

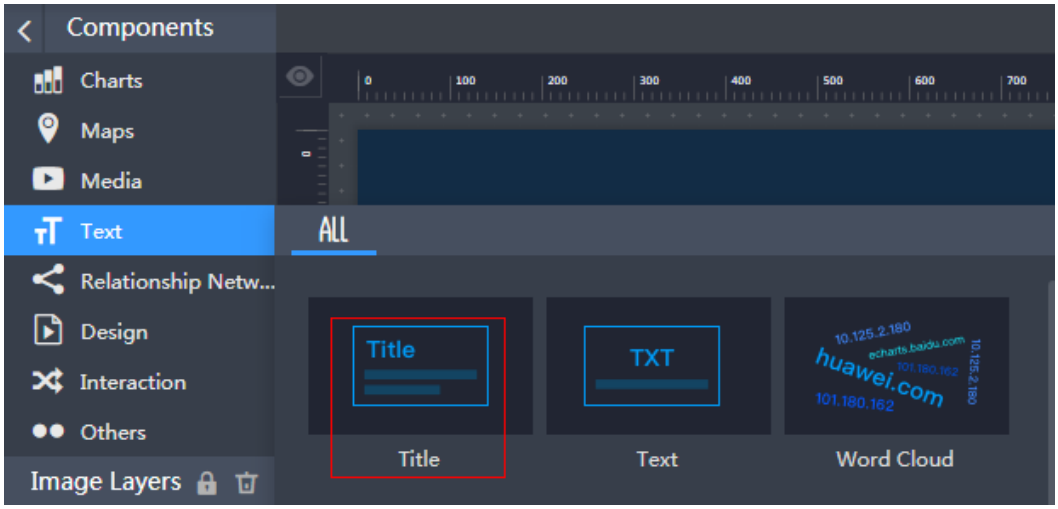


----End

Adding a Title Component

Step 1 In the **Text** component library, select a **Title** component.

Figure 1-3 Adding a title component



Step 2 On the **Data** panel, set **value** to **Awareness of enterprise security situations**.

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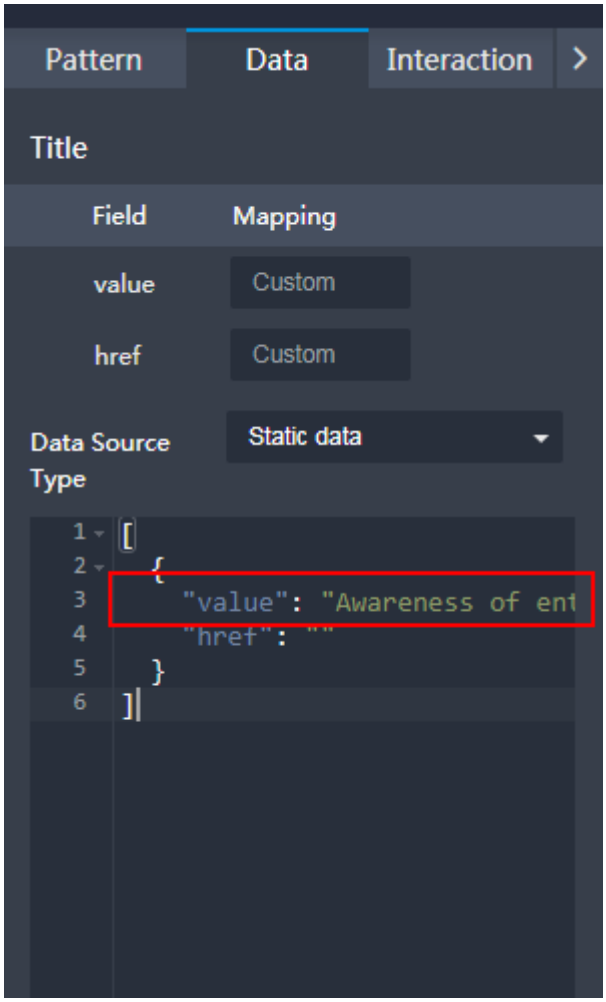
Figure 1-4 Data display



Step 3 Click the **Pattern** panel and configure the text style of the title.

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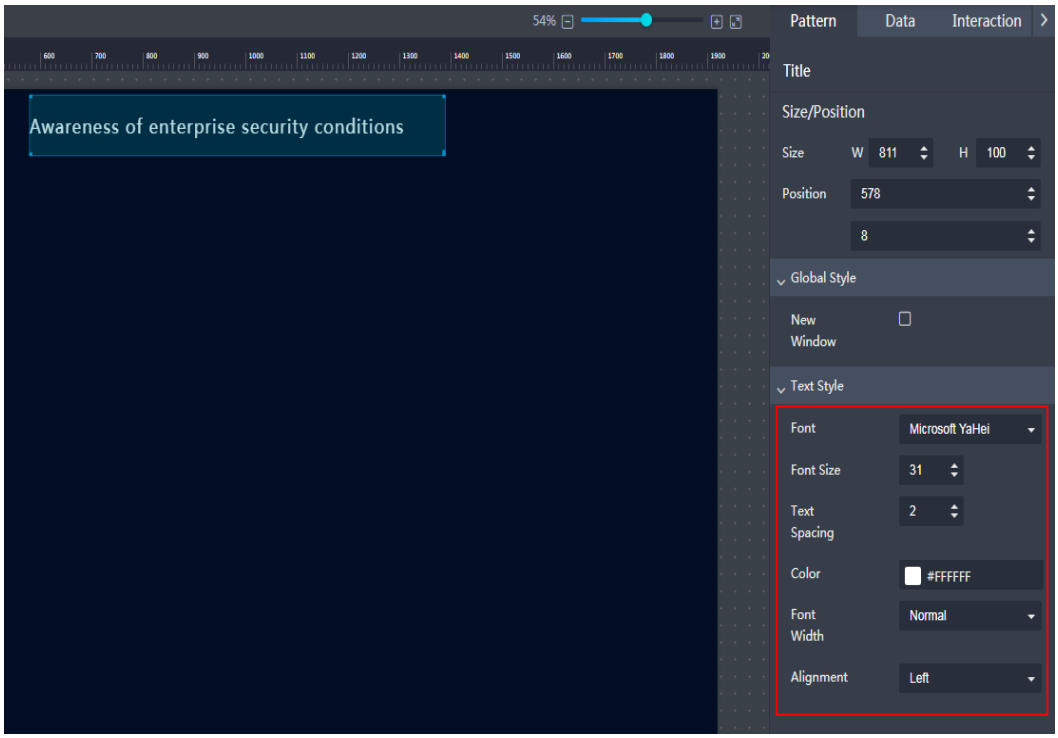
Figure 1-5 Configuring the title pattern

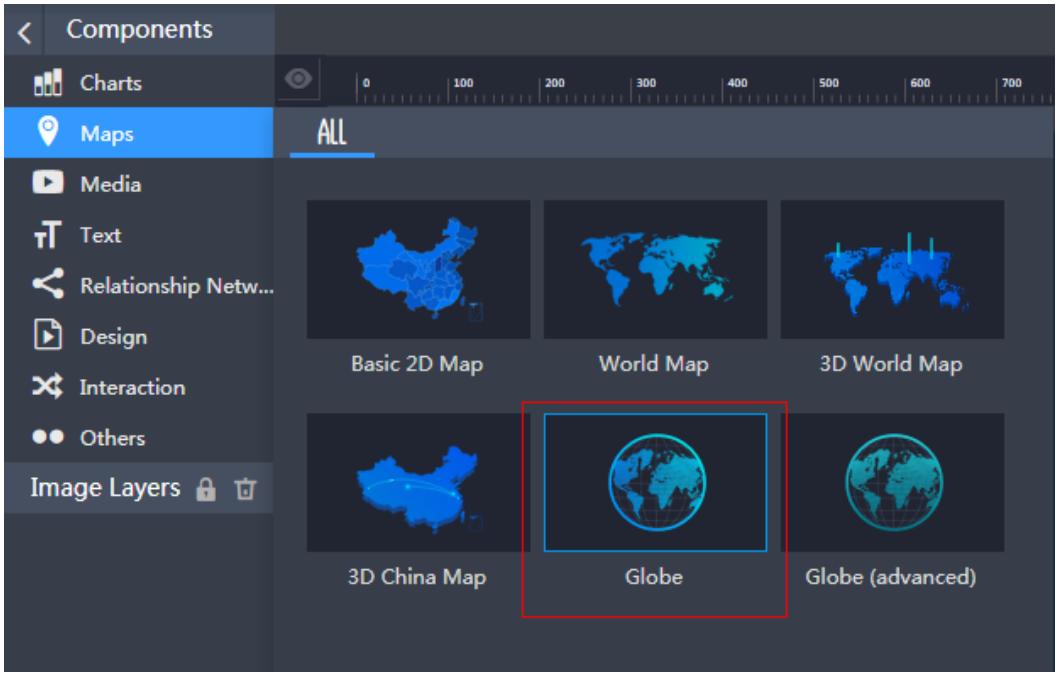


----End

Adding a Globe Component

Step 1 In the **Globe** component library, select a **Globe** component.

Figure 1-6 Adding a globe component



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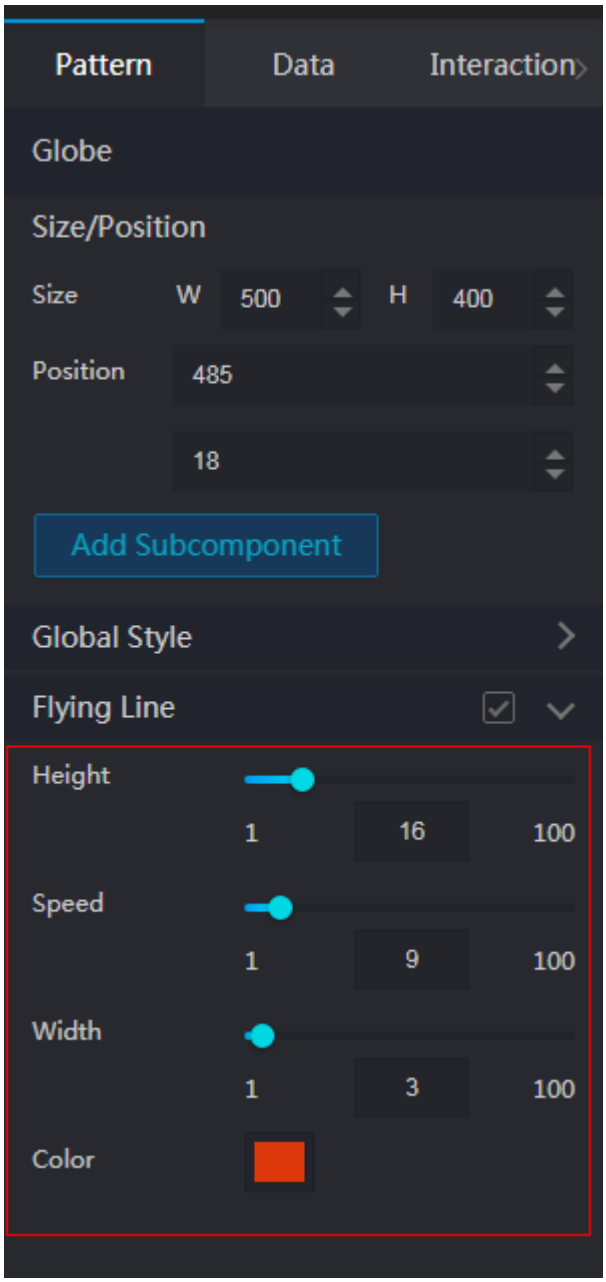
Step 2 In the **Pattern** panel, configure the color style of the flying lines.

Figure 1-7 Configuring flying lines



Step 3 On the **Data** panel, set **from** to **attack_source** and **to** to **attack_dest**. Select **Database** from the **Data Source Type** drop-down list and select an existing data connection from the **Data Connection** drop-down list. Query the attack data using SQL statements, and click **View Response Result**. Different SQL statements lead to different data response results. You can enter different SQL statements based on specific attack types.

- SQL statement for querying XSS attacks: SELECT CONCAT(t.src_lng , ',', t.src_lat) as attack_source, CONCAT(t.target_lng, ',', t.target_lat) as attack_dest, COUNT(1) AS attack_num FROM dlv.ods_attack_log t where t.attack_type="XSS" GROUP BY t.src_lng , t.src_lat , t.target_lng , t.target_lat

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- SQL statement for querying CSRF attacks: SELECT CONCAT(t.src_lng , ',', t.src_lat) as attack_source, CONCAT(t.target_lng, ',', t.target_lat) as attack_dest, COUNT(1) AS attack_num FROM dlv.ods_attack_log t where t.attack_type="CSRF" GROUP BY t.src_lng , t.src_lat , t.target_lng , t.target_lat
- SQL statement for querying sensitive_file attacks: SELECT CONCAT(t.src_lng , ',', t.src_lat) as attack_source, CONCAT(t.target_lng, ',', t.target_lat) as attack_dest, COUNT(1) AS attack_num FROM dlv.ods_attack_log t where t.attack_type="sensitive_file" GROUP BY t.src_lng , t.src_lat , t.target_lng , t.target_lat

Figure 1-8 XSS data response results



Step 4 On the **Pattern** panel, click **Add Subcomponent** and select **Globe flying line** from the drop-down list.

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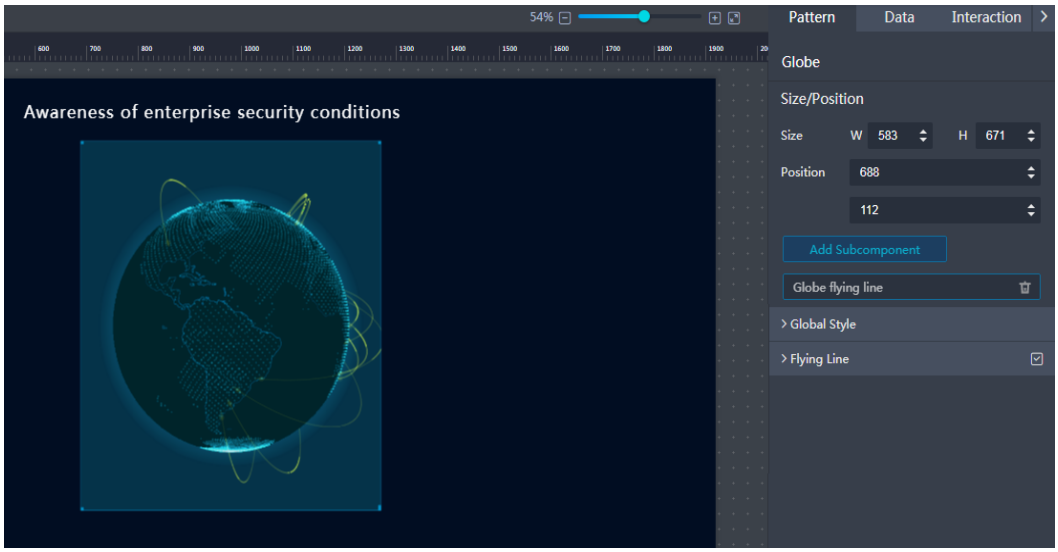
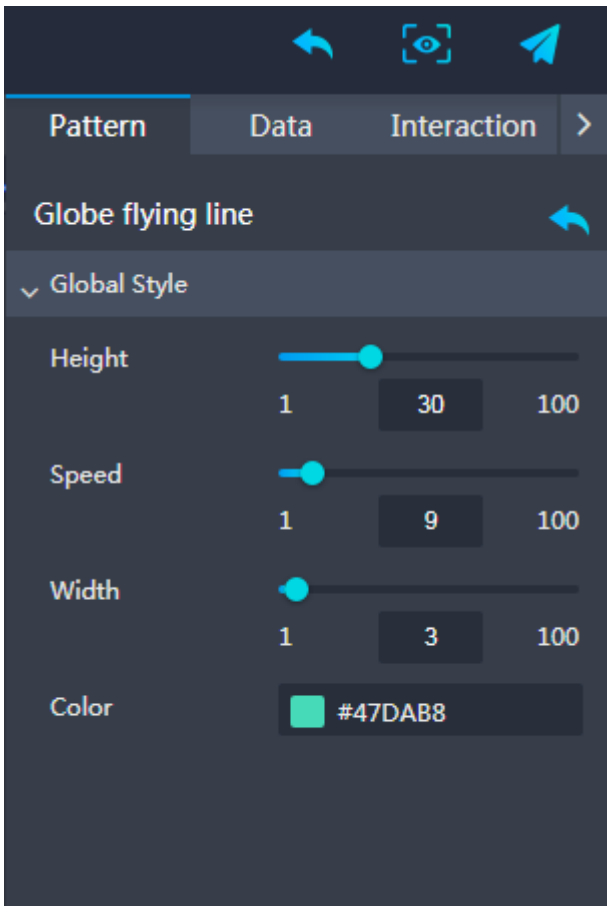
Figure 1-9 Adding a flying line



Step 5 Click **Flying line**. The **Flying line** panel is displayed. In the **Pattern** panel, configure the color style of the flying lines.

Figure 1-10 Configuring flying lines



Step 6 Repeat Step 3 to configure the flying line data on the **Data** panel, enter the SQL statement for querying CSRF attacks, and click **View Response Result**.

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Step 7 Repeat **Step 4**, **Step 5**, and **Step 6** to configure the pattern and data of another flying line, enter the SQL statement for querying sensitive_file attacks, and click **View Response Result**.

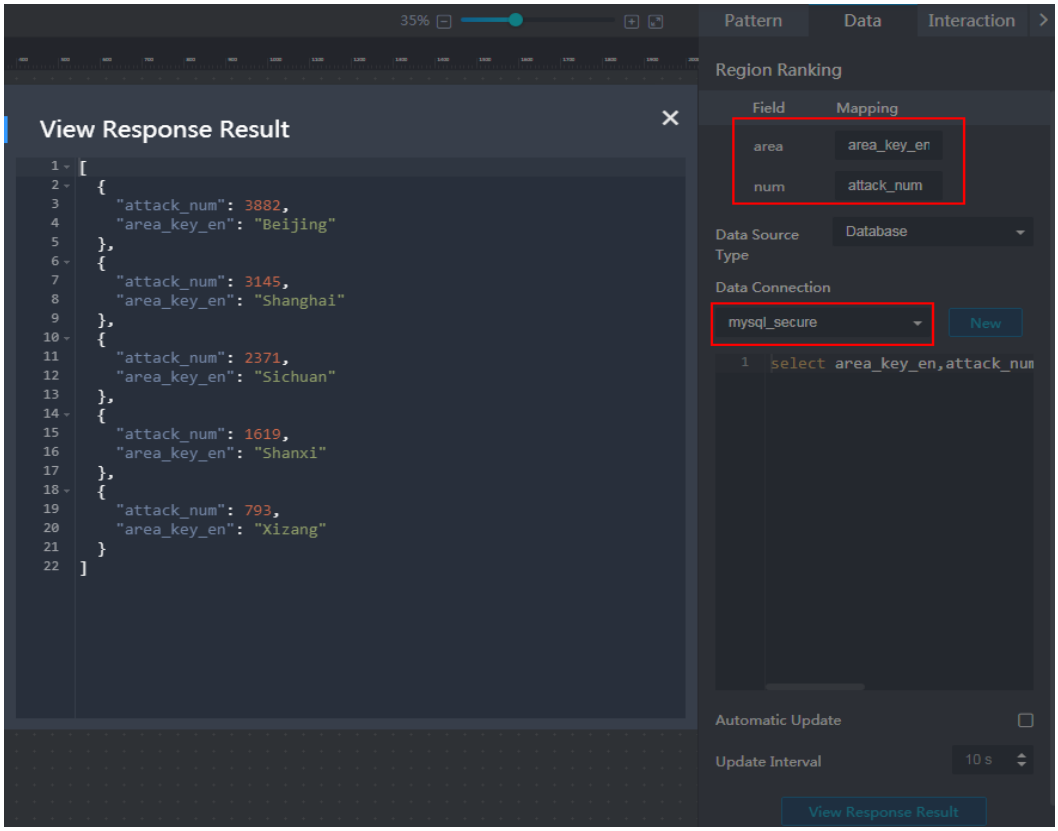
----End

Adding a Region Ranking Component

Step 1 In the **Charts** component library, select a **Region Ranking** component.

Step 2 On the **Pattern** panel, configure the component pattern. On the **Data** panel, set **area** to **area_name_en** and **num** to **pv_num**. In the **Data Source Type** drop-down list, select **Database**. In the **Data Connection** drop-down list, select an existing data connection. Execute SQL statement **select area_name_en,pv_num,percent from dw_pv_country order by 2 desc** to query the access region ranking and then click **View Response Result**.

Figure 1-11 Viewing the response result



Step 3 Drag a **Title** component from the component library, place it above the **Region Ranking** component, and enter **Access Region Ranking** as a title.

Step 4 Right-click the **Region Ranking** component and select **Copy** from the shortcut menu to generate a new **Region Ranking** component.

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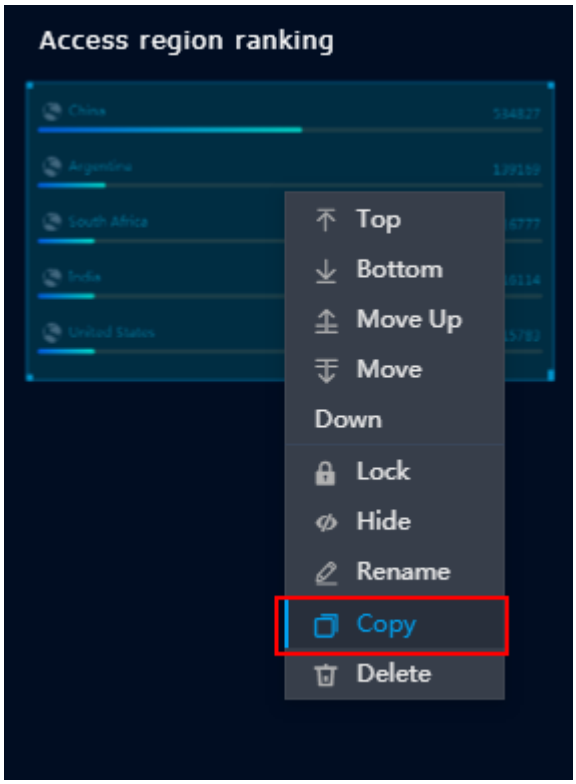
Figure 1-12 Copying a region ranking component



Step 5 Repeat Step 2 to configure the component pattern. On the **Data** panel, set **area** to **area_key_en** and **num** to **attack_num**. Execute the following SQL statement: **select area_key,attack_num from dw_attack_province order by 2 desc limit 5**

Step 6 Drag a **Title** component from the component library, place it above the new **Region Ranking** component, and enter **Attack Region Ranking** as a title.

Figure 1-13 Adding a Region Ranking Component



----End

Adding Other Components

Step 1 Add **Basic 2D Map** and **Title** components. Name the **Title** component **Website access region**. Configure **Pattern** and **Data** of the **Basic 2D Map** component.

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After configuring mapping on the **Data** panel of the basic 2D map, execute the following SQL statement: select area_key as name,pv_num as value from dw_pv_province

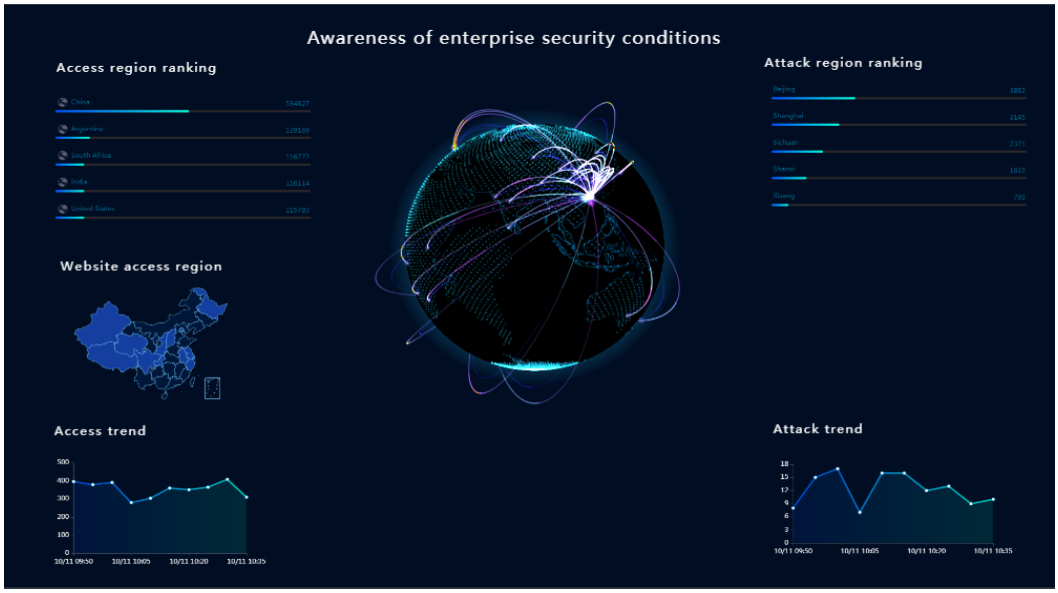
Step 2 Add **Line Chart** and **Title** components. Name the **Title** component **Access trend**. Configure **Pattern** and **Data** of the **Line Chart** component.

After configuring mapping on the **Data** panel of the line chart, execute the following SQL statement: select date_hour,pv_num from (select date_hour,pv_num from dw_pv_hour order by 1 desc limit 10) pv_hour order by 1

Step 3 Copy the line chart and title components in **Step 2** to generate a new pair of line chart and title components. The new title component is named **Attack Trend**. Configure **Pattern** and **Data** of the new line chart.

After configuring mapping on the **Data** panel of the line chart, execute the following SQL statement: select date_hour,attack_num from (select date_hour,attack_num from dw_attack_hour order by 1 desc limit 10) attack_hour order by 1

Figure 1-14 Adding basic 2D map and line chart components



Step 4 Add two **Rotation Table** components to display attack details and attack type ranking.

After configuring mapping on the **Data** panel, execute the following SQL statement:

```
SELECT FROM_UNIXTIME(FLOOR(ROUND(date_time / 1000)),'%Y-%m-%d %H:%i:%S') as
date_time,province_key_en,CONCAT('***', SUBSTRING(url, 20, 30), '***')
url,t1.type_name_en,(case risk_level when '8' then 'High-risk' when '7' then
'Middle-risk'when '6' then 'Middle-risk'when '5' then 'Low-risk'when '4' then
'Low-risk' else 'Low-risk' end)as risk_levelFROMods_attack_log t,dim_attack_type
t1WHERERt.attack_type = t1.type_codeAND province_key IS NOT NULL ORDER BY 1
DESCLIMIT 10;
```

After configuring mapping on the **Data** panel, execute the following SQL statement:

```
select attack_type_name_en, (case risk_level when '8' then 'High-risk'
when '7' then 'Middle-risk
when '6' then 'Middle-risk'
when '5' then 'Low-risk'
when '4' then 'Low-risk' else 'Low-risk' end)
as risk_level,attack_num from dw_attack_type order by 3 desc;
```

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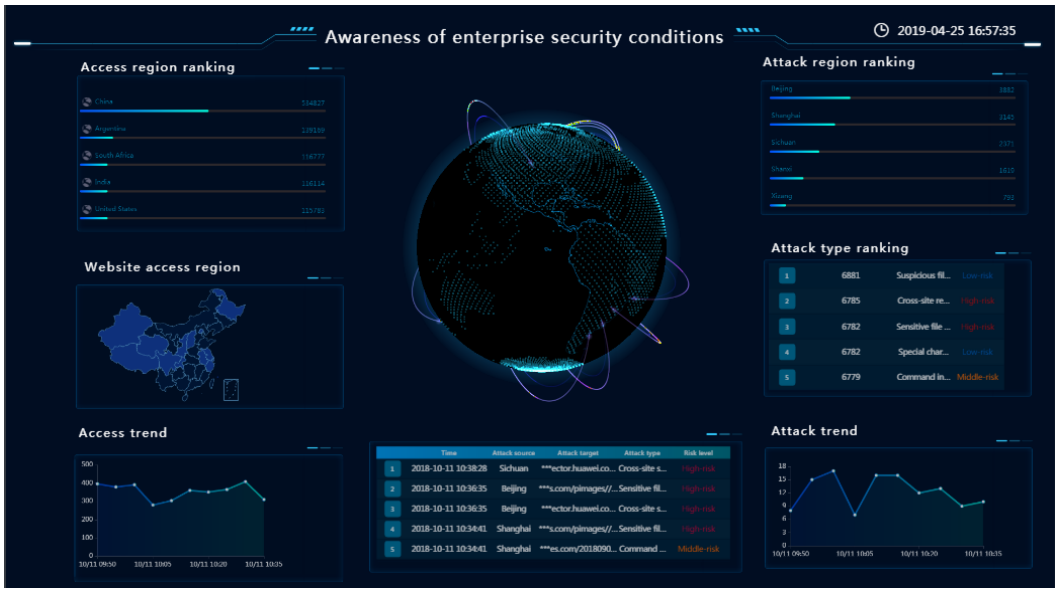
Step 5 To differentiate risk levels, set the red color to indicate the critical level in **Condition Style** on the **Data** panel.

Figure 1-15 Rotation table



Step 6 Add other components such as Custom Background, Border, and Timer Selector. The following figure shows the final display effect of the security situation awareness screen:

Figure 1-16 Security situation awareness screen



----End

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