

# Data Lake Visualization

## Service Overview

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# 1 What Is DLV?

Data Lake Visualization (DLV) is a one-stop data visualization platform that adapts to various data sources in the cloud or on-premises. By dragging and dropping 2D and 3D visual components on DLV, you can quickly customize and create a data screen of your own.

## Edition Specifications

DLV provides three editions: Basic, Advanced, and Professional. For details about edition specifications, see [Table 1-1](#).

**Table 1-1** Edition specifications

Function	Description	Professional
Workspaces	Number of workspaces that can be created	20
Publish & Share	Public without restrictions (The access URL of a screen is accessible without restrictions.)	√
	Publish with passwords	√
	Publish with tokens	√
Scenario Template	Security Situation Awareness, Energy and Chemical Industry Management, and Real-Time Monitoring of Cloud Computing-Driven Industrial Internet	√
	Other templates (continuously updated): Sales Cockpit, Smart Tourism, Medical Consumables, Order Monitoring, Galaxy Data Monitoring, Data Monitoring Platform, and Education Digitalization Distribution, Big Data Platform for Transportation Industry, and Data Center Cloud Monitoring	√
Templates	Number of available templates	All templates are available.

Function	Description	Professional
Max. Number of Screens	Maximum number of screens	50
Data Source Type	RDS for MySQL, RDS for GaussDB, MySQL, CSV, and static JSON	√
	RDS for PostgreSQL, RDS for SQL Server, GaussDB(DWS), OBS, MapReduce Service (MRS) Hive, MRS SparkSQL, API, HUAWEI CLOUD APIG, and DAYU.	√
	MRS ClickHouse, PostgreSQL, Oracle, SQL Server, GaussDB(for Influx), CSS Elasticsearch, and Elasticsearch	√
Chart	<ul style="list-style-type: none"> <li>● <b>Basic chart components:</b> Line, bar, pie, percentage, radar, scatter, bubble, region ranking, combination, horizontal bar, dual-Y axis line, dual-Y axis combination, radial bar, horizontal capsule bar, scanning radar, image video, carousel, title, text, word cloud, timer, carousel table, ticker board, marquee, carousel list bar, key-value table, relationship network, border, decoration, custom background, time selector, WT bar, WT line, WT horizontal bar, WT radar, WT scatter, WT combination, WT dual-Y line, and WT dual-Y combination</li> <li>● <b>Basic 2D map subcomponents:</b> Flying line, drilldown, heatmap layer, and hover text</li> <li>● <b>World map subcomponents:</b> Flying line and heatmap layer</li> </ul>	√
	<ul style="list-style-type: none"> <li>● <b>Advanced chart components:</b> Liquid, horizontal stacked bar, WT horizontal stacked bar, rose, horizontal bi-directional bar, heatmap, step, FLV video stream player, rectangle tree, gauge, and funnel</li> <li>● <b>Basic 2D map subcomponents:</b> Scatter, advanced scatter layer, and carousel video</li> <li>● <b>World map subcomponents:</b> Scatter and advanced scatter layer</li> </ul>	√
	<p><b>Professional chart components:</b> WT line waterfall, sunburst, radial tree, Sankey, arc in polar coordinates, arc, tree, progress, bar heatmap, and RTMP video stream player</p>	√

Function	Description	Professional
Map Component	<b>3D map component:</b> globe, globe (advanced)	√
Interaction Support	Callback variables	√
	Callback custom variables	√
	Basic interaction components: full screen, iFrame, search, timeline, tab list, and geographical search	√
	Advanced interaction components: tab, check box, multi-option drop-down list, and vertical timeline	√
Permission	Top, bottom, up, down, copy, delete, alignment, and layout	√
	Lock/unlock, hide/display, and rename	√
Auxiliary Function	Rulers and auxiliary lines	√

# 2 Advantages

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## Diverse Visual Components

DLV provides various visual components, including common data charts, graphs, and controls.

## Professional Display of Geographical Information

DLV supports display of geographic tracks, flying lines, heatmaps, regions, and 3D globe, and allows layering of geographical data.

## User-friendly GUI

DLV allows you to build screens only by drag-and-drop without programming. You can customize the screen size based on the device resolution.

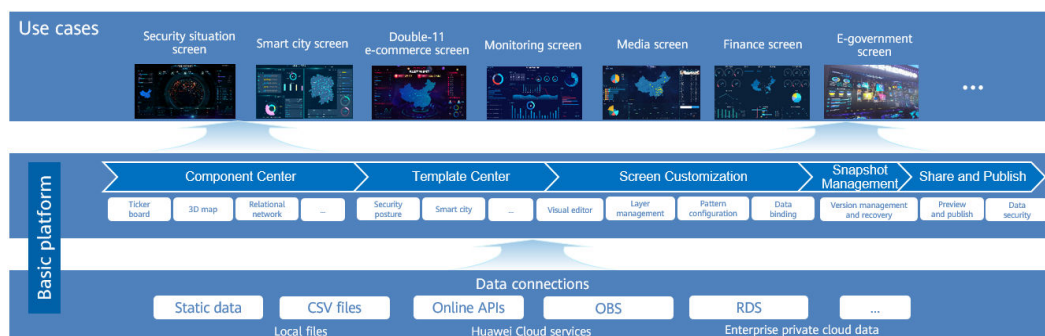
## Various Data Sources

DLV can seamlessly integrate with Data Warehouse Service (DWS), Data Lake Insight (DLI), Relational Database Service (RDS), and Object Storage Service (OBS), and supports local CSV files, online APIs, and the private cloud data of enterprises.

# 3 Architecture

Figure 3-1 shows the architecture of DLV.

Figure 3-1 DLV architecture





# 4 Use Cases

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## Security Situation Awareness

DLV presents details about every security incident on screens to help trace all security intrusions, which facilitates security incidents handling of cloud enterprises.

### Benefits of Security Situation Awareness

- Real-time security awareness: Detect security threats in real time, effectively preventing security incidents.
- Access source tracking: Intuitively track security threat sources with 2D and 3D map components.

## Operation Management Dashboard

By accessing enterprise operation data, you can obtain information on production status, product quality, and sales status, providing a visualized decision-making basis for enterprise managers.

### Benefits of Operation Management Dashboard

- Real-time visibility of operational status: The operational status of an enterprise is displayed in a visualized manner in real-time, allowing enterprise managers to stay updated on the current status of the enterprise.
- Easy to use: The component-based drag-and-drop orchestration makes it easy to use.

# 5 Functions

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## Data

On the **Data** tab page, you can create data connections to connect to your data sources. The following data sources are supported:

- OBS
- DWS
- MRS Hive
- MRS SparkSQL
- RDS for MySQL
- RDS for PostgreSQL
- RDS for SQL Server
- Local CSV files
- Local self-built MySQL, PostgreSQL, Oracle, and SQL Server

## Screens

This section describes how to create a screen by using a scenario template and how to edit, copy, delete, preview, and publish existing screens.

## Scenario Templates

DLV provides scenario-based templates to help you quickly design and configure screens that address your specific application requirements. DLV provides the following scenario templates that are continuously updated: Blank Template, Security Situation Awareness, Energy and Chemical Management, Real-Time Monitoring Platform for Cloud Computing-based Industrial Internet, Sales Cockpit, Smart Tourism, Medical Consumables, Order Monitoring, Galaxy Data Monitoring, Data Monitoring Platform, Education Digitalization Distribution, Big Data Platform for Transportation Industry, and Data Center Cloud Monitoring.

## Preview

You can preview screens in real time to learn screen effect whenever you want.

## **Publish**

DLV allows you to publish and share your latest or historical version of screens.

# 6 Related Services

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## CDM

DLV uses Cloud Data Migration (CDM) as a connection agency to access data sources in a Virtual Private Cloud (VPC).

## IAM

Identity and Access Management (IAM) authenticates access to DLV.

# 7 Permissions Management

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If you need to assign different permissions to employees in your enterprise to access your DLV resources on the HUAWEI CLOUD, IAM is a good choice for fine-grained permissions management. IAM provides identity authentication, permissions management, and access control, helping you secure access to your HUAWEI CLOUD resources.

With IAM, you can use your HUAWEI CLOUD account to create IAM users, and assign permissions to the users to control their access to specific resources. For example, some software developers in your enterprise need to use DLV resources but should not be allowed to delete the resources or perform any other high-risk operations. In this scenario, you can create IAM users for the software developers and grant them only the permissions required for using DLV resources.

If your HUAWEI CLOUD account does not require individual IAM users for permissions management, skip this section.

IAM can be used free of charge. You pay only for the resources in your account. For more information about IAM, see the [IAM Service Overview](#).

## DLV Permissions

By default, new IAM users do not have permissions assigned. You need to add a user to one or more groups, and attach permissions policies or roles to these groups. Users inherit permissions from the groups to which they are added and can perform specified operations on cloud services based on the permissions.

DLV is a project-level service deployed and accessed in specific physical regions. To assign DLV permissions to a user group, specify the scope as region-specific projects and select projects (for example, ap-southeast-1 in CN-Hong Kong) for the permissions to take effect. If **All projects** is selected, the permissions will take effect for the user group in all region-specific projects. When accessing DLV, the users need to switch to a region where they have been authorized to use this service.

You can grant users permissions by using roles and policies.

- **Roles:** A type of coarse-grained authorization mechanism that defines permissions related to user responsibilities. This mechanism provides only a limited number of service-level roles for authorization. When using roles to grant permissions, you need to also assign other roles on which the

permissions depend to take effect. However, roles are not an ideal choice for fine-grained authorization and secure access control.

DLV does not provide IAM role-based permission control.

- Policies:** A type of fine-grained authorization mechanism that defines permissions required to perform operations on specific cloud resources under certain conditions. This mechanism allows for more flexible policy-based authorization, meeting requirements for secure access control. For example, you can grant ECS users only the permissions for managing a certain type of ECSs.

Most policies define permissions based on APIs. Fine-grained access control of DLV is based on workspace roles. Users can associate roles with permissions to meet different authorization requirements. For details about how to grant the DLV role, see [Creating Users and Granting DLV Permissions](#).

[DLV Roles and Permissions](#) lists the common operations supported by each system-defined policy or role of DLV. Select the policies or roles as required.

[Table 7-1](#) lists all the system-defined roles and policies supported by DLV.

**Table 7-1** System-defined roles and policies supported by DLV

Policy Name	Description	Type	Dependency
DLV FullAccess	Administrator permissions for DLV. Users granted these permissions can perform all operations on DLV.	System - defined policy	-

DLV does not strongly depend on any services. However, DLV supports multiple cloud services as data sources. To use the data sources, you need to have system permissions of the related cloud services. When configuring permissions for the DLV user group, you need to select the system policies and system roles of related cloud services in the same project. [Table 7-2](#) describes the system permissions of the cloud services on which DLV depends. When configuring permissions for DLV users, grant permissions as follows:

- If policy-based access control has been enabled, select the system policies of the services on which the policy-based access control depends in the same project. If the services on which the policy-based access control depends do not have system policies, select the system roles of the services.
- If policy-based access control is not enabled, select the system roles of the required services in the same project.

**Table 7-2** System permissions of other services on which DLV depends

Service	Mandatory	Policy Name	Role Name
OBS	No	OBS OperateAccess	OBS Buckets Viewer

Service	Mandatory	Policy Name	Role Name
DWS	No	DWS ReadOnlyAccess	DWS Administrator
DLI	No	-	DLI Service Admin
MRS	No	MRS ReadOnlyAccess	MRS Administrator
RDS	No	RDS ReadOnlyAccess	RDS Administrator
CDM	No	CDM ReadOnlyAccess	CDM Administrator

## DLV Roles and Permissions

**Table 7-3** Workspace management permissions

Permission	Administrator	Developer	Analyst	Visitor
Creating workspaces	N	N	N	N
Deleting workspaces	N	N	N	N
Modifying workspaces	Y	N	N	N
Setting the default workspace	Y	N	N	N
Querying workspaces	Y	Y	Y	Y
Adding workspace members	Y	N	N	N
Deleting workspace members	Y	N	N	N
Modifying workspace members	Y	N	N	N
Querying workspace members	Y	Y	Y	Y
Obtaining a member list	Y	N	N	N

 **NOTE**

- HUAWEI CLOUD accounts or the users with the **DLV FullAccess** permission can perform all operations on DLV by default.
- Only the users with the **DLV FullAccess** or **Tenant Administrator** permission can purchase DLV packages, create, delete, and modify workspaces, and set the default workspace.

The **Tenant Administrator** permission has all cloud service administrator permissions except the IAM management permission. For security purposes, you are not advised to grant this permission to IAM users. Exercise caution when performing this operation.

- By default, the HUAWEI CLOUD account has permission to add workspace members. If a sub-user of an account needs to add workspace members, the account needs to grant the required permissions to the sub-user. Only the following three types of sub-user have permission to add workspace members:
  - User who is assigned the DLV workspace administrator role and has the **IAM ReadOnlyAccess** permission
  - User who has the **DLV FullAccess** permission
  - User whose has the **Tenant Administrator** permission

To grant the preceding permissions to a sub-user, log in to the IAM console, create a user group, grant the required permissions to the user group, and add the sub-user to the user group.

**Table 7-4** Data connection permissions

Permission	Administrator	Developer	Analyst	Visitor
Creating data connections	Y	Y	N	N
Deleting data connections	Y	Y	N	N
Modifying data connections	Y	Y	N	N
Obtaining data connections	Y	Y	Y	Y
Testing data connections	Y	Y	N	N
Obtaining the CDM cluster list (depending on the CDM system policy ReadOnlyAccess)	Y	Y	Y	Y

**Table 7-5** Screen permissions

Permission	Administrator	Developer	Analyst	Visitor
Creating screens	Y	Y	Y	N
Deleting screens	Y	Y	Y	N
Obtaining a screen list	Y	Y	Y	Y



Permission	Administrator	Developer	Analyst	Visitor
Configuring screen attributes (key sharing and validity period)	Y	Y	Y	N
Previewing screens	Y	Y	Y	Y
Copying screens	Y	Y	Y	N
Publishing screens	Y	Y	Y	N
Canceling screen publishing	Y	Y	Y	N
Creating screen snapshots	Y	Y	Y	N
Deleting screen snapshots	Y	Y	Y	N
Editing screen snapshot remarks	Y	Y	Y	N
Setting the screen snapshot status	Y	Y	Y	N
Obtaining a screen snapshot list	Y	Y	Y	Y
Importing screens	Y	Y	Y	N
Exporting screens	Y	Y	Y	N

**Table 7-6** Screen dashboard permissions

Permission	Administrator	Developer	Analyst	Visitor
Editing screen configurations	Y	Y	Y	N
Uploading background images	Y	Y	Y	N
Updating cover screenshots of screens	Y	Y	Y	N
Editing data connections and interaction (data source type, mapping, automatic update request, and request interval)	Y	Y	Y	N
Viewing response results	Y	Y	Y	Y
Obtaining screen details	Y	Y	Y	Y

Permission	Administrator	Developer	Analyst	Visitor
Updating components	Y	Y	Y	N
Adding components	Y	Y	Y	N
Editing component patterns	Y	Y	Y	N
Configuring component attributes (lock/unlock, hide, and rename)	Y	Y	Y	N
Copying screen components	Y	Y	Y	N
Deleting screen components	Y	Y	Y	N
Updating ruler lines	Y	Y	Y	N

**Table 7-7** Screen combination permissions

Permission	Administrator	Developer	Analyst	Visitor
Creating screen combinations	Y	Y	Y	N
Deleting screen combinations	Y	Y	Y	N
Editing screen combinations	Y	Y	Y	N
Obtaining screen combinations	Y	Y	Y	Y
Publishing screen combinations	Y	Y	Y	N
Canceling screen combination publishing	Y	Y	Y	N

**Table 7-8** Open management permissions

Permission	Administrator	Developer	Analyst	Visitor
Creating applications	Y	Y	N	N

Permission	Administrator	Developer	Analyst	Visitor
Obtaining an application list	Y	Y	Y	Y
Editing applications	Y	Y	N	N
Deleting applications	Y	Y	N	N
Resetting keys	Y	Y	N	N

## Helpful Links

- [IAM Service Overview](#)
- [Creating Users and Granting DLV Permissions](#)

# 8 Billing

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DLV supports the yearly/monthly billing mode. The total price of a DLV package will be automatically calculated so that you can purchase it with one click.

DLV is free for use during open beta test (OBT).

# 9 Constraints

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Before using DLV, be aware of the following use restrictions:

- DLV can be used only on PCs. Compatibility with other terminals are not ensured.
- The supported browser types and versions are listed as follows:
  - Google Chrome 59 or later
- DLV does not support CDM (2.9 or later) as the network proxy.

# 10 Basic Concepts

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## Regions and AZs

For more information, see [Regions and AZs](#).

## Project

A project is a collection of resources and a minimum authorization unit. Users' resources must be mounted to a project. Projects are used to isolate resources between different departments, different projects, or different environments, such as the R&D environment, test environment, and production environment, in the same project.

## Workspace

A workspace enables the administrator to manage user (member) permissions, resources, and underlying compute engines of DLV.

Each team can have an independent workspace.

You can manage workspaces, data connections, screens, combined screens, and applications only after being added to workspaces and assigned permissions.

In workspace management, the administrator can add other users to the workspace and set roles such as administrator, developer, analyst, and visitor preset by DLV for users to implement multi-role collaborative development.

## Member and Role

A member is a user who has been granted permission to access or use the workspace created on Huawei Cloud. When adding a workspace member, you need to set a role.

A role has a predefined combination of permissions. Different roles are assigned different permissions. After a role is assigned to a member, the member has all the permissions of that role. Each member must have at least one role, but they can have multiple roles assigned at the same time.

A workspace role can be an administrator, developer, analyst, or visitor.

## Data Source

A data source is where data comes from. DLV provides multiple types of data connection: static data, APIs, databases, CSV files, APIG, and OBS.

## Component

A component is a basic configurable module used to create a screen. DLV supports the following types of components: regular charts, maps, media, text, relational networks, materials, interaction, and others.

## Canvas

A canvas is an interface editor used to edit components of DLV. On a canvas, you can design page layout and match colors for components and associate data sources with charts. All applications are published only in the canvas.

## Layer

A layer refers to the precise positioning of a component on a screen. It is similar to a slide that contains elements such as text or graphics and is then combined with other slides in sequence to produce the final effect of a page.

# 11 Quota Description

**Table 11-1** Quota Description

Version	Features	Function Quota (Count)
Basic	Screens	5
	Workspace	2
	Component package	0
Advanced	Screens	20
	Workspace	10
	Component package	4
Professional	Screens	50
	Workspace	20
	Component package	Unlimited

Currently, users of the professional edition can create a maximum of 50 screens during OBT.

For details about how to view and modify the quota, see [Quotas](#).



# 12 Change History

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## V1.7.1-20200830

- **New Functions**

- Animation effect is added to the following components: horizontal bar, horizontal bi-directional bar, bubble, stacked bar, line, combination, dual Y-axis combination, dual Y-axis line, step line, pie, percentage pie chart, radar, scatter, WT bar, WT horizontal bar, WT stacked bar, WT line, WT combination, WT dual Y-axis combination, WT dual Y-axis line, WT radar, and WT scatter.
- The RTMP video stream player component is added.

## V1.7.1-20200730

- **New Functions**

- Animation effect is added to the following components: horizontal bar, horizontal bi-directional bar, bubble, stacked bar, line, combination, dual Y-axis combination, dual Y-axis line, step line, pie, percentage pie chart, radar, scatter, WT bar, WT horizontal bar, WT stacked bar, WT line, WT combination, WT dual Y-axis combination, WT dual Y-axis line, WT radar, and WT scatter.
- The RTMP video stream player component is added.

## V1.6.1-20200630

- **New Functions**

- The interaction function is added to image components.
- Supported Cloud Search Service (CSS) as a data source.
- Federated users are supported.
- The title and text components support rich text.

## V1.4.1-20200531

- **New Functions**

The vertical timeline component is added.

- **Optimized Functions**

The OBS data connection is optimized.

### V1.3.11-20200430

- **New Functions**

- Component customization is supported.
- The carousel function is added to the Tab component.
- The console is supported.
- The interaction configuration is supported by the following components: horizontal bar, horizontal bi-directional bar, radial bar, stacked bar, combination, dual Y-axis combination, dual Y-axis line, pie, rose, WT bar, WT horizontal bar, WT stacked bar, WT line, WT combination, WT dual Y-axis combination, and WT dual Y-axis line

### V1.3.10-20200331

- **New Functions**

- An epidemic screen template is added.
- A tab component is added.
- Seven components are added, including the sunburst, Sankey, radial tree, arc, tree, arc in polar coordinates, and multi-selection drop-down list components.
- The data source can be cloud database GeminiDB for InfluxDB.

### V1.3.9-20200230

- **New Functions**

- An epidemic screen template is added.
- The progress bar component is added.
- The data source can be cloud database GaussDB.

- **Optimized Functions**

- The border setting is added to the tab list component.
- The image component supports dynamic data sources.
- The basic 2D map allows users to dynamically switch areas on the map.
- The check box component and host heatmap are added to the resource pool screen.

### V1.3.8-20200120

- **New Functions**

- The new DLV console is brought online.
- Workspace management and fine-grained permission control are supported.
- Screen import and export, screen combination, and AppKey maintenance and management are supported.
- Drilldown of the URL parameter interaction and component link interaction is supported.

### V1.3.7-20191114

- **New Functions**
  - a. Two chart components are added: horizontal capsule and step.
  - b. One media component is added: FLV video stream player.
  - c. The following map components are added:
    - 3D China map (2019) and its subcomponents flying line, scatter, and column
    - 3D China map (2019) and its subcomponents flying line, scatter, and column
  - d. 3D world map (2019) and its subcomponents flying line, scatter, and column
  - e. The stack configuration is added to bar components, including bar, horizontal bar, combination, dual Y-axis combination, bar (WT), horizontal bar (WT), combination (WT), and dual Y-axis combination (WT)
  - f. The interaction function is added to the bar, line, and bubble charts.
- **Optimized Functions**
  - a. Tooltips are added to seven components, including the bubble, line, and scatter charts. Numbers are displayed with thousands separators.
  - b. In bubbles, the axis type configuration is added to the Y axis and the data value field is able to map the bubble size
  - c. Adhesion and adhesion sensitivity settings are added.
  - d. Automatic line feed is supported in the carousel table component.

### V1.3.6-20191011

- **New Functions**
  - a. The interaction function is added to the basic 2D map and its subcomponent advanced scatter layer.
- **Optimized Functions**
  - a. The value tag and stream light configurations are supported by the carousel bar component.
  - b. Thousands separator configuration, custom icon, animation, and decimal control are added to the ticker board component.
  - c. The interaction function of the geographical search component is optimized.
  - d. The auxiliary lines for component coordinates are added.
  - e. The shortcut keys for copying and pasting are added to the layer editing page.
  - f. The SQL editor is optimized.

### V1.3.5-20190830

- **New Functions**

- a. The following charts are added: radial bar, dual-Y axis line, dual-Y axis combination, dual-Y axis line (WT), and dual-Y axis combination.
- b. Subcomponent advanced scatter is added to the basic 2D map and world map.
- c. Regional map configuration is supported by the basic 2D map.
- **Optimized Functions**
  - a. The rendering function of the subcomponents of the basic 2D map is optimized.
  - b. Value tags are added to line charts, WT line charts, scatter charts, WT scatter charts, and bubble charts.
  - c. Components support dynamic data rendering.
  - d. The dashboard component displays the minimum scale when data is abnormal.
  - e. The interval for playing an animation in a carousel table can be set at the 0.1s level.
  - f. The area ranking component supports all country flags dynamically.
  - g. The area ranking component and scatter layer of the map allow users to customize icons.
  - h. The SVG format is supported.

### V1.3.4-20190711

- **New Functions**
  - a. A free trial of the basic edition of DLV is available.
  - b. The server agent of DLV is available to process requests from the API data source.
- **Optimized Functions**
  - a. Initial settings are added to the geographical search component.
  - b. All components are optimized, and the maximum automatic update interval can be set to 7 days.
  - c. In a basic 2D map, the maximum values of **Top** and **Left** in **Global Style** > **Map Center** are changed from 100 to 200.
- **Fixed Bugs**
  - a. The query result of the bigint data in the RDS for MySQL data connection is incorrect.
  - b. Data query is abnormal when the DLV query condition contains single quotation marks (').
  - c. The expiration time is not updated after an order is renewed.
  - d. The geographical search component is displayed abnormally due to historical data incompatibility.

### V1.3.3-20190618

- **New Functions**

- a. Seven Wide Table (WT) components are added, including the WT bar, WT line, WT horizontal bar, WT stacked bar, WT radar, WT scatter, and WT combination.
  - b. The default table header configuration is supported on a CSV data source.
  - c. Two CSV data sources, local files and OBS files, are supported.
  - d. The scatter, line, and bubble are added, and the X axis time format control in the corresponding WT charts is supported.
  - e. The hover box addition and the animation effect display are supported on a basic 2D map.
  - f. The triangle color of the drop-down list and the initial value of the result style can be set in a geographical search chart.
  - g. Images can be obtained through URLs on an image component.
- **Optimized Functions**  
One component can reference variables of multiple interaction components.
  - **Fixed Bugs**  
The default series name is left blank on the **Data** pane of a carousel table component.

### V1.3.2-20190608

- **Fixed Bugs**  
The hover text is not completely displayed on a subcomponent of a basic 2D map.

### V1.3.1-20190524

- **New Functions**  
None.
- **Optimized Functions**  
The maximum and minimum values of a heatmap are self-optimizing with data and label settings
- **Fixed Bugs**
  - a. Interaction logic is problematic.
  - b. The fixed animation play interval increases dynamically with the increase of animation plays on a carousel bar component.
  - c. The value of **Tab No.** is inconsistent with that displayed on a table list component.
  - d. The content in a carousel table is displayed abnormally.
  - e. The hide function does not work consistently between on the screen and on the image layer.
  - f. The scrollbars are redundant in the editor of the basic edition.
  - g. The **Create Data Connection** dialog box pops up not quickly enough.

## V1.3.0-20190518

- **New Functions**  
DLV is officially put into commercial use on May 18, 2019.
- **Optimized Functions**  
None.
- **Fixed Bugs**  
The response result display is slow.

## V1.2.2-20190426

- **New Functions**  
None.
- **Optimized Functions**
  - a. The rules for setting the password required for sharing a link are established.
  - b. Image, JS, and CSS static files are processed on CDN to accelerate image loading.
- **Fixed Bugs**
  - a. After editing a shared screen, you are asked to reset your password when sharing the screen again.
  - b. You cannot create a DLI data connection if you do not have the **secu\_admin** permission, but when you fail to create a DLI data connection, no message is displayed to tell you the reason.

## V1.2.1-20190419

- **New Functions**
  - a. The globe (advanced) component is added.
  - b. The geographical search component is added.
  - c. The time data conversion format is added to the time selector and carousel table components.
  - d. Naming and renaming components is supported.
  - e. Locking and unlocking components is supported.
  - f. Hiding and showing components is supported.
  - g. The hover text is added to a subcomponent of a basic 2D map component.
  - h. The favorite colors and recent colors are added to the color-related settings.
- **Optimized Functions**  
When multiple components exist on a screen, requests will be sent in parallel.
- **Fixed Bugs**  
After a screen with DLI dynamic data configured is shared with no login required, others cannot share the screen.

## V1.0.5-20190320

- **New Functions**
  - a. The heatmap component is added.
  - b. The tab list component is added.
  - c. The marquee component is added.
  - d. The custom background component is added.
  - e. The rose component is added.
  - f. The key-value table component is added.
  - g. The rectangle tree map component is added.
  - h. The heatmap layer function is added to the subcomponent of a world map.
  - i. Data sources can be configured on a time selector component.
- **Optimized Functions**

None.
- **Fixed Bugs**

It may take a long time before the first data loading is complete.