

# **Disk Manager**

## **User's Manual**








# Foreword

## General

This manual introduces the functions and operations of the Disk Manager.

## Safety Instructions

The following categorized signal words with defined meaning might appear in the manual.

Signal Words	Meaning
 <b>DANGER</b>	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
 <b>WARNING</b>	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
 <b>CAUTION</b>	Indicates a potential risk which, if not avoided, could result in property damage, data loss, lower performance, or unpredictable result.
 <b>TIPS</b>	Provides methods to help you solve a problem or save you time.
 <b>NOTE</b>	Provides additional information as the emphasis and supplement to the text.

## Revision History

Version	Revision Content	Release Time
V1.0.2	<ul style="list-style-type: none"><li>• Add section of "3.5.4 Snapshot Download."</li><li>• Modify section of "3.5.3.3 Map Configuration" and "3.5.3.1 General Configuration."</li><li>• Update the manual template.</li></ul>	March 2020
V1.0.1	Update the manual.	May 2018
V1.0.0	First release.	July 2016

## About the Manual

- The manual is for reference only. If there is inconsistency between the manual and the actual product, the actual product shall prevail.
- We are not liable for any loss caused by the operations that do not comply with the manual.
- The manual would be updated according to the latest laws and regulations of related jurisdictions. For detailed information, refer to the paper manual, CD-ROM, QR code or our official website. If there is inconsistency between paper manual and the electronic version, the electronic version shall prevail.
- All the designs and software are subject to change without prior written notice. The product

updates might cause some differences between the actual product and the manual. Please contact the customer service for the latest program and supplementary documentation.

- There still might be deviation in technical data, functions and operations description, or errors in print. If there is any doubt or dispute, we reserve the right of final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and the company names in the manual are the properties of their respective owners.
- Please visit our website, contact the supplier or customer service if there is any problem occurring when using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

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# 1 Product Overview

## 1.1 Overview

This product is a PC software for hard disk of video storage device, which is used with SATA-USB box or memory stick reader. SATA-USB box is a device which can convert SATA interface to USB interface, and connect storage devices (such as NVR, DVR, EVS) to PC.

The product supports video playback, record searching, record backup, slice live view, watermark and so on. For mobile DVR, it also supports view of vehicle tracks, format disk and so on. Meantime it supports search and operation of local records.

## 1.2 Features

- Support multi-channel live view and playback, and up to 16 window simultaneous view.
- Support play modes of reverse play, fast play, slow play and so on during live view.
- Support local snapshot and video clipping, which can save valid record information immediately.
- Support to sync play the videos in the same group for quick lookup.
- Compatible with the search and play of each type of hard disk.
- Support live view of clipped video.

## 2 Installation

Step 1 Double-click or right click the Disk Manager installer to go to the **Welcome** interface.

Step 2 Click **Next**.

Figure 2-1 Welcome to install



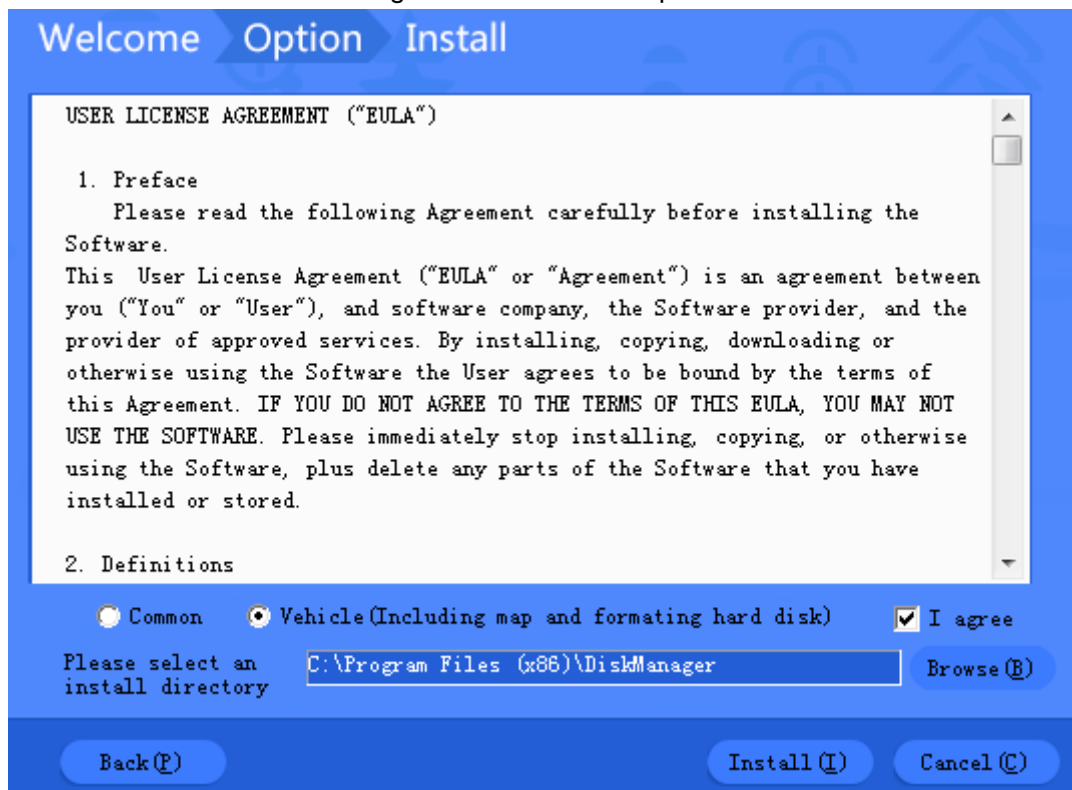
Step 3 Read the **USER LICENSE AGREEMENT** and then select type of installation.

- Select **Common** to install the Disk Manager for general devices.
- Select **Vehicle (Including map and formatting hard disk)** to install the Disk Manager for vehicle devices.

Step 4 Click **I agree** if you are agree with the above terms and conditions, and click **Browse** to select installation path.

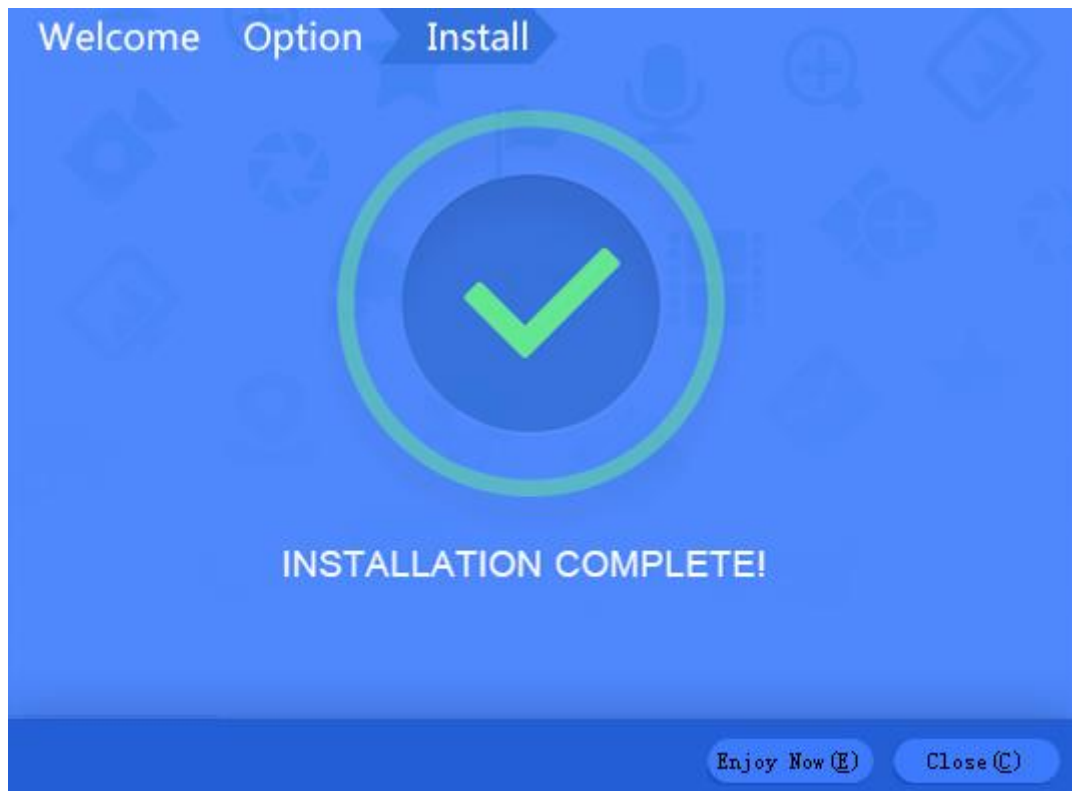
Step 5 Click **Install**.

Figure 2-2 Installation option



Step 6 Click **Enjoy Now**.

Figure 2-3 Complete installation



# 3 Operation

You can view live videos, search and manage the recorded videos in the disk.



The homepage of vehicle version is taken as an example.

Figure 3-1 Homepage

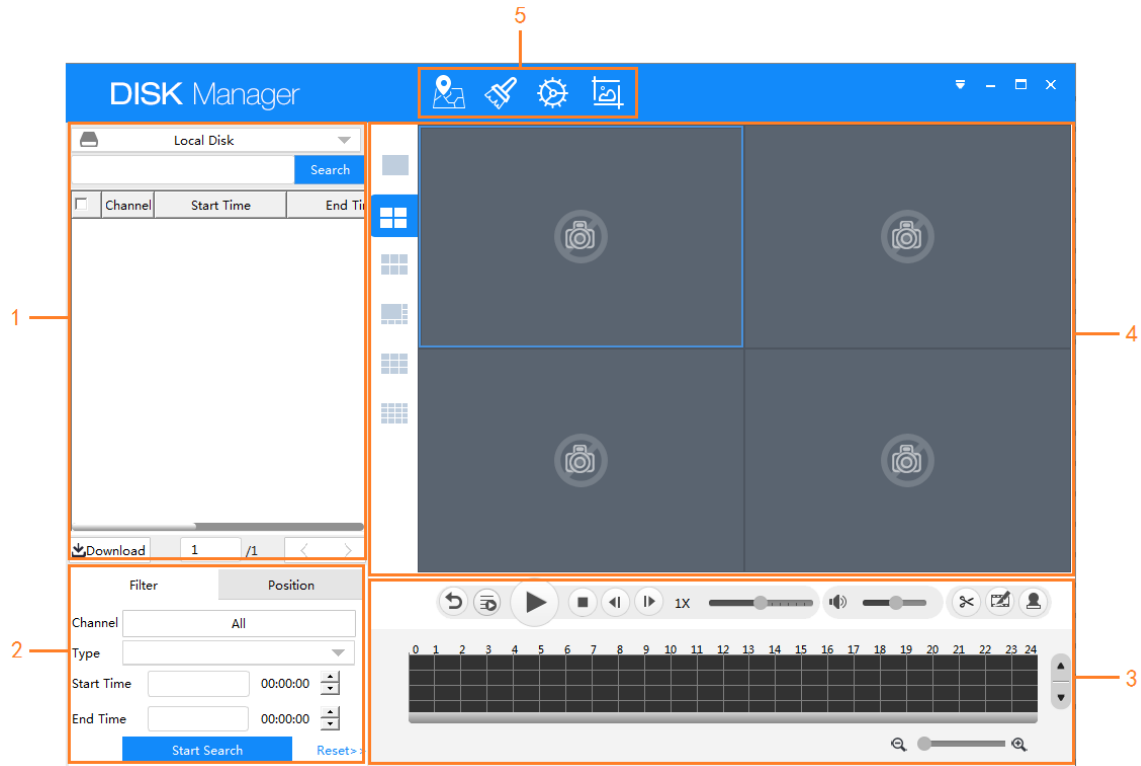


Table 3-1 Parameters of homepage

No.	Area name	Description
1	Record searching by disk	Select a disk and search the records in the disk.
2	Record searching by condition	Search records according to the setting conditions, such as channel, type, time and position.
3	Play controlling	Support to control play, clip video and check frame.
4	Record live view	Set live view mode and view records.
5	Function configuration	Configure software parameters. For vehicle version, you can view vehicle tracks and format disk.

## 3.1 Recorded Video Searching by Disk

**Step 1** Click ▼ in the area of record searching by disk. Select **Local Disk** or **External Disk**.

**Step 2** Select the needed directory, and then click **Choose**.


**Step 3** Click  to search records in the selected directory.



Figure 3-2 Searched results

D:/RAE/Disk Manager/Test Video/		Search	
<input type="checkbox"/>	Channel	Start Time	End Time
<input type="checkbox"/>	1	2019-10-31 09:12:00	2019-10-31 09:12:00
<input type="checkbox"/>	-1	2020-03-06 12:03:18	2037-12-31 23:59:59
<input type="checkbox"/>	-1	2020-03-06 12:03:18	2037-12-31 23:59:59

Download 1 /1 < >



- The result includes channel, start time, end time, size, file path and type of the record.
- The channel, start time and end time are displayed according to the record name. If the record name is not standardized, the channel is displayed as -1, the start time is displayed as the current time, and the end time is displayed as 23:59:59 on December 31, 2037.
- The record should be named as Channel\_Start Time\_End Time, and the time must be accurate to the second without punctuation.

Step 4 Double-click one row of record to view.



When you view records of external disk, you can select the rows of needed records and then

click  Download to download them to local.

## 3.2 Record Searching by Condition

### 3.2.1 Filtering

Support to filter records based on channel, type and time.

Step 1 Select the **Filter** tab.

Step 2 Set the record channel, type, start time and end time as needed.

Figure 3-3 Filtering

Step 3 Click **Start Search** and you will read a prompt "Filter search has done!." The filtered records are displayed in the area of record searching by disk.

Figure 3-4 Filtered results

<input type="checkbox"/>	Channel	Start Time	End Time
<input type="checkbox"/>	-1	2020-03-06 12:03:18	2037-12-31 23:59:59
<input type="checkbox"/>	-1	2020-03-06 12:03:18	2037-12-31 23:59:59




Click **Reset>>** to reset the filtering conditions to default.

## 3.2.2 Positioning

Support to search and play records based on the selected time.

Step 1 Select the **Position** tab.

Step 2 Set the **Search Time**.

Filter	Position
Search Time	
<input type="text" value="2019-10-31"/>	<input type="text" value="09:12:00"/> 
<input type="button" value="Start Search"/>	

Step 3 Click **Start Search**

Local Disk

D:\RAE\Disk Manager\Test Video\c

Search

Channel	Start Time	End Time
1	2019-10-31 09:12:00	2019-10-31 09:12:22
-1	2020-03-06 12:03:18	2037-12-31 12:00:00
-1	2020-03-06 12:03:18	2037-12-31 12:00:00

Download 1 /1

Filter Position

Search Time 2019-10-31 09:12:00

Start Search

2019-10-31 09:12:22

V: 14.4 km/h  
Lon: 28.08260° E  
Lat: 26.05928° S

KAM 1

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⏴ ⏵ 🔊 🔍 🔗 👤

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

1 09:12:22

Start Time: 2019-10-31 09:12:00

End Time: 2019-10-31 09:12:22

Start Search

### 3.3 Play Controlling

Support the reverse play, fast play and slow play.

Table 3-2 Play controlling icon description
















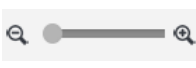
Icon	Name	Description
	Reverse play	Click the icon, and then it becomes blue and the records of all windows start the reverse play.
	Sync play	Click the icon, and double-click one record in left list. All records in the same group start to play.  The records whose start time interval within 2 seconds are in the same group.
	Play/pause	Click the icon to play or pause the records of all windows.
	Close	Click the icon to close the records of all windows.
	Previous group/ previous frame	Click the icon to play record in the previous group or frame.  During pause, it is shown as Previous Frame; and during play, it is shown as Previous Group.
	Next group/ next frame	Click the icon to play record in the next group or frame.
	Play speed	Adjust the play speed.
	Volume	Adjust the record volume. Click  to mute. Now the icon becomes  .
	Cut	Click the icon, select the needed time period on time bar, and then click the icon again to clip and save. <ul style="list-style-type: none"> <li>Clip successfully, see Figure 3-8.</li> <li>No record within the clipped time period, see Figure 3-9.</li> </ul>
	Slice	For a long-time record, you can view it by slice in multi-window, which greatly speeds up playback There are the steps. <ol style="list-style-type: none"> <li>1. In record list, select the needed record, and right click to select Preview by slice.</li> <li>2. Select time range to slice on the time bar.</li> <li>3. Click this icon and then the windows display images of time point.</li> <li>4. Double-click one image, and the record starts to play from that time point.</li> </ol>
	Watermark	Click the icon to verify watermark of records of all windows.
	Time bar	Zoom in or out the time bar.

Figure 3-8 Clip successfully

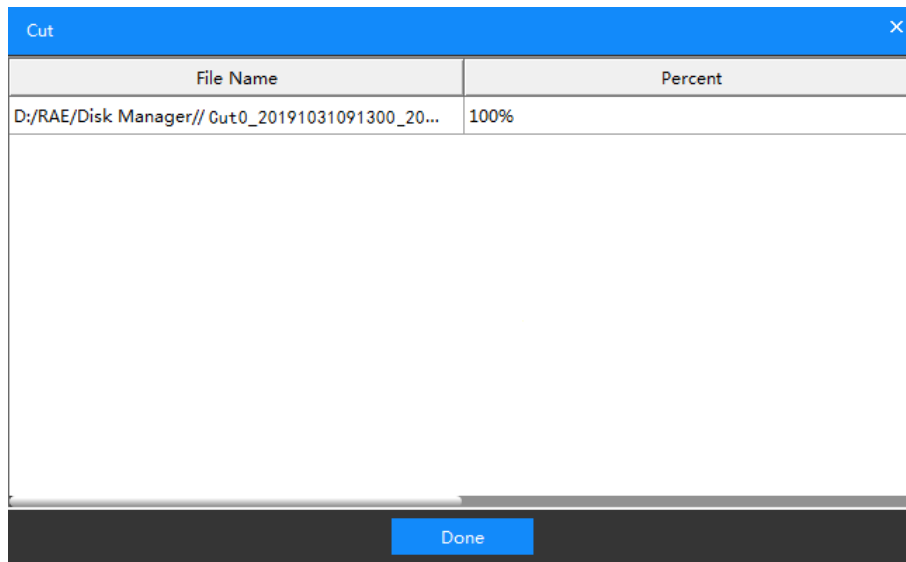
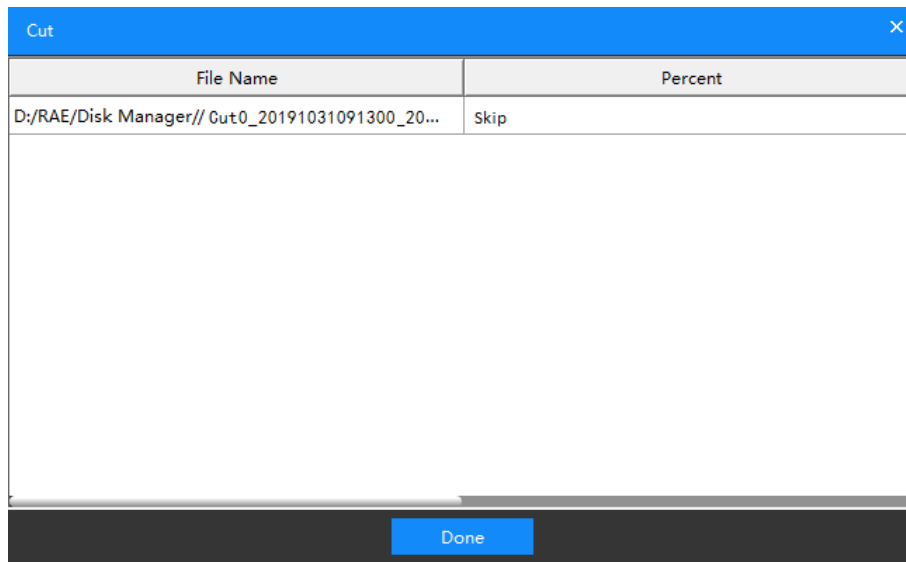






Figure 3-9 No record within the clipped time period





## 3.4 Record Live View

Step 1 Select live view mode.

Table 3-3 Live view mode

Icon	Name	Description
	1-split window	Double-click one record in left list to view it in one single window.
	4-split window	Split the window into 4 windows evenly.
	6-split window	Split the window into 1 large window and 5 small windows.
	8-split window	Split the window into 1 large window and 7 small windows.

Icon	Name	Description
	9-split window	Split the window into 9 windows evenly.
	16-split window	Split the window into 16 windows evenly.

**Step 2** Select the needed records.

- 1) Click a window you want to set whose frame will become blue.
- 2) In the left record list, double-click the needed record.



Under the multi-window mode, you can customize the position of played record.








Under the multi-window mode, double-click one window, and it will become 1-split mode. Double-click it again to return to original mode.

Figure 3-10 Live view the record



Table 3-4 Record icon description

Icon	Name	Description
	Drag	<ul style="list-style-type: none"> <li>When the icon is , draw a rectangle with the mouse on the playing record window to zoom in.</li> <li>When the icon is , drag the mouse to view other enlarged scenes.</li> <li>Right click to stop zooming in.</li> </ul>
	Snapshot	Snapshot the played record.
	Close	Close the played record.

## 3.5 Function Configuration

### 3.5.1 Map

Click  to view the vehicle tracks and geographic position in the selected vehicle disk.



For vehicle version only.

#### Preparation

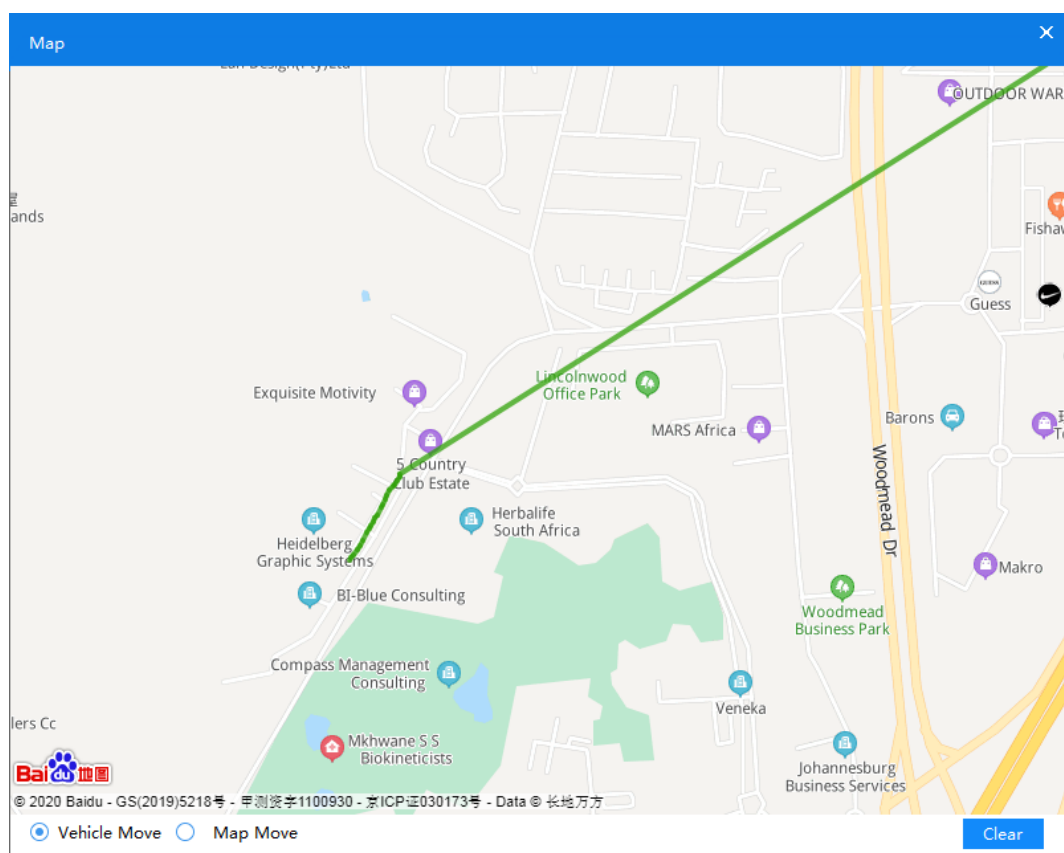
Enable **GPS Switch** in **Config >Map**.

#### Procedure

Step 1 Select one record in the left list, and right click to select **Start Position Preview**.

- If the record is a GPS record, the map displays automatically and shows the track.
- If it is not a GPS record, the prompt "**This record had no GPS info, cannot preview start position!**" displays.

Figure 3-11 Map



Step 2 Select **Vehicle Move** or **Map Move**.

- Vehicle Move: Map is fixed, and the vehicle moves on map and draws tracks.
- Map Move: Vehicle is fixed, and the map moves and draws tracks.



- Zoom in and out the map by rotating mouse wheel.
- Click **Clear** to clear vehicle tracks.


## 3.5.2 Format

Click  to format vehicle disk.



For vehicle version only.

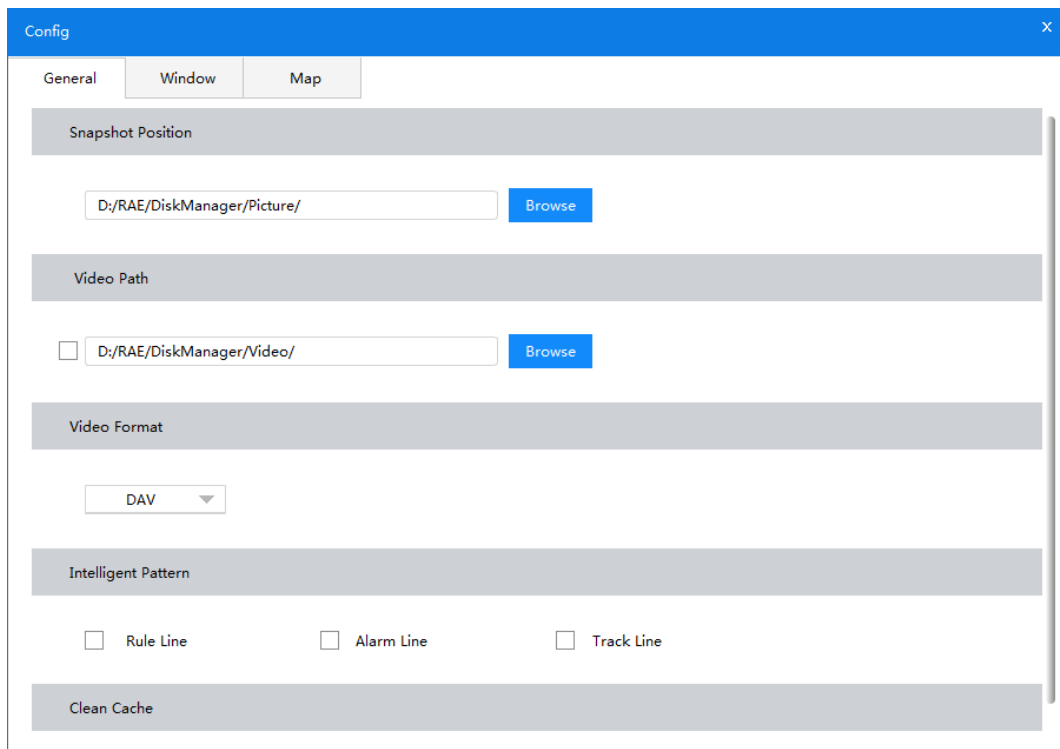
## 3.5.3 Configuration

Click  to set basic parameters. All configurations of the interface is saved in real time, and the last parameter configurations will be displayed after closing and reopening.

### 3.5.3.1 General Configuration

Select **Config > General**.

Figure 3-12 General configuration



- Snapshot Position: Click **Browse** to select storage path of snapshot.
- Video Path: Click **Browse** to select storage path of record. Select the check box in front of the storage path and the storage path of download records is this path; if not, the path is selected in real time during operation.



- Video Format: Support DAV and AVI.
- Intelligent Pattern: Check pattern as needed, including **Rule Line**, **Alarm Line** and **Track Line**.



For records with intelligent pattern only.

- Clear Cache: Whether to clean index files.

### 3.5.3.2 Window Configuration

The relationship between window and channel of recorded video is set by default, and you can customize it as needed.

Step 1 Select **Config > Window**.

Step 2 Select the window type, and set channel number for each window.



For sync play mode only.

Figure 3-13 Window configuration

Config			
General	Window	Map	
Window	16 split		
Win1-Channel	1	Win2-Channel	2
Win3-Channel	3	Win4-Channel	4
Win5-Channel	5	Win6-Channel	6
Win7-Channel	7	Win8-Channel	8
Win9-Channel	9	Win10-Channel	10
Win11-Channel	11	Win12-Channel	12
Win13-Channel	13	Win14-Channel	14
Win15-Channel	15	Win16-Channel	16

### 3.5.3.3 Map Configuration

Select **Config > Map**.

Figure 3-14 Map Configuration

The 'Config' window has three tabs: 'General', 'Window', and 'Map'. The 'Map' tab is active. It contains three sections: 'Map Selection' with radio buttons for 'Google Offline Map' and 'Baidu Map' (selected); 'GPS Switch' with a checked checkbox; and 'Map Path' with a text field containing 'D:/RAE/DiskManager/data/' and a 'Browse' button.

- Map Selection: Select map type, including **Google Offline Map** and **Baidu Map**.
- GPS Switch: Enable **GPS Switch** to display vehicle tracks on map.
- Map Path: Set the path of offline map.

### 3.5.4 Snapshot Download

Click  to download jpg snapshots in the disk.



For external disk only.

Figure 3-15 Snapshot download

The 'ScreenshotDownload' window displays a list of files for download. The first file is checked and shows 100% completion. Below the list, there is a 'Path' field containing 'D:\Code\DiskManager\_vs2017\Trunk\Debug\Win32\Scre', a 'Browser' button, and 'Download' and 'Stop' buttons. A progress indicator shows '1 / 3'.

- Click **Browser** to select the storage path of snapshot.

- Click **Download** to start downloading.
- Click **Stop** to stop downloading.

# Appendix 1 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations on how to create a more secured security system.

## **Mandatory actions to be taken for basic equipment network security:**

### **1. Use Strong Passwords**

Please refer to the following suggestions to set passwords:

- The length should not be less than 8 characters;
- Include at least two types of characters; character types include upper and lower case letters, numbers and symbols;
- Do not contain the account name or the account name in reverse order;
- Do not use continuous characters, such as 123, abc, etc.;
- Do not use overlapped characters, such as 111, aaa, etc.;

### **2. Update Firmware and Client Software in Time**

- According to the standard procedure in Tech-industry, we recommend to keep your equipment (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the equipment is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
- We suggest that you download and use the latest version of client software.

## **"Nice to have" recommendations to improve your equipment network security:**

### **1. Physical Protection**

We suggest that you perform physical protection to equipment, especially storage devices. For example, place the equipment in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable equipment (such as USB flash disk, serial port), etc.

### **2. Change Passwords Regularly**

We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

### **3. Set and Update Passwords Reset Information Timely**

The equipment supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

### **4. Enable Account Lock**

The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

### **5. Change Default HTTP and Other Service Ports**

We suggest you to change default HTTP and other service ports into any set of numbers between 1024~65535, reducing the risk of outsiders being able to guess which ports you are using.

### **6. Enable HTTPS**

We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

### **7. Enable Whitelist**

We suggest you to enable whitelist function to prevent everyone, except those with specified IP addresses, from accessing the system. Therefore, please be sure to add your computer's IP address and the accompanying equipment's IP address to the whitelist.

### **8. MAC Address Binding**

We recommend you to bind the IP and MAC address of the gateway to the equipment, thus reducing the risk of ARP spoofing.

### **9. Assign Accounts and Privileges Reasonably**

According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

#### **10. Disable Unnecessary Services and Choose Secure Modes**

If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

- SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up strong passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

#### **11. Audio and Video Encrypted Transmission**

If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

Reminder: encrypted transmission will cause some loss in transmission efficiency.

#### **12. Secure Auditing**

- Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
- Check equipment log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

#### **13. Network Log**

Due to the limited storage capacity of the equipment, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

#### **14. Construct a Safe Network Environment**

In order to better ensure the safety of equipment and reduce potential cyber risks, we recommend:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
- The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
- Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.
- It is recommended that you enable your device's firewall or blacklist and whitelist feature to reduce the risk that your device might be a