



Video Management System

Software Manual

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OVERVIEW

The REI VMS PC Software Manual is intended to give an in-depth and detailed description of all the functions and capabilities within the REI VMS software. This manual gives step-by-step procedures for system set up and configuration, with screen shots to help reference these settings.

PC HARDWARE REQUIREMENTS

MINIMUM REQUIREMENTS (APPROPRIATE FOR HD400 MODELS)

- Operating System: Windows XP SP3 / Windows Vista SP2 / Windows 7
- Processor: Intel Core i3 CPU
- RAM: 4GB
- Hard Disk Space: 35 MB for software, 400GB or more for video
- CD-ROM required for installation
- 10/100 Base-T Network Interface Card / Controller
- One USB 2.0 Controller
- DirectXc-compatible sound card
- Video Card: 512 MB nVidia GeForce GTX460 or AMD HD6850 or better
- Resolution: 1600x1200 32k colors or better
- DirectX 9.0c

RECOMMENDED REQUIREMENTS (APPROPRIATE FOR HD420 & HD800 MODELS)

- Operating System: Windows 7
- Processor: Intel Quad Core i5 or better
- RAM: 6GB or better
- Hard Disk Space: 35 MB for software, 1TB or more for saved video
- CD-ROM required for installation / DVD+/-RW for archival if applicable
- 10/100 Base-T Network Interface Card / Controller
- At least two USB 2.0 Controllers
- USB 3.0 Controller
- SD Card Reader (if applicable to end use)
- DirectX 9.0c compatible sound card
- Video Card: 1GB nVidia GeForce GTX660 or AMD HD6870 or better
- Resolution: 1920x1200 with 32k colors or better

COMPATIBLE BUS-WATCH® DEVICES

The following BUS-WATCH® Devices are compatible with this software:

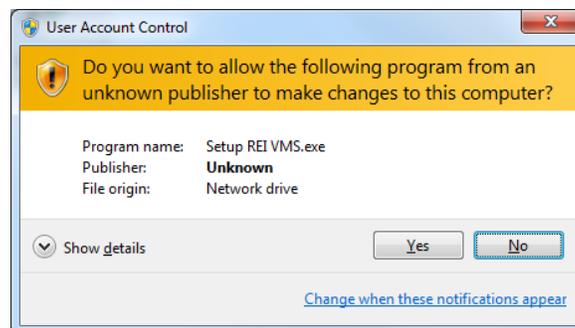
- BUS-WATCH® HD-800
- BUS-WATCH® HD-400
- BUS-WATCH® HD-420

SOFTWARE INSTALLATION

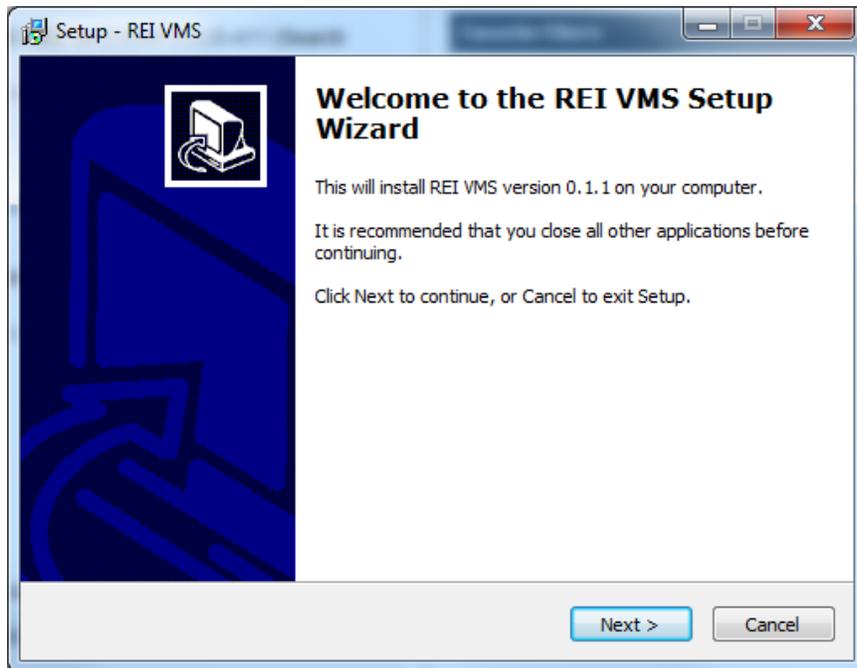
SETUP

To install the REI VMS PC Software application:

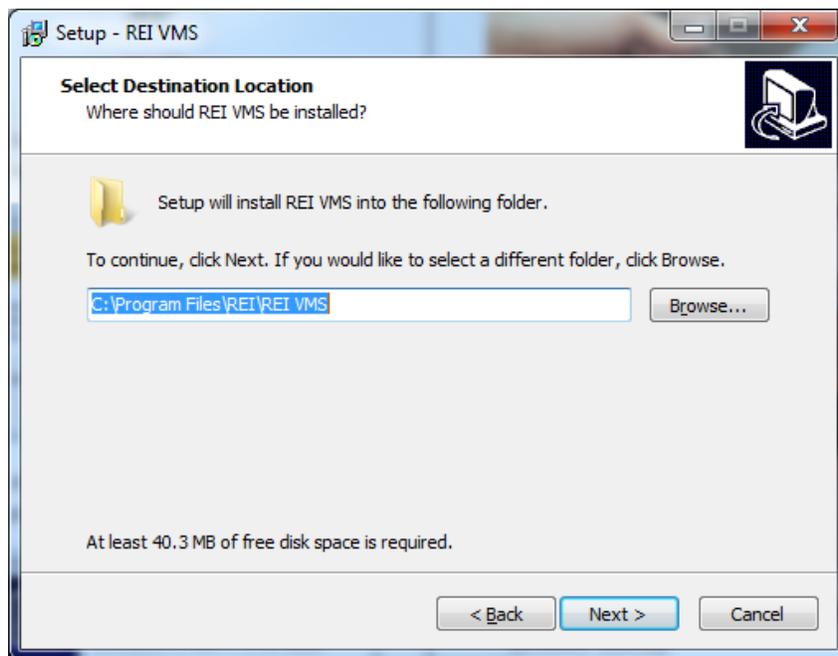
- 1) Locate the installation program, “Setup REI VMS.exe” and double click the icon.
 - a. If received on a CD-ROM, this program will be located in the root directory of the CD-ROM. Your setup may begin automatically upon insertion of the CD-ROM.
 - b. If received via a download from the web, this program will be located in the directory your web browser or FTP client downloaded it to. Please refer to the documentation of your download program to find it.
- 2) If the User Account Control screen is shown, click ‘Yes’.



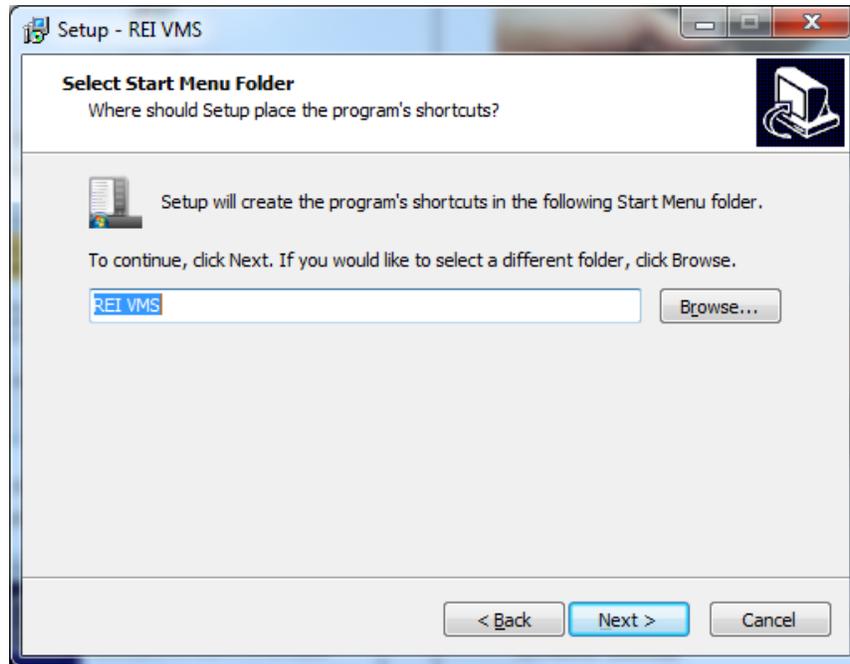
3) The 'Welcome' screen will show. Click 'Next >'



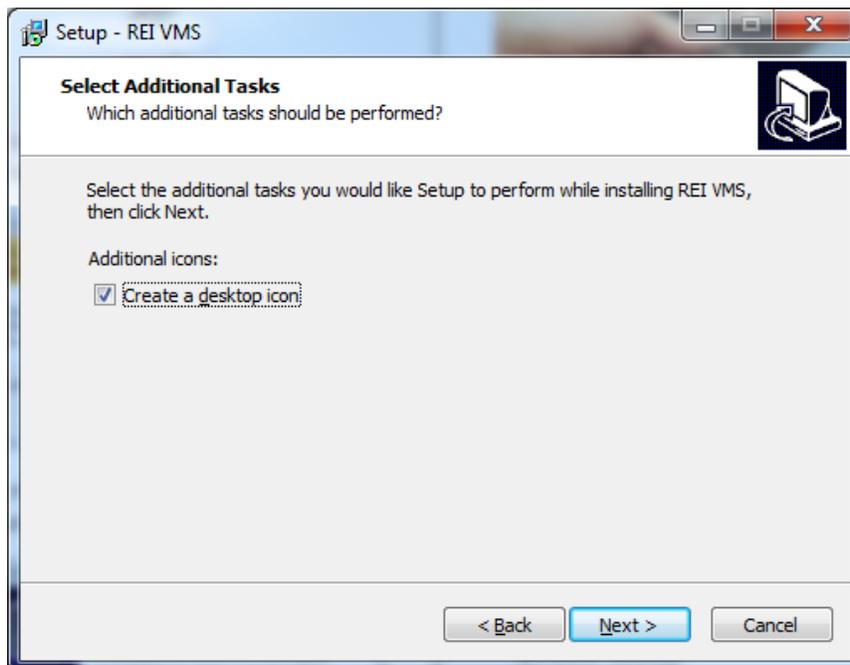
4) Choose where to install REI VMS. It is recommended you leave the default location and click 'Next'.



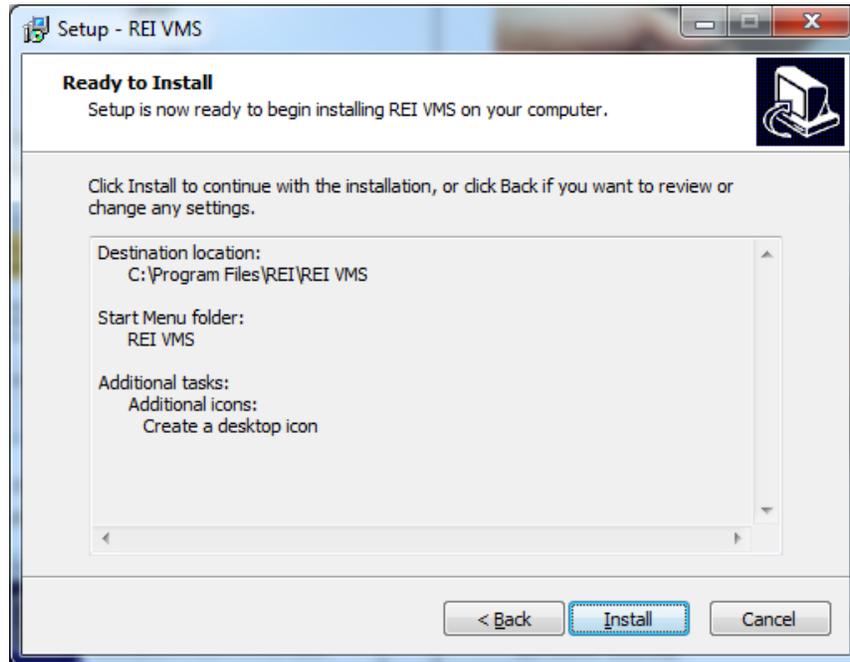
- 5) Choose what you will call the application in the Start Menu. It is recommended you leave the default name and click 'Next'.



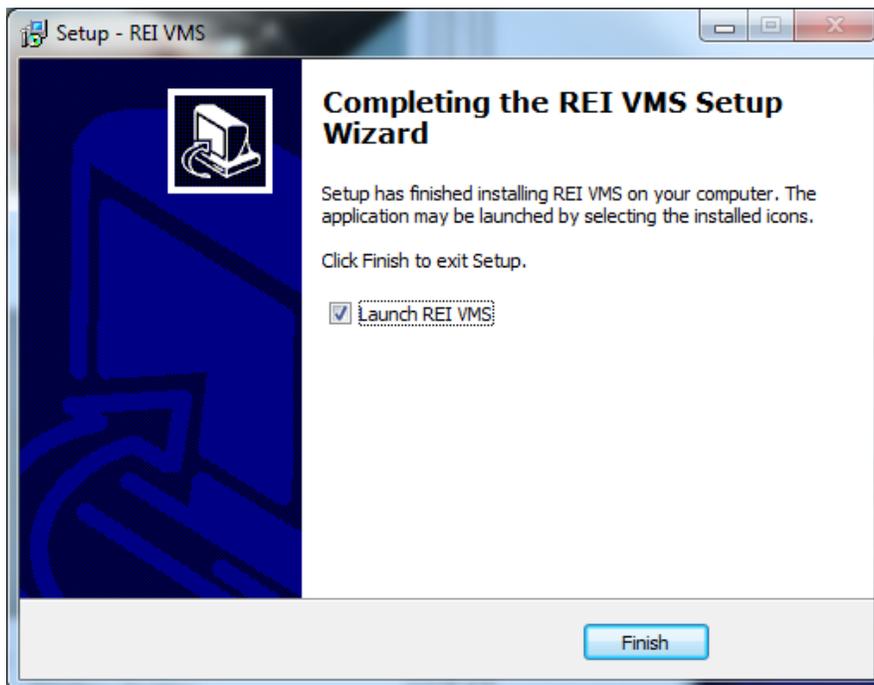
- 6) Select whether you wish to create a desktop shortcut for REI VMS. It is recommended you leave this checked and click 'Next'.



7) Click "Install"



8) Wait for installation to complete. On the final screen click 'Finish'.



If assistance with installation, setup, configuration or other technical support is necessary, please contact one of Radio Engineering Industries, Inc.'s support technicians at (877) 726 – 4617 or (402) 339 – 2200.

INSTALLED PROGRAMS

Your REI installation will have installed the following programs:

REI VMS

This application is used to search, view, and/or backup video stored on BUS-WATCH® hard drive module, stored on a BUS-WATCH® DVR, or for viewing previously downloaded or captured video stored on the host PC. It also provides for the simultaneous viewing (monitoring) of multiple channels of live video from multiple networks connected BUS-WATCH® Mobile DVRs.

REI Image Viewer

This application is used display and share snapshots of video taken by REI VMS. This provides a convenient way to edit, save, and share snapshots taken from REI-compatible programs.

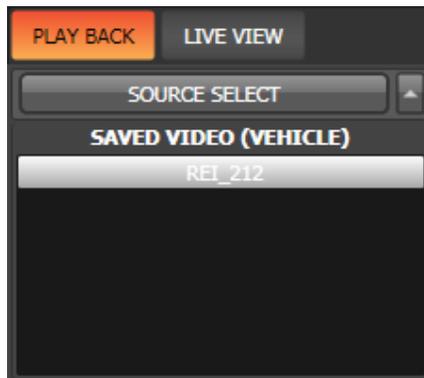
REI Express

This is a standalone application used for sharing and distribution of .BWV video files created by REI VMS. You may include this with any .BWV files in order for people who do not have the REI VMS installed to view video.

USING REI VMS

SOURCE AND VEHICLE SELECTION

Source selection in VMS is done through the Source Selection Pane. Here you can select the type of source viewed. If multiple vehicles are present for the selected source it allows for selection between those loaded vehicles.



The PLAY BACK button should be selected for watching recorded video. Recorded video sources include Hard Drive, Remote DVR Playback, Saved Video, USB sticks and SD cards.

The LIVE VIEW button should be selected for watch live video from wirelessly connected BUS-WATCH® systems.

The SOURCE SELECT button is available in PLAY BACK mode only, and allows for choosing between the four play back sources. Clicking on this button will show the Select Video Source menu, where the source can be chosen.

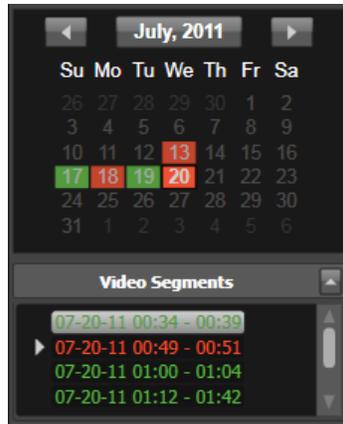


The SOURCE WINDOW will show all vehicles available for the source type selected in SOURCE SELECT. Remote DVR, Saved Video, and USB/SD all allow multiple vehicles from the same source. In addition, LIVE VIEW allows multiple vehicles to be loaded.

The SOURCE WINDOW above shows an example of SAVED VIDEO source loaded, with one vehicle available named REI_212.

DATE AND TIME SELECTION

Once the source and vehicle to view have been chosen, the date and time to view must also be chosen. This is done with the Time and Date Selection Pane, as shown below.



The month selection portion of this pane will default to the month of the most recent video. To select a different month, you may click the left and right arrows to move by one month. In addition, clicking on the name of the current month (listed as 'July, 2011') will provide you a list of all available months containing video.



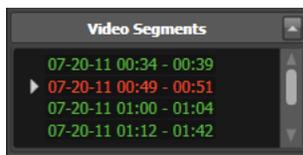
The calendar portion of this pane will show all days in the shown month that have video on them.

If the day shows up as GREEN, it means that there is video on that day, and that none of the video is alarmed.

If the day shows up as RED, there is alarmed video on that day.

To view the video segments available on a certain day, single click on the day you wish to view.

To view the video segments available on a certain day, and to automatically begin playing the first segment on that day, double click on the day you wish to view.



The Video Segments list will show all contiguous blocks of video on the selected day.

If the video segment shows up as GREEN, the video is unalarmed. If the video segment shows up as RED, the video is alarmed.

If the segment is currently playing, it will be highlighted in this list.

To get more information regarding a RED (or alarmed video) single click the alarmed video segment. This will display more information regarding the reason of the alarm.

To begin playing a segment, double click the video segment.

SEARCHING



Clicking on the Search Button will bring up the Search Selection window.

Inside the search selection window there will be ways to search for alarms, inputs, speed events, accelerometer events, and GPS events.

The top of the Search Selection window allows narrowing of the search window by date and time. This example looks between 00:34:26 and 02:58:46 on July 20th, 2011. All times are in 24-hour mode.

The COLORS button will bring up a menu to configure what colors different alarms and inputs are shown in the main window.

The Alarms area allows searching for alarmed events. These inputs were configured on the BUS-WATCH[®] device to trigger an alarm.

The Inputs area allows you to search all inputs, whether they were alarmed or not.

The Speed and Accelerometer areas allow searches for speed and acceleration. Only the start of speed or accelerometer event will be displayed.

To search by GPS Location, a GPS Frame must first be set up. To do this:

1. Click 'EDIT'. The box to the left will display.
2. Click 'ADD' and type a description of the GPS Frame you would like to add.
3. Two pins will display. Adjust these pins to be the location you would like to search.
4. Click Exit.

You will be returned to the Search Selection Screen, where you may now click "<ADD" and select the description you entered above. You may also select whether to search for when the vehicle enters or exits that GPS Location Frame.

THE TIME LINE

The Time Line allows for quickly selecting video that will be watched or saved, as well as indicate what section of video is currently playing.



The main line will be highlighted with one of three colors:

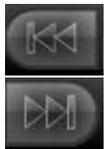
- Where the line is green is where there is unalarmed video present.
- A red line is where there is alarmed video.
- Black lines are where there is no video present.



The Playing Indicator (left) shows from where the video is being currently played. To select another segment or time to play, you can click and drag this slider on the time line.



The Time Span Selector allows toggling between the three time spans: 24 hours -> 1 hour -> 10 minutes. Clicking each time will advance to the next time span.



The Left Arrow and Right Arrow buttons will allow advancing of the timeline by the current span. For example, if the current time span is 1 hour, clicking the |<< button will decrement the time by one hour.



The Left Time Box and Right Time Box buttons will allow setting the 'begin' and 'end' save times. To use them:

- 1) Click on the Left Time Box button.
- 2) Drag the left time box indicator to where the beginning of the 'Saved Video' time should be.
- 3) Click on the Right Time Box button.
- 4) Drag the right time box indicator to where the end of the 'Saved Video' time should be.
- 5) Click the 'Save Video' button. The Save Video dialog will come pre-arranged with your start and end times.

INFORMATION AND CONTROL PANEL

The Information and Control Panel gives control to how the video and audio are played, which windows are displayed, and information regarding the playing video.



The far left of the Information Display Panel displays the currently playing Date and Time.

The CPU reading will show what the current CPU load is as a fraction. On slower machines playing many high-resolution channels, the CPU may get overloaded. If this is the case, REI will go into a Resource Save Mode where it will slow the playback of the video. You will know if it is in this mode by the CPU indicator turning red.

The bottom right of the Information Display Panel is the play Speed and Direction Indicator. This indicator will highlight whether the video is moving forward or backward, and at what speed.



The 'Save' button allows the saving of video from any source onto the local hard drive. You may click 'Save' at any time to bring up the Save Video Selection window. For detailed information on how to save, see the VMS Guide to Saving Video later in this manual.



The Video Control Panel (Stopped) and Video Control Panel (Playing) both allow for control of the direction and speed the video is playing.



To play video at normal speed, click the '>' or the '<' button to play forward or reverse.

If paused, click the '|>' or '<|' buttons to step forward or backwards by one frame.

When playing, increase the speed by clicking on either the '>>' or '<<' buttons. These will increase the speed to the following speeds: 2X, 4X, 8X, 16X, and 32X.

At any time, you may click the slow button to slow the playback speed in whichever direction is currently playing. This will decrease the speed to the following speeds: 3/4X, 1/2X, 1/4X, 1/8X.



The Mute / Unmute Button will mute or unmute the sound.

It will be disabled if there is no video playing, if it is not playing at 1X speed, or if the application is in Resource Save Mode.



The Information Button will display the Information Box. This box will display information such as current GPS location, Company Name and Vehicle ID, and system inputs.

This button will be disabled if the Information Box is already displayed.



The Graph Button will allow for displaying of graphs based on Inputs, Accelerometer, Speed, System Voltage, and Temperature.



The Display GPS Button will display a map. If the Vehicle was equipped with a GPS receiver at the time of video recording, this map will be populated with the route of the Vehicle, along with the location of the vehicle at the time of current playback.

This button will be disabled if the GPS Map is already displayed.



The Change View Button allows for selecting how the video and information windows are arranged. There are 24 different window configurations to choose from.

If there are too many windows to fit in the current view, then the PREV PAGE and NEXT PAGE buttons can be clicked for viewing the remaining windows.



The Settings Button allows the changing of global settings. This button allows the changing of items such as Colors, Default Save Folder, and the enabling and disabling of Video Smooth.

VIDEO DISPLAY WINDOW

The Video Display Window displays Video, as well as the information window, GPS window and graphs.



Any Video Display Window may be swapped with any other by grabbing the title bar and dragging it onto another Video Display Window's title bar.

In addition, you may close any individual Video Display Window by clicking on the white 'X' in the corner.

To take a picture of what is currently inside the Video Display Window, you may click the white camera icon (available with only some inputs). This will display the REI Image Viewer where you may manipulate the image, add text, and share the image.

REI VMS GUIDES

REI VMS is the primary means to view video recorded on the BUS-WATCH® HD-400 and BUS-WATCH® HD-800 series DVRs. With this program you can play back previously saved video, view live feeds from the DVR, and archive video for later viewing.

Included in this section are guides to:

- 1) Hard Drive Video: View saved video from a Hard Drive.
- 2) Flash Drive Video: View archived video on a USB or SD card.
- 3) Setting up REMOTE DVR for playback.
- 4) View saved video on a Remote DVR.
- 5) View Live Video on a Remote DVR.
- 6) Archive video from any source onto the local Hard Drive.
- 7) View archived video on the local Hard Drive.

VIEWING HARD DRIVE VIDEO

- 1) Unlock the Hard Drive from the DVR by turning the key from the “Lock” to the “Unlock” position.



- 2) Remove the Hard Drive from the DVR by pulling firmly on it.



- 3) Connect the Hard Drive to the computer using the provided USB Cable, as shown below. It may be necessary to plug both of the double-sided USB cables into USB ports in order to provide enough power to the Hard Drive Unit.



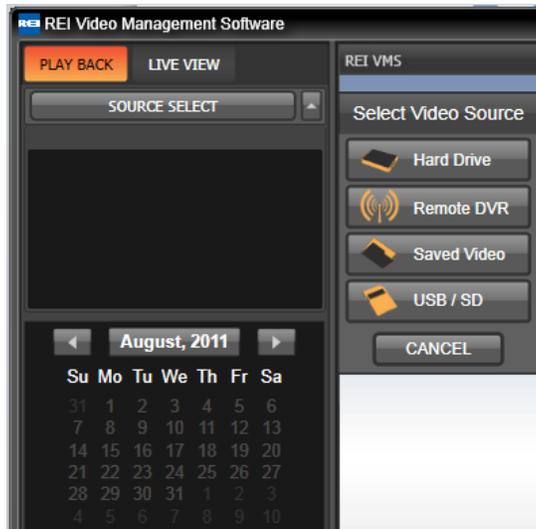
- 4) Double click the icon REI VMS on your Windows Desktop.



- 5) The default window should appear like the below window. The details of each button will be detailed in other sections.



- 6) Click 'SOURCE SELECT' and then select the button for 'Hard Drive'.



- 7) The Hard Drive will populate the Calendar and then the Video Segments list. To begin playback, double click one of the Video Segments, highlight a section on the time bar, or click 'Play'.



FLASH DRIVE VIDEO

There are two main sources for Flash Drive video:

- 1) *Resident SD Card*. If there is a resident SD card in the DVR, the DVR will automatically copy all alarms over to the unit.
- 2) *USB Stick*. If the USB unit is set to automatically backup to USB Sticks, when inserted the DVR will copy all alarms over to the USB Stick.

To read easily off of one of these devices, follow these steps:

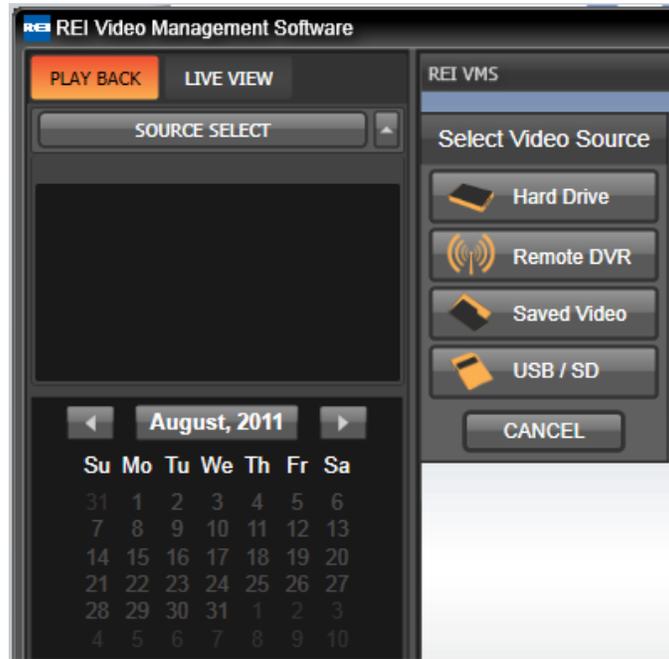
- 1) Remove the SD Card or USB Stick from the BUS-WATCH® device and insert it into the computer.
- 2) Double click the icon REI VMS on your Windows Desktop.



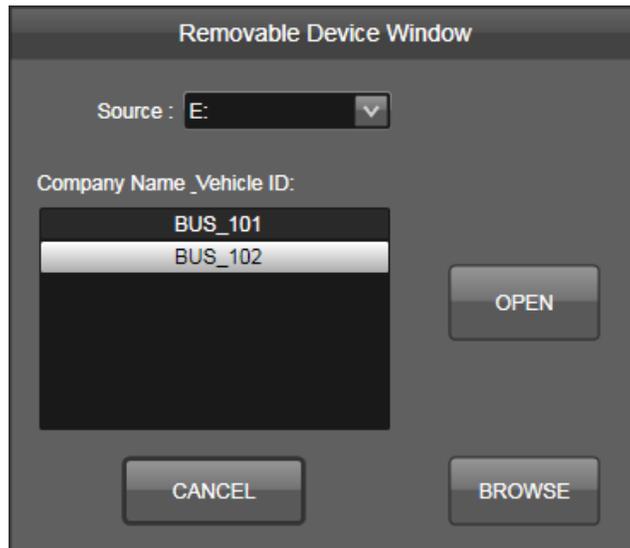
- 3) The default window should appear like the below window. The details of each button will be detailed in other sections.



- 4) Click 'SOURCE SELECT' and select the button for USB/SD.



- 5) Select the drive letter of the USB Stick or SD Card you wish to use, then the Vehicle ID:



- 6) The Flash Drive will populate the Calendar and then the Video Segments list. To begin playback, double click one of the Video Segments, highlight a section on the time bar, or click 'Play'.



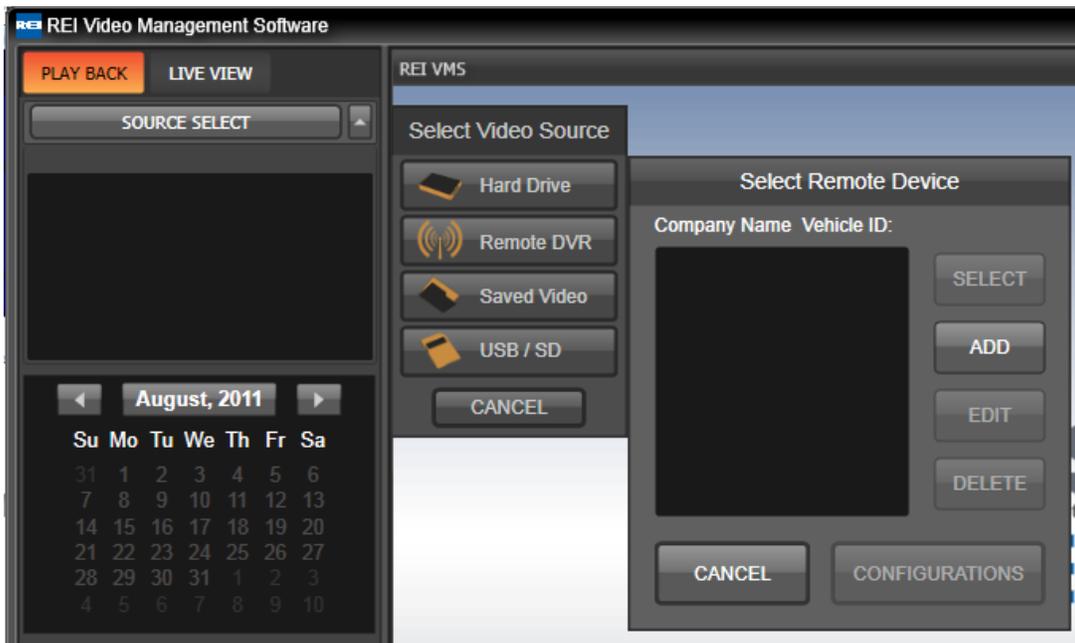
REMOTE DVR SETUP

Before any steps to connect to a remote device to view either live or stored video, the device must first be entered into the REI VMS database. These steps will instruct you on how to do this.

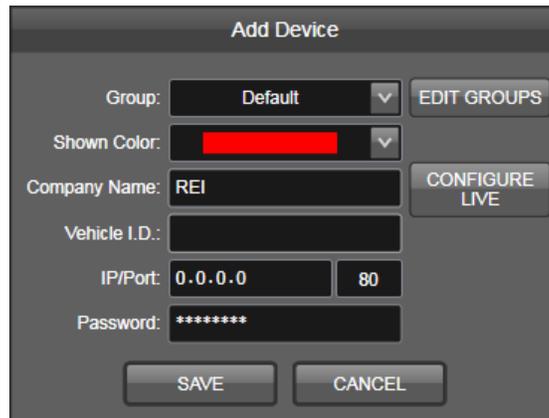
- 1) Double click the icon REI VMS on your Windows Desktop.



- 2) When REI VMS has loaded, click 'SOURCE SELECT', followed by 'Remote DVR'. This will bring up the window where you can select from a list of remote devices. Since there is no remote device in the database list, we will add one by clicking 'ADD'.



3) The Add Device window will now have been added (as shown below).



The Group field is a way to divide up devices into separate divisions. If there is no obvious division, you may leave all added devices under the 'Default' group. If you wish to utilize groups, click 'EDIT GROUPS', where you may add, edit, and delete any groups.

The Shown Color field is the field this device will show in the Devices Window, and the color of all headings of the windows.

The Company Name field should be set to the name of your company.

The Vehicle I.D. field should be set as a unique identifier per vehicle.

The IP/Port and Password are items that can be retrieved from the on-screen display of the DVR. They should have been set when the DVR was installed.

4) Click 'SAVE'

5) The device you added should now appear under the group name of the device you added. See below for an example:



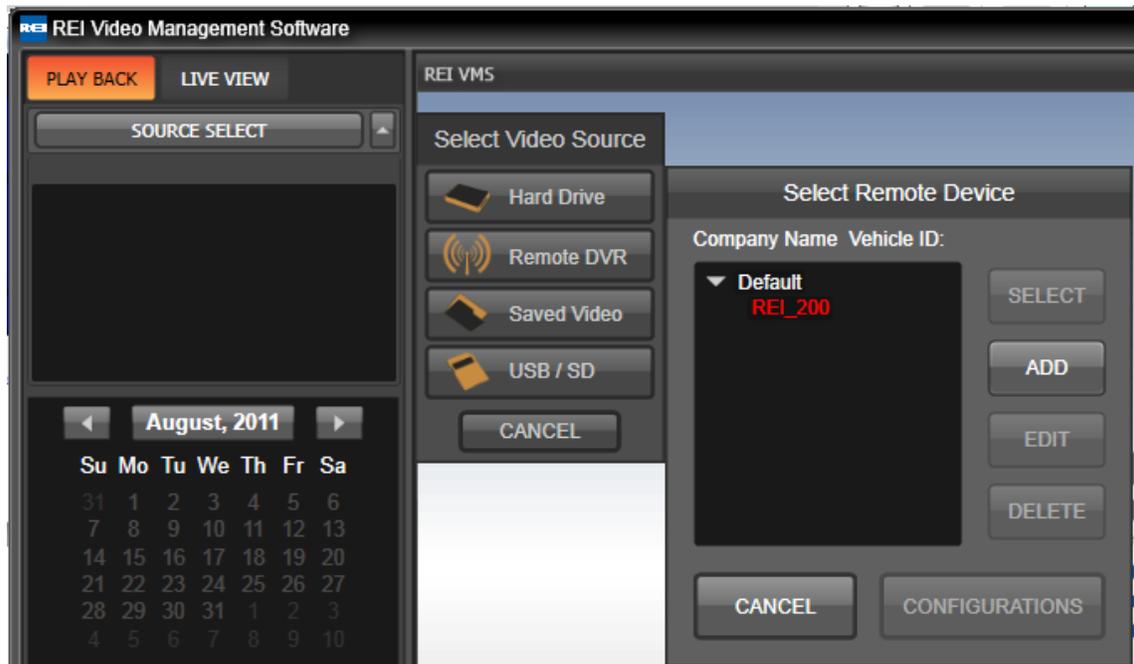
REMOTE DVR ACCESS

NOTE: In order to have remote access to DVRs, the DVR must be fitted with either 3G or wireless access.

- 1) Follow the steps in the section *Remote DVR Setup* to set up a device in CMS.
- 2) Double click the icon REI VMS on your Windows Desktop.



- 3) Click "SELECT SOURCE", then "REMOTE DVR". The Remote Device Selection screen will come up. Double click the vehicle you wish to review.



- 7) The Remote DVR will populate the Calendar and then the Video Segments list. To begin playback, double click one of the Video Segments, highlight a section on the time bar, or click 'Play'.



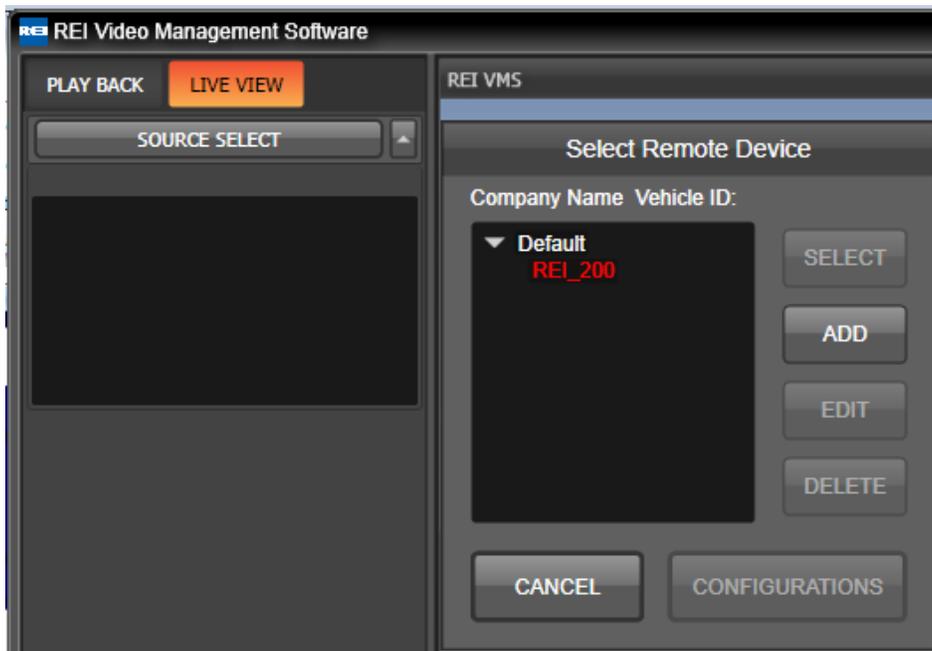
LIVE VIEW

NOTE: In order to have remote access to DVRs for LIVE VIEW, the DVR must be fitted with either 3G or wireless access.

- 1) Follow the steps in the section *Remote DVR Setup* to set up a device in CMS.
- 2) Double click the icon REI VMS on your Windows Desktop.



- 3) Select 'LIVE VIEW'.
- 4) Select 'SOURCE SELECT'. At this point the Remote Device Selection Screen will display displaying a list of available buses to connect to. Select the vehicle you wish to connect to.
 - a. You may also select an entire group or multiple buses and add them to the selectable sources window.



- 5) Double click the vehicle you wish to view. You may add several vehicles at once.

SAVING VIDEO

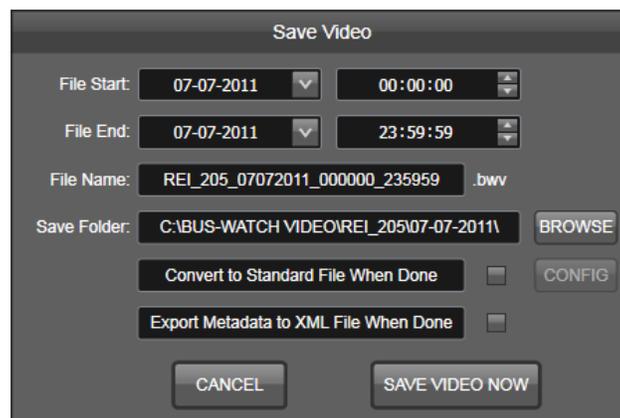
There are several methods for saving video.

SAVING VIA THE SAVE BUTTON

- 1) Load a video source.
- 2) Click the 'Save Video' Icon.

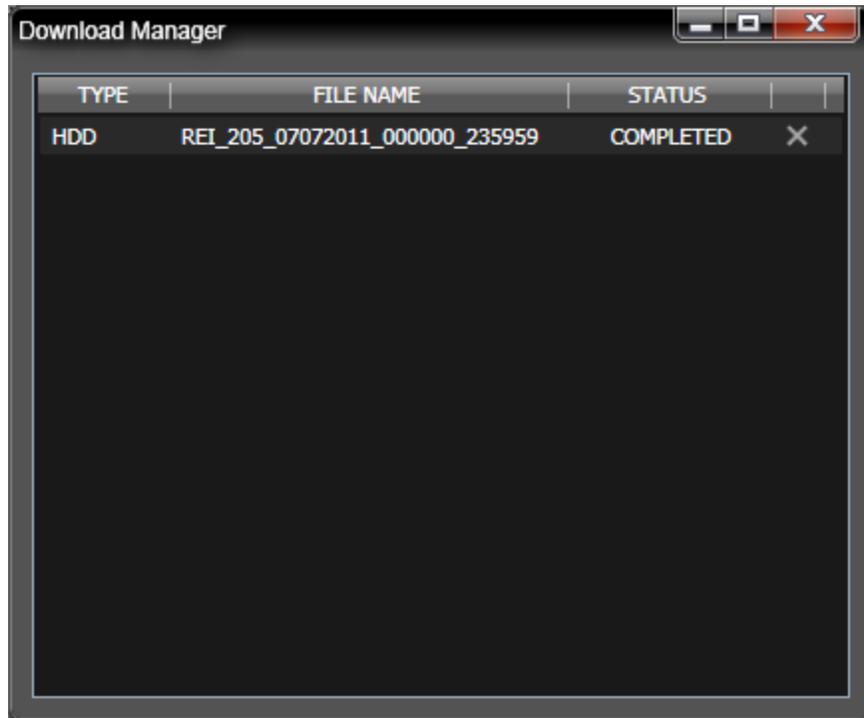


- 3) The Save Video window will come up.



- 4) Manually adjust the File Start and File End Dates and Times to the time that you would like to save by typing in the dates and times into the provided area.
- 5) It is recommended you leave File Name, Save Folder, Convert to Standard File When Done, and Export Metadata to XML File When Done as the defaults.
- 6) Click 'SAVE VIDEO NOW'.

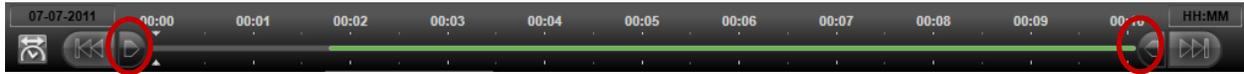
7) The Download Manager will show status of the download.



You may close this window while downloading the video and it will continue to save.

SAVING VIA TIME BOXING

- 1) Load a video source.
- 2) On the timeline, click the Time Boxing arrows on both sides.



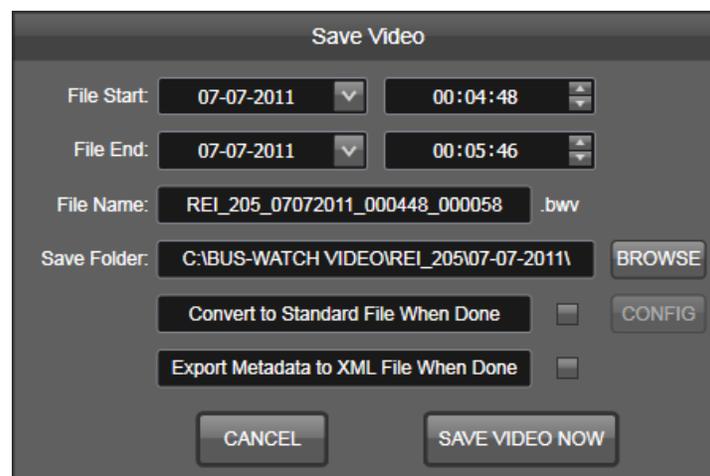
- 3) Adjust the time sliders to the beginning and end of the time you wish to save.



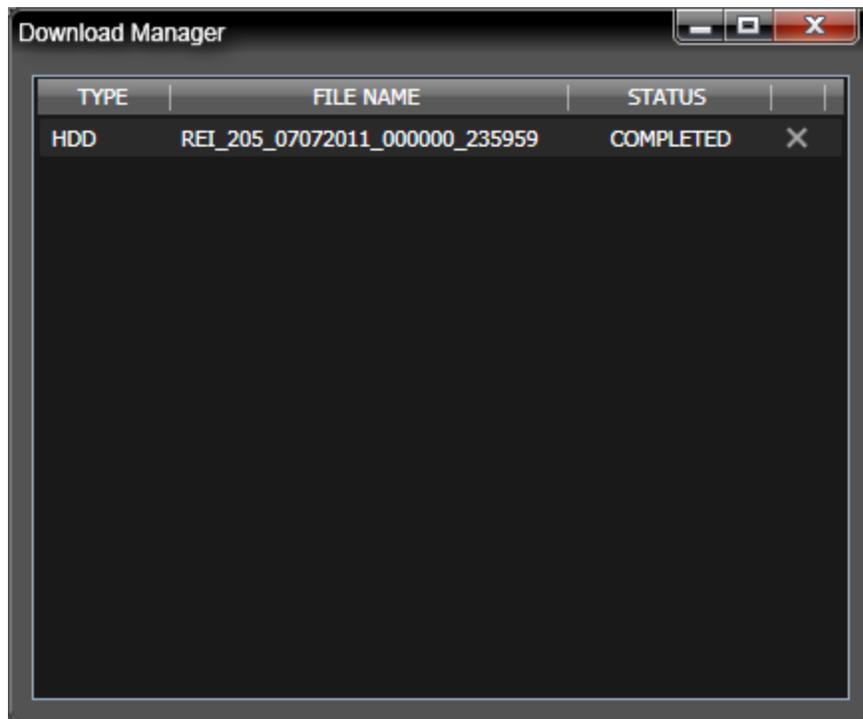
- 4) Notice the 'save video' section is now auto-populated with your selections. Click the 'Save Video' Icon.



- 5) The Save Video window will come up. This is now auto-populated with your previous selections.



- 6) Manually adjust the File Start and File End Dates and Times to the time that you would like to save by typing in the dates and times into the provided area.
- 7) It is recommended you leave File Name, Save Folder, Convert to Standard File When Done, and Export Metadata to XML File When Done as the defaults.
- 8) Click 'SAVE VIDEO NOW'.
- 9) The Download Manager will show status of the download.



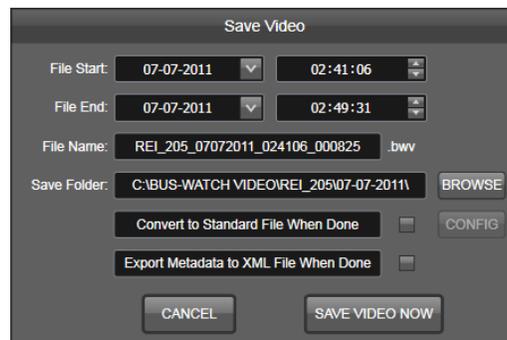
You may close this window while downloading the video and it will continue to save.

SAVING VIA THE VIDEO SEGMENTS LIST

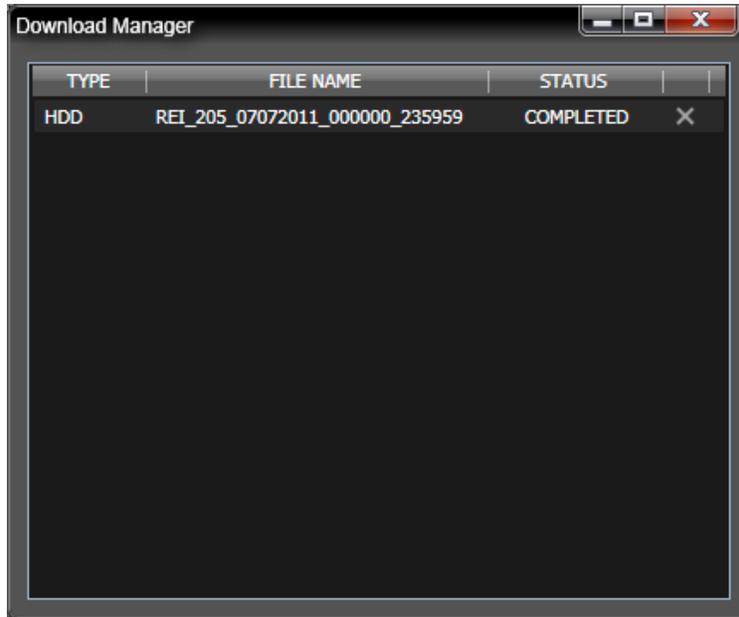
- 1) Load a video source.
- 2) In the 'Video Segments' window, right click on the video segment you wish to save.



- 3) Select 'SAVE VIDEO'
- 4) The Save Video window will come up. This is now auto-populated with the time segment selected.



- 5) Manually adjust the File Start and File End Dates and Times to the time that you would like to save by typing in the dates and times into the provided area.
- 6) It is recommended you leave File Name, Save Folder, Convert to Standard File When Done, and Export Metadata to XML File When Done as the defaults.
- 7) Click 'SAVE VIDEO NOW'.
- 8) The Download Manager will show status of the download.



You may close this window while downloading the video and it will continue to save.

VIEWING SAVED VIDEO

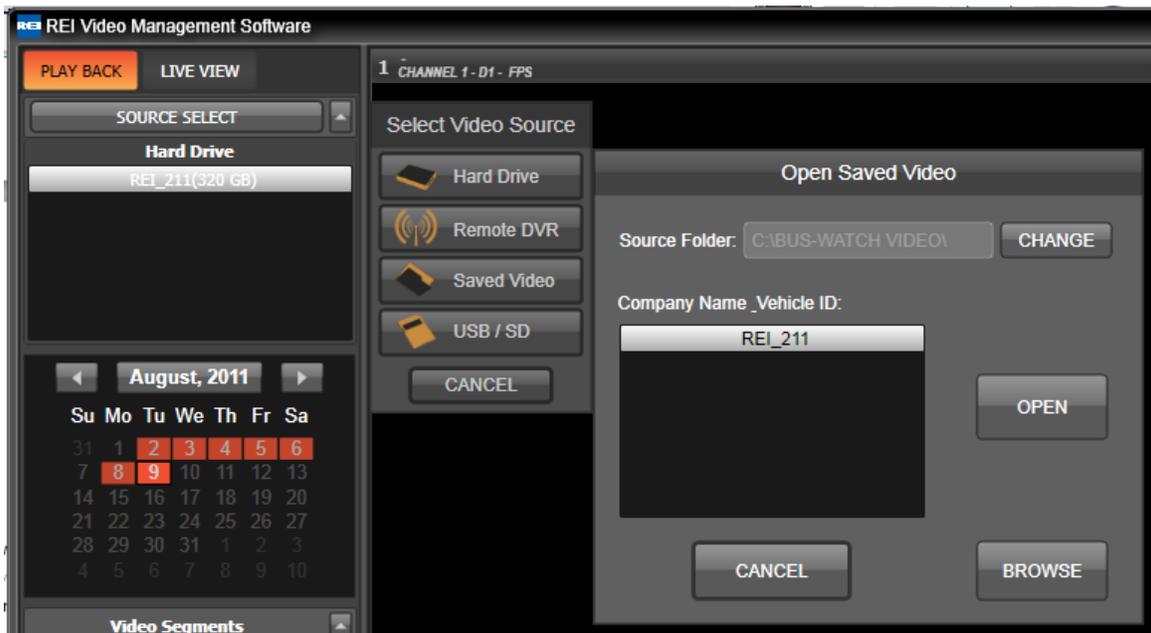
- 1) Double click the icon REI VMS on your Windows Desktop.



- 2) The default window should appear like the below window. The details of each button will be detailed in other sections.



- 3) Choose 'SOURCE SELECT', then 'Saved Video'.



- 4) Double click on the name of the Vehicle you would like to load.
- 5) The Calendar and then the Video Segments list will be populated. To begin playback, double click one of the Video Segments, highlight a section on the time bar, or click 'Play'.



- 6) You may add more file sources by repeating the steps 3 through 5.

TECHNICAL SUPPORT

If at any time you run into issues with any aspect of REI Software Suite, or with the BUS-WATCH® DVRs, feel free to contact REI's world-class team of technical support specialists. They are available 24/7 to assist you.

Service Hotline: **1-877-726-4617** (Toll Free)