

***Vantage* NEX<sup>TM</sup>**

**User**



**iteris**<sup>®</sup>

**VantageNEXT**<sup>™</sup>

User Guide

---

**iteris**<sup>®</sup>

© 2017 Iteris, Inc.

All rights reserved. No parts of this work may be reproduced in any form or by any means - graphic, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems - without the prior written permission of Iteris, Inc.

Products that are referred to in this document may be either trademarks and/or registered trademarks of the respective owners. The publisher and the author make no claim to these trademarks.

While every precaution has been taken in the preparation of this document, the publisher and the author assume no responsibility for errors or omissions, or for damages resulting from the use of information contained in this document or from the use of programs and source code that may accompany it. In no event shall the publisher and the author be liable for any loss of profit or any other commercial damage caused or alleged to have been caused directly or indirectly by this document.

The information contained in this document is subject to change without notice.

#### **FCC, Class A Statement**

This product has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications.

Operation of this product in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1) This device may not cause harmful interference.
- 2) This device must accept any interference received, including interference that may cause undesired operation.

#### **Industry Canada**

This unit is compliant to the Industry of Canada specification:

*CCU and VP:*

CAN ICES-3(A) /NMB-3(A)

*Camera:*

CAN ICES-3(B)/NMB-3(B)

Cet appareil est conforme à la spécification de l'industrie au Canada :

*CCU and VP:*

CAN ICES-3(A) /NMB-3(A)

*Camera:*

CAN ICES-3(B)/NMB-3(B)

## SOFTWARE LICENSE AGREEMENT

### License Grant

Iteris, Inc. (“Iteris”) hereby grants a non-exclusive license to the purchaser (“Licensee”) of its Iteris Vantage™ Video Detection System (“System”) to use the Iteris supplied software programs, algorithms, or firmware, and any enhancements or modifications thereto, whether delivered electronically or otherwise (“Software”) and any User Documentation accompanying the Software (“Documentation”) for its use, subject to the terms and conditions hereof, in connection with the System.

By purchase of the System, Licensee agrees to the terms of this license agreement.

Iteris retains title to and ownership of the Software and Documentation and all trade secrets therein.

The Licensee may not either (I) copy or otherwise reproduce the Software or Documentation without written permission of Iteris, (ii) modify, decompile, disassemble or reverse engineer the Software or any part thereof, or attempt to do so, without the express written consent of an authorized officer of Iteris, or (iii) except as set forth herein, may not rent, lease, sublicense, distribute or otherwise transfer the Software or Documentation.

### Term of License

The License shall be effective from the date of shipment of the System and Software and shall remain in effect for the life of the System unless terminated sooner as provided in this agreement. This license agreement terminates automatically if the user fails to comply with any of the terms or conditions of this license. Upon such termination, Licensee shall return Software and Documentation (including all permitted copies) to Iteris.

### Provision for Transfer of License

In the event that substantially all of the assets of Licensee are sold, which transfer includes the System, to a third party (“transferee”) and the System remains at the same location, this license, including all the rights of Licensee herein, shall transfer automatically to the transferee provided that written notice of such transfer is given to Iteris and the transferee gives written notice to Iteris of its approval of this license.

In the event that the System is sold or transferred to a third party, other than as set forth in the preceding paragraph, the transferee shall apply, in writing, to Iteris’ Service Manager for approval of the transfer of the license. A license to use the Software installed in the System at the time of the sale or transfer shall be granted to the transferee, at no charge, provided the transferee gives written notice to Iteris of its approval of the license.

In the event that the System is financed or leased, this license may be assigned to the lessor or the party providing such financing, provided that (I) the financing arrangement or lease includes the complete System, (ii) written notice of such financing or lease is given to Iteris, and (iii) the party providing such financing or leasing gives written notice to Iteris of its approval of the license. Any subsequent disposition of the System by such party shall be made subject to the terms of this license, including the requirements set forth in the preceding paragraphs.

In the event of transfer or assignment of the System, the original Licensee shall retain no right to use the Software or Documentation and all copies thereof shall either be delivered to the transferee or destroyed.

### Software Limited Warranty

For a period of three years from the date of delivery of the System to the purchaser, Iteris warrants (I) that the Software will conform, in all material respects to the functional capacities described in the Documentation, provided that the Software is used as instructed; (ii) that the Documentation contains the necessary information to utilize the Software; and (iii) that the media on which the Software is supplied shall be free from defects in material and workmanship.

EXCEPT FOR THE LIMITED WARRANTY SET FORTH ABOVE, THE SOFTWARE AND THE DOCUMENTATION IS PROVIDED “AS IS.” ITERIS MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE SOFTWARE AND/OR DOCUMENTATION AND SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ITERIS DOES NOT WARRANT THAT THE SOFTWARE AND/OR THE USER DOCUMENTATION WILL MEET SPECIFIC USER REQUIREMENTS OR EXPECTATIONS OR THAT THE OPERATION OF THE SOFTWARE SHALL BE UNINTERRUPTED AND/OR ERROR FREE.

Some states do not allow the exclusion or limitation of implied warranties, so the above exclusions and limitations may not apply. This warranty gives the user specific rights and he may have other rights which vary from state to state.

#### Iteris' Responsibility

During the three year warranty period, if Iteris releases a general Software upgrade and Documentation revision ("Upgrade"), Iteris shall provide the Upgrade to the Licensee at no additional charge. Iteris has sole discretion as to the contents or whether a specific Software upgrade will be made and what constitutes a general release of such upgrade as opposed to a limited release. Iteris does not imply or guarantee that a general Software release will be made during the term of this Agreement. Any such Upgrade shall be subject to the terms of this Software License Agreement, but shall not extend the original term of this warranty.

In order to ensure Iteris Customer Service Support, the user shall be required to maintain the System and the Software at the most recent, compatible versions. Iteris Customer Service Support will support only the current general Software releases.

#### Limitation of Remedies and Liability

The Software License Agreement and associated Limited Warranty shall not apply to any defect, failure or damage caused by (i) improper installation, (ii) improper use of the Software or System, or (iii) accident.

Under no circumstances, and notwithstanding any failure of the essential purpose of any limited remedy provided for herein, shall Iteris be liable to the licensee for any damages, claims or losses whatsoever, including but not limited to lost profits, lost savings or other special, incidental or consequential damages arising out of the use or inability to use the Software, Documentation, and or the System regardless of the circumstances. In no case shall Iteris liability exceed the purchase price of the System.

#### Controlling Law

This Agreement shall be governed and construed in accordance with the laws of California.

#### Severability

In the event that any provision of this Agreement shall be deemed unenforceable or invalid, such unenforceability or invalidity shall not render this Agreement unenforceable or invalid as a whole, and the remainder of this Agreement shall remain enforceable and valid. The court or determining body shall enforce and interpret the remainder of this Agreement so as to best accomplish the intended objectives and economic effects of the Agreement.

#### Entire Agreement

The user acknowledges that he has read this license, understands it and that it is the complete and exclusive statement of his agreement with Iteris which supersedes any prior agreement, oral or written, between the user and Iteris. No variation of the terms of this Agreement will be enforceable against Iteris unless Iteris gives its express written consent signed by an authorized officer of Iteris.

#### U.S. GOVERNMENT RESTRICTED RIGHTS

The Software and Documentation are "commercial items" as that term is defined at 48 CFR 2.101, consisting of "commercial computer software" and "commercial computer software documentation" as such terms are used in 48 CFR 12.212. Consistent with 48 CFR 12.212 and 48 CFR 227.7202-1 through 227.7202-4, U.S. Government end users acquire the Software and Documentation with only those rights set forth herein. Contractor/manufacturer is Iteris, Inc., 1515 South Manchester Avenue, Anaheim, CA 92802-2907.

© Copyright 1998-2016 Iteris, Inc. All rights reserved.

## 1. INTRODUCTION

*The most advanced video detection system that delivers superior performance and a scalable platform*

### Optimum Video Detection System

VantageNext™ is Iteris' next generation of video detection system that capitalizes on the latest generation of processors. The VantageNext uses a powerful state-of-the-art processor and Linux™ OS that enables future functional growth while maintaining proven Iteris video detection performance and reliability. The architecture supports expanding ITS applications and easily integrates with existing and future technologies.

Today's traffic engineers and planners need up-to-the-minute data to ensure maximum efficiency and effectiveness of traffic management solutions. The VantageNext provides all the data necessary to allow the local traffic controller to manage the intersection while delivering network wide data back to the Traffic Management Center.

### Simple to Install and Setup

VantageNext improves the lifecycle cost by simplifying the cabling both between the Camera and the Traffic Cabinet and within the Cabinet itself. No special tools are needed for installation.

### Benefits

- *Low lifecycle cost*
- *Easy to install, configure and maintain*
- *Simple and convenient access*
- *Flexible and scalable*
- *New and enhanced graphical user interface for operator ease-of-use*
- *Integrated streaming video*
- *Advanced video detection performance*

### Features

- *Extension modules in 2, 4, or 32, channel configurations*
- *Fits into Type 170/2070 input files, NEMA TS-1 and TS-2 detector racks*
- *Easy to use menu interface*
- *Auto senses input voltage (+12 or +24 VDC)*
- *High intensity LEDs for easier viewing of status conditions*
- *Up to 32 virtual zones per video input*
- *Virtual zones can be assigned with Boolean logic for greater control*
- *Fail-safe outputs for video loss, low contrast and equipment failure*
- *Non-volatile memory data storage*
- *Self test on power up*
- *Ethernet port for ease of remote access and maintenance*

# PedTrax™

## Tracking critical pedestrian activity with your Vantage video detection system

### Value-Added Data Feeds

There is an increasing need for more data at signalized intersections, including vehicle, bicycle, and pedestrian information. Agencies are wanting a more complete view of the intersection usage, and ensuring that safety is a key component of all future roadway improvements. To support these efforts, Iteris has developed PedTrax, a video detection feature embedded on the latest Iteris hardware platforms.

### Integrated within existing equipment

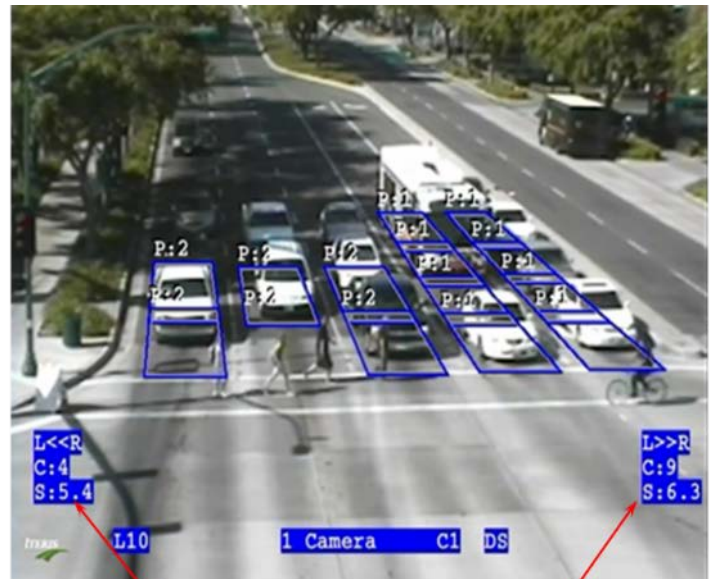
PedTrax provides bi-directional counting and speed tracking of pedestrians within the cross-walk, automatically collecting this information after normal vehicle detection has been implemented. The PedTrax feature is embedded within the Iteris detection algorithms, and there is no need for any additional equipment for this feature to operate. With count and speed data of pedestrians within the crosswalk, combined with the already available vehicle and bicycle counts, agencies now have the data necessary to support enhanced safety initiatives, improve funding applications, and a focused effort on roadway improvements.

### Features

- Provides automated bi-directional pedestrian count data
- Provides automated bi-directional pedestrian speed data
- Works on existing new generation Edge and VantageNext platforms
- On-screen data stream and available bin data
- Included with all new Vantage video detection systems
- Field-upgradeable for latest Vantage hardware platforms

### Benefits

- Utilizes previously installed non-intrusive sensor systems
- Additional data stream to existing vehicle and bicycle counts
- Pedestrian speed data can help improve signal timing efficiency
- No additional setup required
- Field-proven detection performance from the industry leader



Pedestrians Moving  
Right to Left Across  
the Intersection  
Current Count  
Average Speed

Pedestrians Moving  
Left to Right Across  
the Intersection  
Current Count  
Average Speed

## 1.1 Overview

A typical intersection setup will have four cameras, each connected to a VantageNext Video Processor module in the traffic control cabinet. You use the VantageNext's hosted user interface to draw detection zones on the camera's video image. To define a detection zone, you designate the four corners of a zone on the video picture and then setup the various zone properties. You can define up to 32 detection zones per camera view.

The processor module analyzes the camera image to determine when a vehicle is present in a zone. Vehicle detection information is passed to the traffic control equipment for real-time adaptive control. Video can also be sent via by various communication methods to be displayed and monitored at a traffic management center.

This User Guide will walk you through the setup and startup, of the Next system. Please refer to the VantageNext Installation Guide for full instructions of the various modules and setup instructions for the camera.

If you have questions once you have completed the steps within this guide, refer to [Section 5: Troubleshooting/FAQs](#) or contact product support using the number listed in [Section 10: Product Support](#).

## 2. PROCESSOR CONFIGURATION

[Vantage Video Detection Zone Theory 101](#)



You may have heard the term "complex edges" associated with the Vantage video detection systems. Vantage systems utilize complex edge detection as one of the prominent techniques to effectively detect vehicles. Vehicles tend to have more complex edge content than other undesirable artifacts in the field of view. This edge based algorithm gives Vantage video detection products their exceptional detection stability, even under severe environmental conditions.

For increased opportunity to detect, zones can also be overlapped from front to back or from side to side. This will compensate for vehicles that may not stop exactly at the stop line or a vehicle traversing lanes in the detection area.

Appropriate zone sizing rules should still be carefully observed. The best policy is to use the least number of zones possible to obtain the desired operation and performance. Some people think if one overlapped zone is good, then ten overlapped zones must be better. This is not necessarily the case, because increased opportunity to detect is non-discriminatory. This means that an increased opportunity to detect vehicles may also increase the opportunity to detect undesirable artifacts. It is therefore a wise policy to avoid excessive overlapping, especially over a troublesome area since increased opportunity to detect may lead to false calls under some circumstances.

### Lane Structure

Background: Next Video Processors take advantage of a lane zone structure. The lane zone structure tracks vehicles as they travel through the zones. The lane structure helps to detect vehicles better and reject false calls due to shadows. The lane structure extends in front and behind of the existing zones for greater tracking coverage.

Guidelines for setting up effective lane zones: Two or more zones in the same lane are needed to make a lane structure. A single zone will not be included in a lane structure. The zones need to be assigned an output channel. If a zone's output channel is assigned to none then it will not be included in a lane structure.

***P Important:*** *If a second detection zone is not required for intersection control it must still be drawn to create the lane structure. The second zone should have a valid detector output, for example VP1:1 and the zone type should be set to none. This will ensure system performance will be maximized.*

This figure is an example of the Lane Zone Structure. Detection zones are drawn in yellow. The lane zone structure created by the system is shown in red.

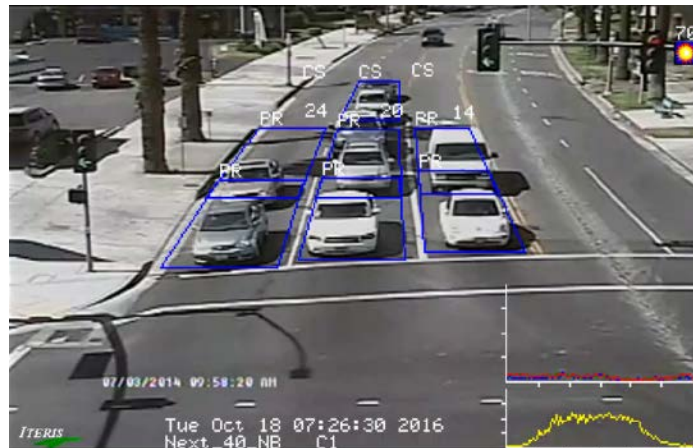


**Important:** In certain intersection control applications only certain lanes may be needed for traffic control, left turn only for example. In these situations a lane structure should be created in the nearest through lane. This though lane will help the algorithm determine the difference between a vehicle and a shadow (from a vehicle in the though lane).it must still be drawn to create the lane structure. Again the zones in the through lane should have a valid detector output, for example VP1:1 and the zone type should be set to none.

This is an example of the Lane Zone Structure when only the left turn detection is required. The zones drawn in yellow are required for intersection control. The zones drawn in blue are to aid performance and should be zone type None and have a valid detector output.



## Zones Placement and Size



*Problem Zone Example*

Pay particular attention to zone detail number five, the zone located on top of the large white truck on the left. Notice that the roof of the truck is what primarily fills the detail number five zone area. The white truck roof has very few edges, and in this simulated situation, the truck call might be dropped if the truck were to stop in this position. What can be done?

Overlapping the front stop bar zones, like the zones shown with detail number three and one in the lane to the right of the truck, would most likely remedy this situation. With two overlapped zones, the front zone area would most likely include the cab part of the truck, not just the truck roof. The truck cab, having an abundance of complex edges in the front grill, windshield, and front bumper, would provide ample complex edge content to properly detect this truck. Drawing detection zones too small can create a new set of additional problems. For instance, extremely small zones that ended up on a car roof or just the middle of the car's hood would have the same adverse consequences.

Remember, when resizing zones or making any other zone adjustments, always be mindful of how these changes might affect edge content, which in turn, has the potential to influence your vehicle detection.

Close attention to zone size and zone placement are also important because, ideally, we like to have at least fifty percent of the vehicle we are trying to detect reside in the detection zone area. Again, this has to do with complex edge content; if we only have one tenth of the vehicle in the detection zone area, that may not provide us with enough complex edges to determine that this is a vehicle and not just another undesirable artifact in the detection zone background.

Avoid placing zones on lane lines as any movement of the camera due to wind or other environmental condition may cause false detections.

### Zone Types

The "Type" option allows the user to specify the type of detection to be used for a particular zone. Several types of detection are available and are defined below.

PRESENCE (PR) (Default) – places a call while a vehicle is in the zone. When the vehicle exits the zone the call will be dropped.

EXTENSION (EXT) – places a call while a vehicle is in the zone, when the vehicle exits the zone the call is extended for a user selectable length of time. Timing choices range from 1 to 250 in tenths of a second. For example, a value of 50 is equal to five seconds of extension.

DELAY (DLY) – when a vehicle enters the zone area, the call is delayed for a user selectable length of time. Once the delay time has expired the call will be placed. Once the vehicle leaves the zone the call will be dropped. Timing choices range from 1 to 250 in tenths of a second. For example, a value of 50 is equal to five seconds of delay.

PULSE (PUL) – when a vehicle enters the zone, a pulse is output for a user selectable length of time. The vehicle must leave the zone and a new vehicle must enter before a new pulse will be generated. Timing choices range from 1 to 250 in tenths of a second. For example, a value of three is equal to a 0.3 second pulse.

COUNT (CN) – when a vehicle passes through the count zone area, it is counted. The count data for that zone is then stored in an internal processor bin. Bin interval length can be set from the Next Setup Tool and this tool or VantageView can be used to retrieve the stored count data.

- Channel Output (Ch / Out) is recommended to be set to "NONE".
- Draw the count zone using the same guidelines as you would for a normal detection zone. Counts are stored in 'bins' the interval between bin storage is set in the Utilities Menu.
- There are a maximum of six out of the 32 zones that can be assigned as count zones (per camera view).
- Refer to Section 10: Technical Information for more details on Count zones.
- The count data is retrieved from the Next System by communicating through the Ethernet port using Next Setup Tool (NST) or automatically with VantageView.
- The Bin Interval is set under the Utilities (Utl) menu, Bin Interval (BinIntvl) item

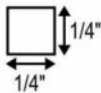
LOW CONTRAST (LC) – these zones are to be placed in areas of high contrast, in the top one third of the field of view (FOV), and the zones must be kept very small - about 1/4" by 1/4" inch. These LC zones provide additional stabilization for the field of view area. At least two of these zones should be drawn in each camera field of view. These zones actually prevent the system from going to Low Contrast mode unnecessarily.

The three LC lines have been replaced by a scene based method. A scanning line dynamically determines the LC status.

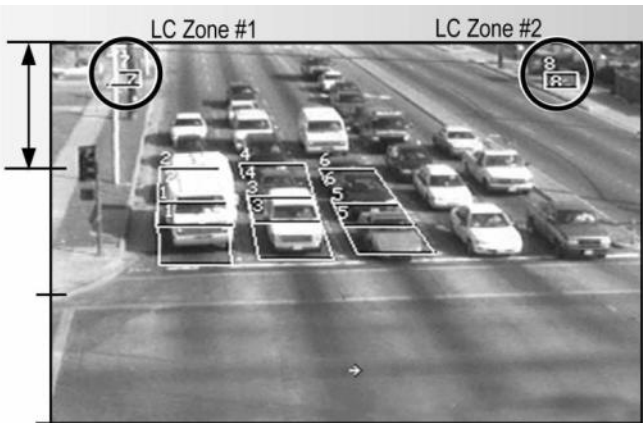
### Step 1

Draw two zones in the top 1/3 of the screen

- Size zones 1/4" x 1/4" or smaller



- Draw zones in an area with good contrast



Examples of areas with good contrast:

- White curb & gutter / grass
- White curb & gutter / Black roadway
- White sidewalk / a tree or bush
- White sidewalk / edge of a building, sign or structure

### Step 2

Assign all Low Contrast Zones to channel "NONE"

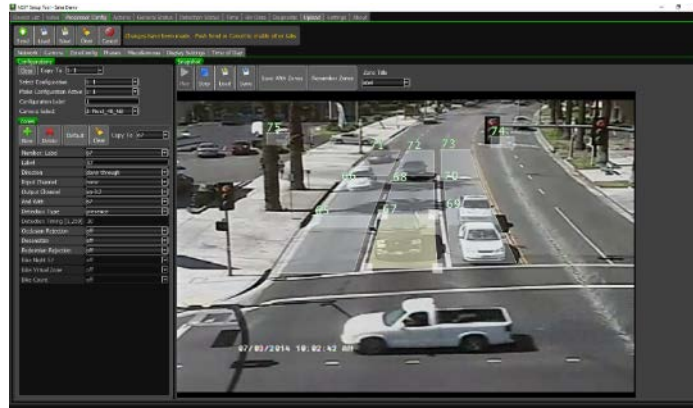
Low Contrast Zones are not the same as advance detection zones and are not used for vehicle detection.

**Note:** Failure to draw Low Contrast Zones or Drawing Low Contrast Zones incorrectly can result in the Vantage system going into Low Contrast Mode unnecessarily.

**Note:** *Low Contrast zones in reality there are many other low contrast conditions other than fog. Because of this, the decision was made to change the name to "Low Contrast Zones" or just "LC" to better reflect their true operation. From this point forward the term "Low Contrast" zones will be used interchangeably.*

Low contrast zones are used to stabilize operation and serve to prevent the system from going into a "Low Contrast" constant call condition unnecessarily. In areas that have snow, sidewalks and curbs may not be the best choice for LC zone placement, since the ground will be covered much of the time during winter months. A sign or edge of a building might be a better choice for LC zone placement in areas that experience extended periods of snow on the ground.

Another important consideration regarding LC zone placement is to make sure the area used for LC zone contrast is not located in the near field of view. The object or region selected for LC zone placement must not only be in the top 1/3 of the field of view, but it also must be physically located and originate in the far region. For example, signal heads or luminaire poles that originate in the near field of view, but also extend into the top 1/3 of the field of view are not a good choice for LC zone placement. There is a possibility, that because of their close proximity to the camera, the contrast will always be such that the system might never see the need go into low contrast mode. The logic behind LC zones is this; if the system can see good contrast in the LC zones located in the far field of view, then the system should have enough contrast to continue to detect vehicles in the stop bar region. Conversely, if the LC zones, located in the far field of view cannot see good contrast, then there may also be significant vehicle detection challenges in the near field of view, so the system reverts to a safe constant call LC mode.



*Improper Low Contrast (LC) Zone Placement*

In the picture, the Low Contrast zone numbered 74 the signal head and the LC zone number 75 on the tree would all be poor choices for LC zone placement. Though these LC zones meet the majority of the necessary criteria for LC zones including, correct size, they are located in the top 1/3rd of the field of view, and they have been placed on an area of contrast; they fail the far field of view test because both the signal head and the pole originate in the near field of view. Low Contrast zone placement should not only be in the top 1/3rd of the FOV, but should also only be placed on objects that originate in the far field of view. Objects in the near field of view will most likely always be clearly visible, even in heavy fog. This improper LC zone setup and placement may result in the system not going into a Low Contrast mode even when the conditions might benefit from this feature.

**Note:** *It is also worth noting that this FOV is also very poor. It looks like there is probably horizon included as part of the FOV, this should also be corrected.*

"Low Contrast" zones are now an actual zone type. To create a Low Contrast zone, go to the ADD menu item and select zone type "LC". LC zone parameters are automatically constrained, the system will only allow the user to draw them in the top 1/3 of the FOV and will restrict their size to less than 1/4 inch by 1/4 inch. This was done in an effort help the user create effective LC zones that conform to the necessary requirements.

**NONE (NO)** – when a vehicle enters the zone area a call will not be placed. This type can be useful in conjunction with the GREEN INPUT (Grn/In) function and lane structure.

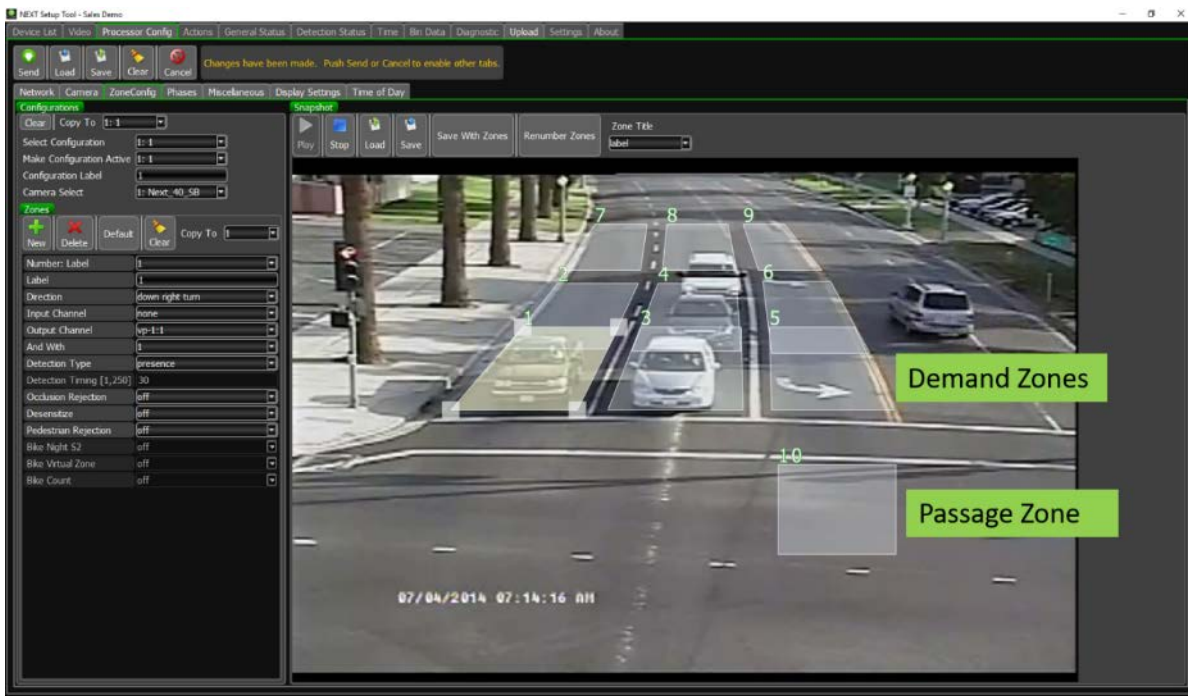
## Demand and Passage Zones

These two zones types are used in combination they are used in heavily congested traffic lanes only. During heavy traffic when vehicles occupy zones for a long period of time the processor may learn the vehicles as part of the background. Proper usage of demand and passage zones can help to alleviate this situation.

How passage and demand zones work: When traffic is heavily congested the demand zones have a hard time distinguishing the traffic from the background. The demand zones which are congested borrow zone background information from the passage zones which are clear most of the time. The demand zones borrow information from the passage zones to improve algorithm performance.

**Note:** This feature is active from between 7:00 AM and 8:00 PM. Ensure the processors' clock is set correctly.

How to setup new demand and passage zones: For a heavily congested approach, the demand zone is used just like a presence zone. Draw the demand zone just like you would draw a normal presence zone, starting from behind the stop bar and going back in the lane. Two or three demand zones per congested lane are recommended. The passage zone should be drawn in front of the stop bar area, where vehicles do not occupy the zone all the time. One passage zone per congested lane is recommended. The passage zone has timing associated with it. Leave the timing at the default setting of 3 (Pas:3) and set the channel output to "none".



COUNT SPEED OCCUPANCY (CSO) – These zones are similar to count zones. They collect extra data splitting the count into small, medium and large vehicles and also estimating average speed and road occupancy per Bin Interval.

## Achieving Vehicle Separation & Placement

- Key: The camera is aimed with the intersection in the FOV.

This camera is mounted on the signal mast arm.

- CSO zones are placed in the intersection and not above the stop bar. This will allow vehicles to have a gap between them when passing through the count zone. Only one vehicle should occupy the zone at any one time.

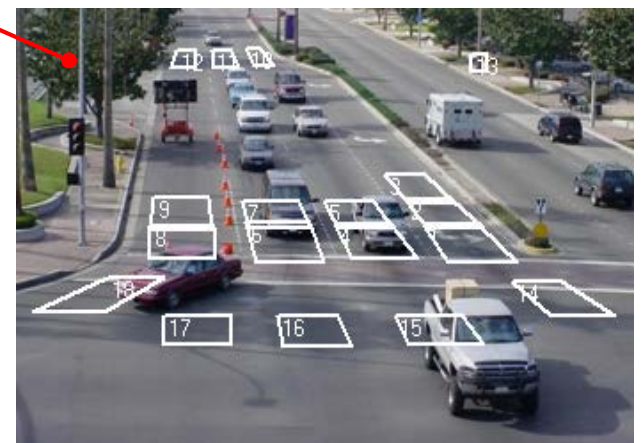
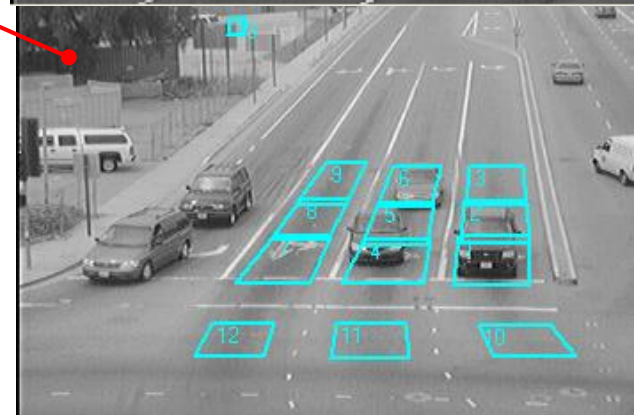
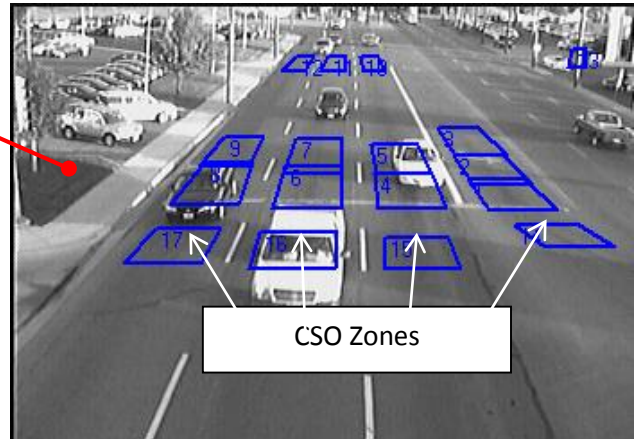
This camera is mounted on a safety light mast arm. This location creates a good FOV for both vehicle detection and counting.

- CSO zones Direction is set to down and is 15 feet from the top of the zone to the bottom of the zone.
- Notice the zones are set in the path the vehicles travel.

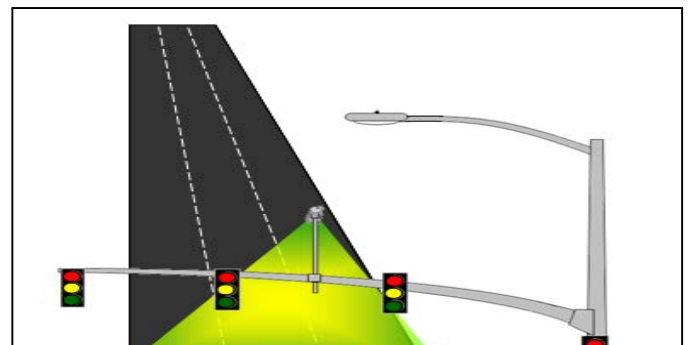
This camera is mounted on the safety light mast arm

- The camera is zoomed out wide enough to place the LT CSO zone where only left turning vehicles will trigger it. It can also accommodate a count zone for the right turn.

**Note: Each of the FOV has at least half of the departing lane in them; this will allow the LT cso zone to be placed correctly**



- Key: The camera in this illustration is mounted on the signal mast arm centered over the three lanes of departing traffic.
- The CSO zone has to be programmed down for it to collect data. When installing a camera to view departing traffic the camera must be rotated 180 degrees so that the vehicles enter the zone from the top to the







**BIKE** – Some intersections have dedicated bike lanes. Some intersections are marked with shared line pavement markings (or “sharrows”) where both vehicles and bikes share the same lane. Some intersections have vehicle lanes only. To detect all possible bicyclists bike zones should be drawn wherever a bicyclist may ride in the camera field of view (dedicated, shared or vehicle lanes).

All Bike zones can be programmed with extension time by adding extension time to the zone when the zone is configured. The extension places a call while the bike is in the zone, when the bike exits the zone the call is extended for a user selectable length of time. Timing choices range from 0 to 250 in tenths of a second. For example, a value of 50 is equal to five seconds of extension.

**Note:** Setting the time to zero disables the extension and the zone will operate like a standard bike presence zone, ie, the output will only be active while the bike is in the zone.

Bike zones can have dual functionality providing both presence/extension calls and counting bicycles. Up to six Bike zones can be assigned as count zones. Setting the attribute ‘Bike Count’ to ‘On’ enables bike counting in that zone. Refer to [Section 3.3: Processor Configuration/Zones](#) for more details on setting bike counting.

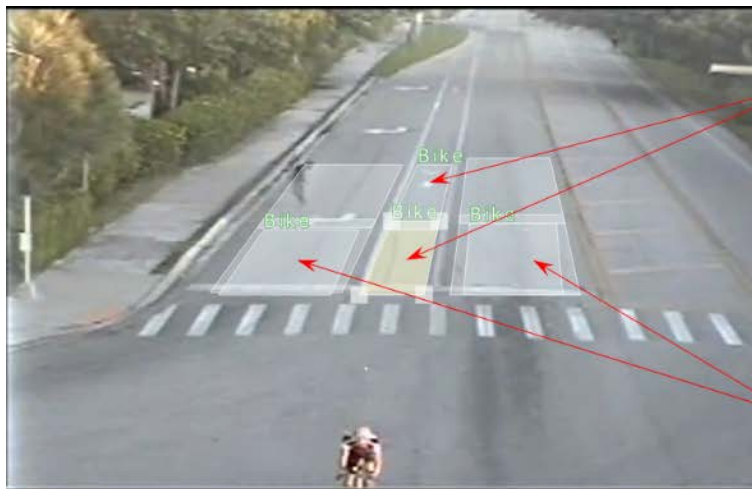
✓ **Note:** Once six bike zones have been assigned to count then this option in the Attribute menu will be switched off.

**Dedicated Bike Lane Zones**

Draw two zones in the bike lane, one at the stop bar and one directly behind it. The zones may touch, but it is not necessary to overlap them. The zone should be about the length of a bicyclist. Refer to the figure below. Be careful not to draw the zones on the lane lines as this may increase the possibility of false calls.

**Vehicle Lane Zones**

If you need to detect bicyclists in vehicle lanes first draw the regular vehicle detection zone. Please follow all the recommendations for zone drawing outlined in this manual. Once the vehicle zone is drawn, place a bike zone inside this zone. Refer to the figure below.



Bike Zones drawn in the bike only lane

Bike Zones drawn in the vehicle lane. The bike zones are inside the vehicle zones

*Example for Bike Zones drawn in both bike lanes and vehicle lanes*

**Bike Detection operation**

During operation the zones will activate as traffic passes through. For a Bike Zone, the label “Bike” will be displayed in the center of the zone when a bike passes through. For a Vehicle Zone, the outline of the zone will be displayed when any vehicle or bicycle is detected. If a Bike Zone is drawn inside a Vehicle Zone as described in the above section, both the zone outline and the label “Bike” will be displayed. See the screenshots below for examples of each of these instances.



Bicycle detection active in the bike lane



Vehicle only detection active



Bicycle detection active in the vehicle lane



Bicycle extension active

**ADVANCED (ADV)** – The purpose of this zone is to accurately model how an advanced zone behaves. As the zone detects a vehicle it will output a 300ms pulse. If the zone continues to be occupied, the system will then count down the duty cycle timer. Once the duty cycle timer has timed out a second pulse will be output. This cycle will continue until the system drops the detection call. The second is a duty cycle adjustable from 300ms to 3000ms.

- ✔ **Note:** *TIMING – The Extend, Delay, Pulse and Advanced zones all have user programmable timing. To set the timing for these zone types, either click both left and right mouse buttons simultaneously, or push the middle mouse button. The third mouse button may be the mouse wheel on some types of Vantage compatible mice. When this is done, the timing parameter of the zone type is highlighted. Now, by left or right clicking the mouse buttons, you will scroll through a set of timing values in tenths of a second from 1 to 250. When the desired timing value is reached, either click both left and right mouse buttons simultaneously or click the middle mouse button to set your timing choice.*

## 2.1 PEDTRAX

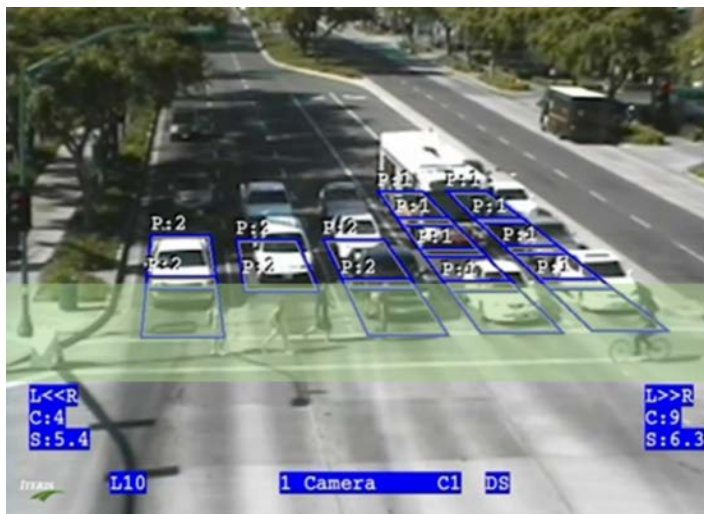
PedTrax provides bi-directional counting and speed tracking of pedestrians within the cross-walk, automatically collecting this information after normal vehicle detection has been implemented. The PedTrax feature is embedded within the Iteris detection algorithms, and there is no need for any additional equipment for this feature to operate. With count and speed data of pedestrians within the crosswalk, combined with the already available vehicle and bicycle counts, agencies now have the data necessary to support enhanced safety initiatives, improve funding applications, and a focused effort on roadway improvements.

### Firmware Requirements

PedTrax is available in firmware version 06.01.20 or later. If you are not running this version of firmware you can get the latest version from the Iteris Resource Center. See [Section 13: Product Support](#) for more information on the Resource Center.

## 2.2 Processor Configuration

Once the vehicle detection zones are drawn the processor automatically generates the Pedestrian Crossing area based on the detection zones drawn closest to the Stop Bar.



Pedestrian Zone Generated by System based on Detection Zones

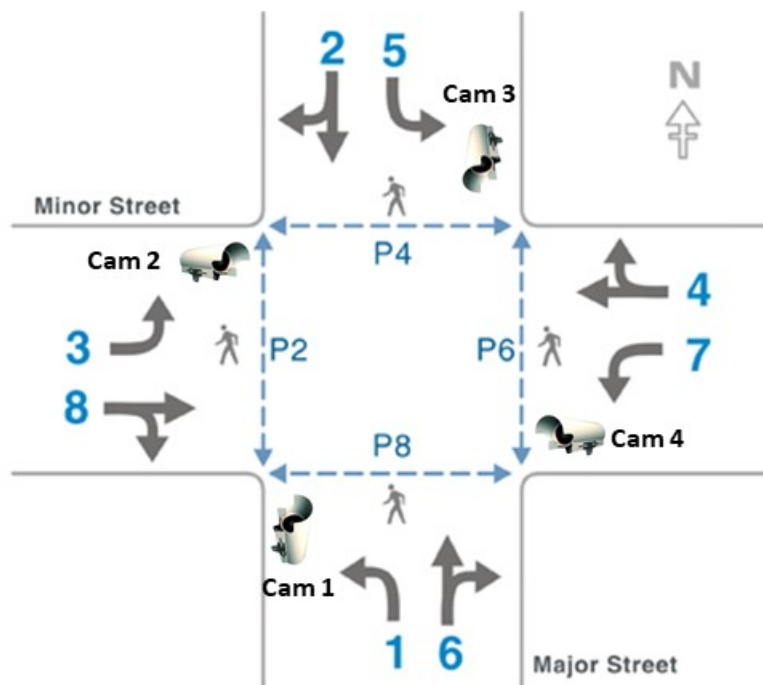
- ✓ **Note:** The system expects that detection zones are drawn close to the Stop Bar.
- ✓ **Note:** The system ignores Count and CSO zones in calculating this area if there are no outputs associated with these zones.

### 2.3 Pedestrian Output

Pedestrian detected outputs are available in firmware version 06.01.20SP1 and newer. This output will trigger when a pedestrian is in the crosswalk.

### 2.4 Pedestrian Crossing Against Don't Walk Signal

Pedestrian alarms are available in firmware version 06.01.20SP1 and newer. This alarms will trigger when a pedestrian is in the crosswalk and a conflicting phase is green. The conflicting phases will vary based on the intersection phasing. The diagram below represents a typical 8 vehicle phase, 4 pedestrian phase intersection.



- Camera 1 sees Vehicle phases 2, 5 and Pedestrian phase P4
- Camera 2 sees Vehicle phases 4, 7 and Pedestrian phase P6
- Camera 3 sees Vehicle phases 1, 6 and Pedestrian phase P8
- Camera 4 sees Vehicle phases 3, 8 and Pedestrian phase P2

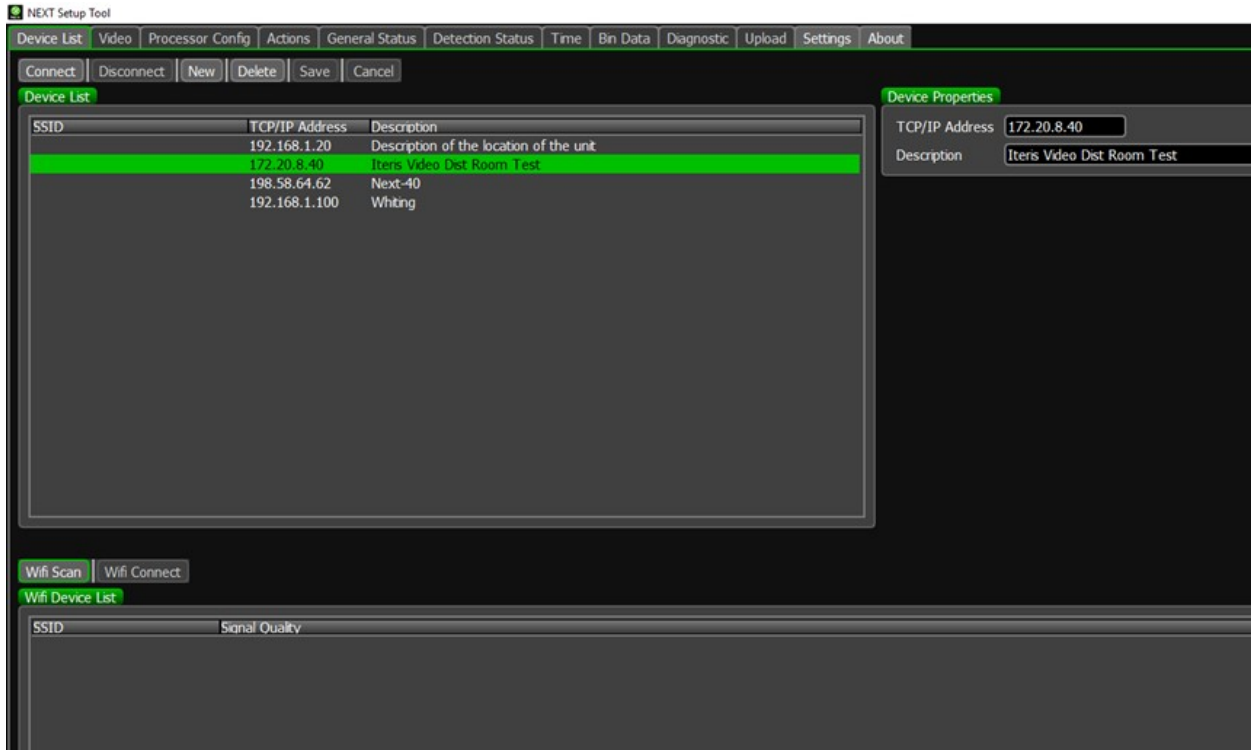
- For Camera 1, Pedestrian phase P4 conflicts with Vehicles phases 2, 3, 5 and 6.
- For Camera 2, Pedestrian phase P6 conflicts with Vehicles phases 4, 5, 7 and 8.
- For Camera 3, Pedestrian phase P8 conflicts with Vehicles phases 1, 2, 6 and 7.
- For Camera 4, Pedestrian phase P2 conflicts with Vehicles phases 1, 3, 4 and 8.

## 3. NEXT SETUP TOOL (NST)

Programming of the Next system uses the Next Setup Tool (NST). See [Section 8: Software Installation](#) for installation instructions of this application.

**Note:** Default IP Address for the Next system is 192.168.1.2

### 3.1 Device List



#### Existing Systems

The **Device List** screen provides an address book of all Next camera system installations previously configured and saved. It provides the application with the information needed to communicate with the Next camera system either locally or remotely.

Property	Description
<b>SSID</b>	This is the captured Wi-Fi label from the device.
<b>IP Address</b>	Communication to the Next camera system is through an Ethernet connection using TCP/IP.
<b>Description</b>	The <b>Description</b> can be used to identify the different intersections or junctions within a group. E.g., Pullman/Dyer, MacArthur/Birch.

**Modifying an Existing Device**

To modify the parameters on an existing entry, click on the device to be changed in the Device List and enter the new properties in the box. Click **Save** to store the updated device parameters or **Cancel** to cancel the action.

Property	Description
<b>Connect</b>	To connect to a Next camera system, select the system from the Device List and click <b>Connect</b> . The menu options along the top of the pane will change from grey to blue upon a successful connection. For an unsuccessful connection, refer to <a href="#">Section 5: Troubleshooting/FAQ</a> .
<b>Disconnect</b>	Once you have finished maintenance on a device return to the Device List screen and click <b>Disconnect</b> .  <input checked="" type="checkbox"/> <i>Note: The NST can only connect to one Next camera system at a time. Disconnect from the current system before attempting to connect to another system.</i>
<b>New</b>	To add a device to the system click <b>New</b> . Enter the device properties in the system and click <b>Save</b> to store the device parameters or <b>Cancel</b> to cancel the action.
<b>Delete</b>	To delete a device from the system, select the device from the Device List and click <b>Delete</b> .
<b>Save</b>	To save a newly created or modified device click <b>Save</b> . The device parameters will be stored in the system.
<b>Cancel</b>	The <b>Cancel</b> button has two functions. First, if the user is creating a new device it cancels the creation of a new device without saving the information in the device list. Second, if the user is editing an existing device it will put the last deleted device back into the Device List if it was removed by the user in error.

**Wi-Fi Devices**

Property	Description
<b>SSID</b>	Wi-Fi Label for device.
<b>Signal Quality</b>	Numeric value for strength of signal.

## 3.2 Video

The Video screen allows for viewing of video and adjustment of the camera Field of View.

**Note:** *Camera FOV* – see [Section 3.4: Field of View Setup](#) in the Next Installation manual for more detail on good FOV setup.



Property	Description
<b>Single</b>	Displays a single camera video stream.
<b>Multi</b>	Displays a quad view of all four camera video streams.
<b>Camera Select</b>	Selects which camera video stream will be displayed in single mode. This is also the camera that the FOV adjustments will be made to.
<b>Unlock/Lock</b>	Unlocks or Locks the camera FOV adjustments
<b>Zoom</b>	The slider shows the current zoom position (Pos: x). Move the slider left to zoom out. Move the slider right to zoom in.



Property	Description
<b>Autofocus</b>	Once the preferred zoom position is achieved click on the Autofocus button to focus the camera.
<b>Set</b>	Once the preferred zoom position is achieved and the camera is focused click on the set button to store these settings in the camera module. If a power reset were to occur the camera module will return to this set position.

**Note:** Camera FOV Adjustments are only enabled when the page is in 'Single' mode.

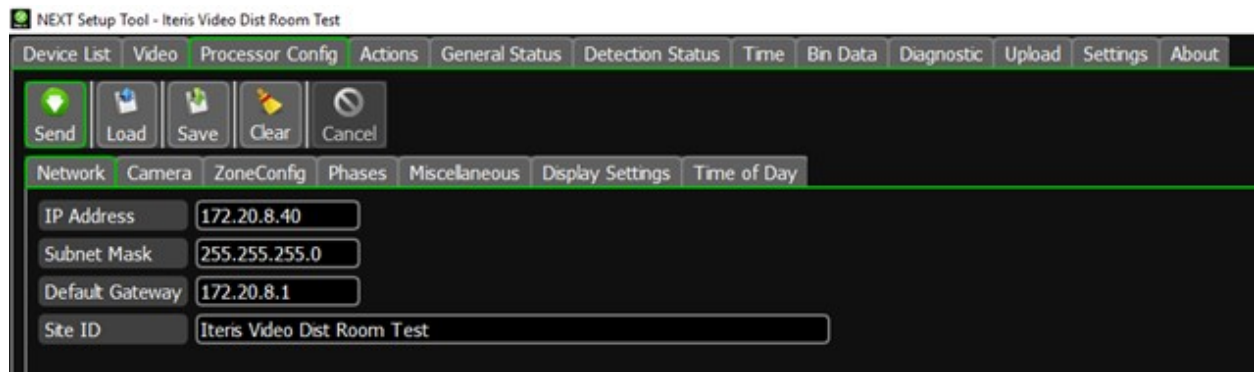
### 3.3 Processor Configuration

#### Network

Each Next camera system is set to a default IP address before leaving the factory. Before connecting the system to your network the IP Address must be changed. Contact your IT Department to confirm what the IP Address should be set to.

**Note:** Default IP Address for the Next system is 192.168.1.2

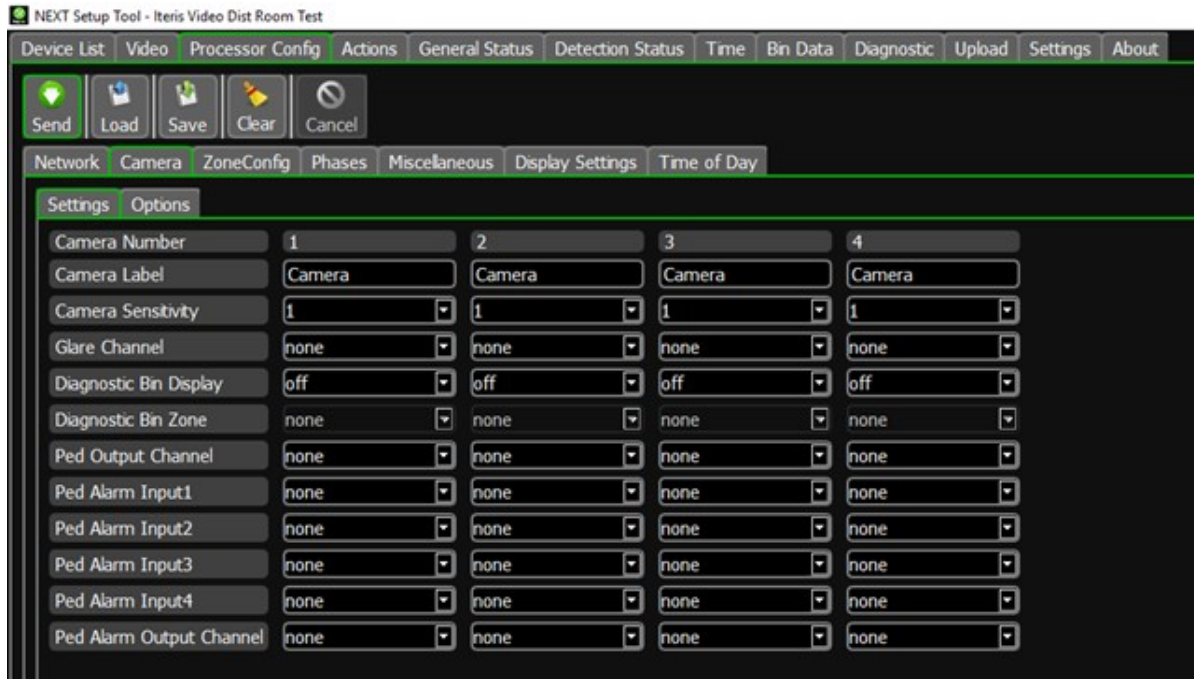
Internally the system communicates through a set of VLANs to each component. Because of this certain IP addresses must be avoided on your network. Here is a list of subnets that cannot be used 192.168.200.x through 192.168.212.x.



Property	Description
<b>IP Address</b>	This is the IP Address assigned to the field device.
<b>Subnet Mask</b>	A subnetwork, or subnet, is a logically visible subdivision of an IP network.
<b>Default Gateway</b>	The gateway address is a router interface connected to the local network that sends packets out of the local network.
<b>Site ID</b>	A description of the site name. This will appear on the Device List page.

## Camera Settings

This screen allows various settings to be made on a per camera basis.

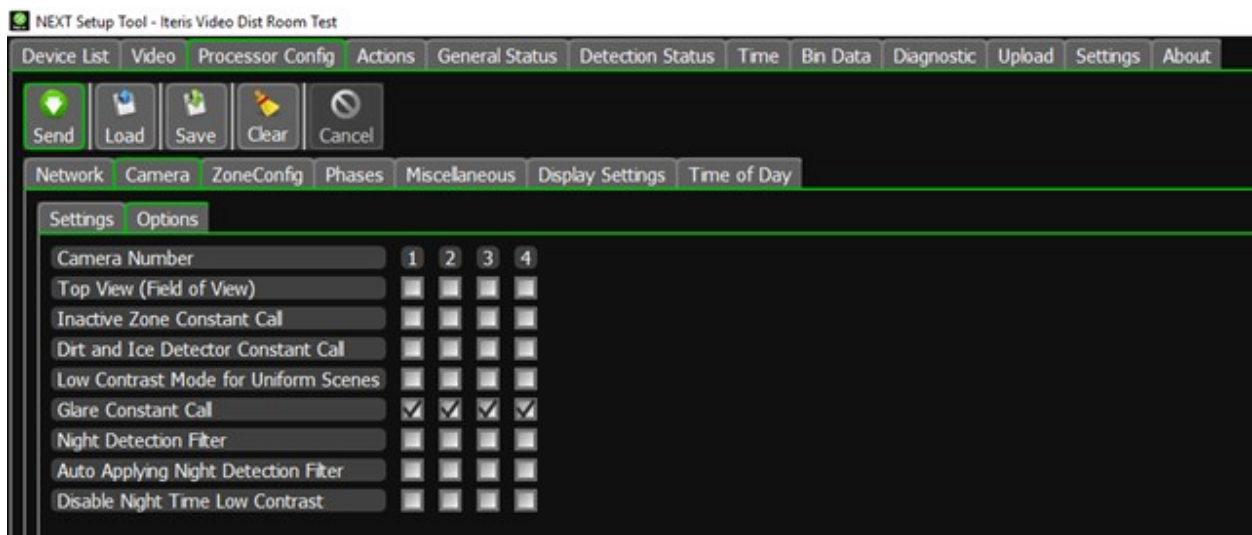


Property	Description
<b>Camera Label</b>	The saved "Camera Label" is user customizable. The default designation is: "1 Camera, 2 Camera, 3 Camera, 4 Camera, however, this can easily be changed. Camera names can be up to 10 characters in length. To edit a camera name, move the cursor to the camera name that you want to change. Click the right mouse button and the first character of the name will be highlighted. Now, by pressing the left or right mouse button, scroll through a series of available ASCII characters. Moving the mouse to the right will move the cursor to the next character position. Moving the mouse to the left will move the cursor to the left. When you are finished customizing the camera name characters, either press both left and right mouse buttons simultaneously, or press the mouse wheel button to save your changes and to exit out of the editing mode.
<b>Camera Sensitivity</b>	Set to 1 for normal performance. May be set to 10 in situations where the camera image may be compromised by glare, shadows or other high contrast conditions.
<b>Glare Channel</b>	This function allows the user to select an unused output channel to place a constant call whenever the Next Video Processor is in "Glare Mode".  <input checked="" type="checkbox"/> <b>Note:</b> This is not a global function parameter; in other words, on a two camera system this function must be set on a per camera view basis. Also, remember not to share any of the same output channels between camera views. If you use VP-1:1 on Camera 1, do not use VP-1:1 for Camera 2.

Property	Description
<b>Diagnostic Bin Display</b>	<p>This function, when turned "On", displays the last count bin data for the count zone selected in the "Bin Zone" parameter. A valid count zone must be specified for the "Bin Zone" parameter in order for this function to work. This feature allows you to display on screen the count zone data for any one of the count zones. The data automatically updates at the top of the Bin Interval. A sample of the data string is shown below:</p> <pre>02,11:30:00, 6, 33, 24, 1, 0, 5,300,Video OK</pre> <p>Count String = Zone Detail Number, Time, Count, Video Status</p>
<b>Diagnostic Bin Zone</b>	This parameter tells the "Bin Last" function, when activated (On), which bin last zone count data to display.
<b>Ped Output Channel</b>	Choose a valid output for the Pedestrian Detected function. See <a href="#">Section 2.3: Ped Output</a> for more details
<b>Ped Alarm Input1..4</b>	Select the Pedestrian Conflicting Phases for the Pedestrian Alarm. See <a href="#">Section 2.4: Ped Alarm</a> for more details
<b>Ped Alarm Output Channel</b>	Choose a valid output for the Pedestrian Alarm. See <a href="#">Section 2.4: Ped Alarm</a> for more details

## Camera Options

There are a number of options that can be set for specific installation situations.





**CAUTION!** Randomly setting different option numbers is not recommended and could result in improper operation and unexpected consequences. If you are unsure what a particular option number does, then do not enable it. It is best to leave this set at its factory default, unless instructed by Vantage Product Support staff to do otherwise. If you have further questions about this function please contact your Vantage Product Support Team for more information.



**Note:** The option information and its operation change from time to time to reflect the algorithm changes and advances.

Option	Default	Description
<b>Top View (Field of View)</b>	Off	This option bit should only be used when we have a near FOV view and there is less than two-car-length in each lane
<b>Inactive Zone Constant Call</b>	Off	<p>This special constant calling per lane is only active if more than one zone is defined per lane. The processor identifies the first zone in each lane. If these zones do not report any activity within a given time period and there is low contrast within the zone then they place a call. The zone inactivity maybe caused by fog, dirt or ice build up on the cameras lens. When this special constant call mode is active an ampersand (@) will be displayed next to the affected zones.</p> <p><u>When to use this option:</u> The option should be set to On at intersections that expect to experience snow, ice and fog. This option should be used at intersections that have a reasonable amount traffic volume. This option should not be used on side street approaches because it may make them recall. This option works best if the front zones in each lane are over the stop-bar or road marks like the left and straight arrows.</p>
<b>Dirt and Ice Detector Constant Call</b>	Off	<p>The DID option is off by default in this release. When turned On the DID option helps detect the buildup of dirt and ice on the front glass of the camera. When dirt and ice appear at the top part of the image a "T" will appear in the camera label. When dirt and ice appear everywhere on the image a "W" will appear in the camera label. When "T" and "W" appear together the Next System will place constant calls on all used channels for a camera view. The constant call will persist until the condition clears up. The DID option only works during the day time. Only when the DID option is On will "T" and/or "W" appear in the camera label.</p> <p><u>When to use this option:</u> The DID should be turned On at intersections that expect to experience snow, ice and fog. The DID may help ensure that calls are placed when the camera view is obstructed by dirt, ice and fog. When the DID is Off "T" and "W" will not be displayed and constant calls will not be placed due to dirt or ice.</p>

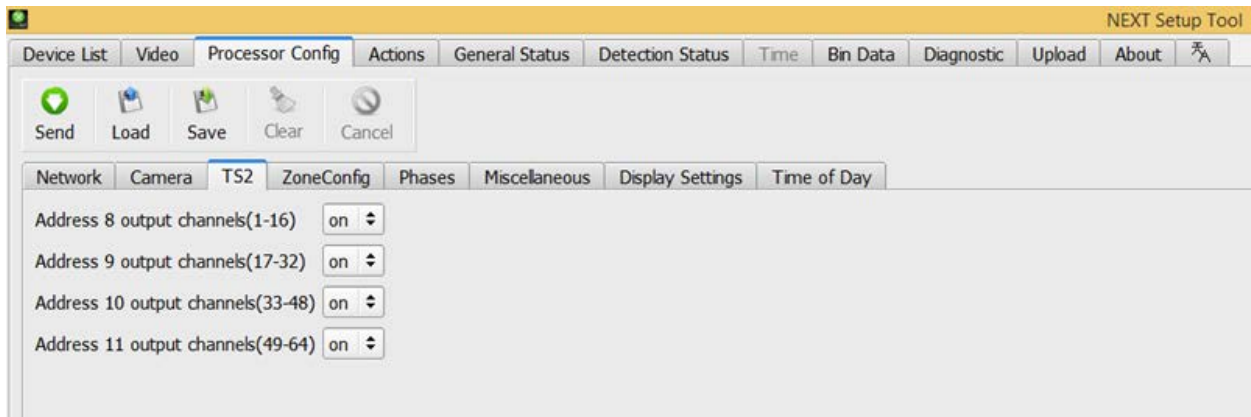
Option	Default	Description
<p><b>Low Contrast Mode for Uniform Scenes</b></p>	<p>Off</p>	<p>When a camera view has no detections and no motion and the scene is uniform the processor holds off going into LC if this option is Off.</p> <p><u>When to use this option:</u> If a camera view is looking at a fairly low contrast, uniform scene and you want it to go into LC mode then turn this option On. Use this option if you believe that a camera view has the possibility to be blocked by snow build up.</p>
<p><b>Glare Constant Call</b></p>	<p>On</p>	<p>When the glare mode option is set to On the processor analyzes each zone for glare, if a zone becomes saturated with glare, then the output channel associated with that zone will place a constant call. This algorithm allows the zones that are most affected by glare, to place a constant call until the glare condition dissipates to allow normal detection again.</p> <p><u>When to use this option:</u> Use the glare option when having difficulty detecting vehicles in glare. Zones must be completely saturated before glare mode will trigger. It can take up to three minutes to enter glare mode or exit glare mode after the proper conditions have been met.</p>
<p><b>Night Detection Filter</b></p>	<p>Off</p>	<p>Enabling this filter reduces false calls at night, especially when the ground is wet. How much night filtering occurs compared with standard detection depends on the selection of the following option NightFiltAuto. If some cars are missed at night, then turn this OFF, which means the system will not filter any night time detections and all the detections will be allowed to pass through. This may slightly increase the number of false calls.</p>
<p><b>Auto Apply Night Detection Filter</b></p>	<p>On</p>	<p>NightFiltAuto (Night Filter Auto): by default, it is ON. Based on night time conditions, the system will run the night filter only when the algorithm believes it is safe (which means no filtering and all the detections will pass). It is recommended to run Auto NightFilter because we do not want to get lose detections when the weather conditions are particularly bad. If there is a concern about false calls at night, this option can be turned OFF, then the system will run the night filter all the time, the risk is that we might miss few detections due to the night filter.</p> <p><input checked="" type="checkbox"/> <b>Note:</b> <i>NightFiltAuto can only operate when NightFilter is ON. When NightFilter is OFF, no matter what the choice for NightFiltAuto would be, there will be no night filtering at all. NightFiltAuto functions when NightFilter is On.</i></p>

Option	Default	Description
Disable Night Time Low Contrast	Off	<p>This option prevents LC (fog) at night. When a night time field of view contains a uniform background grayscale value, the processor may go into LC mode.</p> <p><u>When to use this option:</u> This option is normally not needed, since a properly set system clock usually remedies most night time LC problems. However, some low light intersections contain uniform contrast and can still cause LC mode at night. This option will prevent the processor from going into LC (Low Contrast) mode due to low light uniform contrast conditions. This option should be used very carefully, since a negative consequence of enabling this option is that if a camera fails with a valid sync pulse, but no video, the processor may not place constant calls for that camera.</p>

**TS-2**

For TS-2 type controllers detector outputs and phase inputs can be sent over the SDLC connection. This screen allows the user to set the options for the various rack addresses that can be accessed through the SDLC connection.

*Note: This tab can only be seen if the SDLC cable is connected to an active TS-2 system.*



**Zone Configuration**



## General

Property	Description
<b>Send</b>	Sends the current configuration to the system.
<b>Load</b>	Loads a configuration from the local computer.
<b>Save</b>	Saves a configuration to the local computer.
<b>Clear</b>	Clears all the current settings and loads the defaults.
<b>Cancel</b>	Cancel the configuration changes.

## Configuration

Property	Description
<b>Clear</b>	Clears the settings for the currently selected configuration.
<b>Copy To</b>	Copies the current configuration to another configuration.
<b>Select Configuration</b>	Selects the configuration to work on.

Property	Description
<b>Make Configuration Active</b>	Selects the configuration the system will use for detection.
<b>Configuration Label</b>	The saved "Configuration Label" is also user customizable. The default designation is: "Config 1, Config 2, Config 3, Config 4 and Config 5", however, this can easily be changed. Configuration names can be up to 10 characters in length.
<b>Camera Select</b>	Selects the camera to work on.

Snap Shot

Property	Description																				
<b>Play</b>	Starts the live video stream.																				
<b>Stop</b>	Pauses the live video stream.																				
<b>Load</b>	Loads an image from disk.																				
<b>Save</b>	Saves the current image to disk (no overlay/zone information).																				
<b>Save with Zones</b>	Saves the current image to disk (with all zone information).																				
<b>Renumber Zones</b>	Will automatically renumber all zones starting at 1 for camera 1, 33 for camera 2, 65 for camera 3 and 97 for camera 4.																				
<b>Zone Title</b>	Choose the label type to display above the zone on the OSD <table border="1" data-bbox="414 1287 1398 1707"> <thead> <tr> <th>Label Type</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>And with</td> <td>Zone number that this zone is anded with</td> </tr> <tr> <td>Direction</td> <td>Down, Left, Thru or Right</td> </tr> <tr> <td>Input channel</td> <td>The input channel associated with the zone</td> </tr> <tr> <td>Label</td> <td>The zone label</td> </tr> <tr> <td>Number</td> <td>The zone number</td> </tr> <tr> <td>Off</td> <td>No labels</td> </tr> <tr> <td>Output channel</td> <td>The output channel associated with the zone</td> </tr> <tr> <td>Green type</td> <td>The zone type when a green input is present</td> </tr> <tr> <td>Non-green type</td> <td>The zone type when the green input is not present</td> </tr> </tbody> </table>	Label Type	Function	And with	Zone number that this zone is anded with	Direction	Down, Left, Thru or Right	Input channel	The input channel associated with the zone	Label	The zone label	Number	The zone number	Off	No labels	Output channel	The output channel associated with the zone	Green type	The zone type when a green input is present	Non-green type	The zone type when the green input is not present
Label Type	Function																				
And with	Zone number that this zone is anded with																				
Direction	Down, Left, Thru or Right																				
Input channel	The input channel associated with the zone																				
Label	The zone label																				
Number	The zone number																				
Off	No labels																				
Output channel	The output channel associated with the zone																				
Green type	The zone type when a green input is present																				
Non-green type	The zone type when the green input is not present																				




Zones

This section allows the user to add, edit or delete detection zones. The user will select the desired zone parameters and then create the new detection zone by placing each of the detection zone corners. You can define up to 32 detection zones on each Next Video Processor module camera view.


Property	Description
<b>New</b>	Creates a new zone.
<b>Delete</b>	Deletes the currently selected zone.
<b>Default</b>	Sets the currently selected zone to default settings.
<b>Clear</b>	Clears all settings for the currently selected zone.
<b>Copy To</b>	Copies the currently selected zone configuration to another zone.

Property	Description
<b>Number</b>	The zone detail number is a processor generated reference number sequence from 1 through 32 for camera one, 33 through 64 for camera number two, 65 through 96 for camera number three and 97 through 128 for camera number four.
<b>Label</b>	The zone label, a user customizable zone identifier. Zone labels can be up to six characters in length. To edit the zone label, move the cursor to the "Label" item and click the right mouse button. The label value will become highlighted, and now, pressing the left or right mouse button will scroll through a series of available ASCII characters. Physically moving the mouse to the right will move the cursor to the next character position. Physically moving the mouse to the left will move the cursor to the left. When you are finished customizing the label characters, either press both left and right mouse buttons simultaneously, or press the mouse wheel button to set your label. The default value for the zone label is normally the same as the zone detail number.
<b>Direction</b>	<p>The zone direction option can be set to "ANY" or "DOWN".</p> <p>ANY (Default) - This setting has the potential to detect vehicles from any direction.</p> <p>DOWN - This setting enables "Wrong Way Vehicle Rejection". This function helps reject vehicles entering the zone from directions other than down. The function primarily rejects vehicles traveling "up", but can still be used in left turn lanes, for some degree of relief from side street cars, that may stray into the front left turn detection zones while making a left turn.</p> <p>DOWN has three options Down Thru, Down Left, Down Right. By selecting one of the three options the system will automatically begin counting vehicles and storing them in bin data memory for use with the On Screen Graphs. See <a href="#">Section 4.5: On Screen Graphs</a> for more details.</p> <p>Select the direction from the drop down box.</p>

Property	Description
<p><b>Input Channel</b></p>	<p>This function allows the Video Processor to utilize the NEMA TS-1 detector rack "delay inhibit" or green phase input lines from the controller, if they are available (332 cabinet input files do not normally come wired with this capability). Using this feature the user can program a detection zone to respond differently depending on the delay inhibit line status. For example, a zone could be programmed to Extend on Green and Delay on Red (not green).</p> <p>To enable this feature left click on the "Grn/In" menu item. The menu options will expand to include options for: Green (Grn), and Not Green (NGrn). "Grn/In" refers to the Video Processor delay inhibit input channel. The choices are DVP-x:1 through DVP-x:4 and extension modules could also be a choice if they are being used. Most NEMA TS-1 detector racks are only wired for two delay inhibit pins per slot (pins 1 and 2). Choosing DVP-x:1 would correspond with delay inhibit pin 1 and DVP-x:2 would correspond with delay inhibit pin 2. Choosing DVP-x:3, DVP-x:4, or EM:03, or EM:04 would most likely have no effect, since they correlate with pin 3 and pin 10 respectively. There is normally no delay inhibit logic wired to these pins.</p>
<p><b>Output Channel</b></p>	<p>This function allows the user to assign an output channel to the zone. The output channel will place a call to the controller depending upon the position of the Video Processor in the detector rack. Where you physically plug the Video Processor or Extension Module into the detector rack, is where it will place the vehicle calls. Multiple zones can be assigned to a single processor or extension module output channel.</p> <p>Typical Channel Designators:</p> <p>Video Processor</p> <p style="padding-left: 40px;">DVP-x: 1, DVP-x:2, DVP-x:3, DVP-x:4, NONE</p> <p style="padding-left: 40px;">Where x = the camera number</p> <p>Extension Modules</p> <p style="padding-left: 40px;">Two Channel</p> <p style="padding-left: 40px;">IO-0:1, IO-0:2</p> <p style="padding-left: 40px;">Four Channel</p> <p style="padding-left: 40px;">IO-1:1, IO-1:2, IO-1:3, IO-1:4</p> <p>I/O Module</p> <p style="padding-left: 40px;">IO-2:1 Through IO-2:32</p> <p>If using a TS-2 controller then 64 detector outputs are available through the SDLC connection. TS2:1 thru TS2:64</p> <p><input checked="" type="checkbox"/> <b>Note:</b> For more information on output channels, see the <a href="#">Section 5: Output Channel Assignment</a> in the <a href="#">Next Installation Manual</a>.</p>

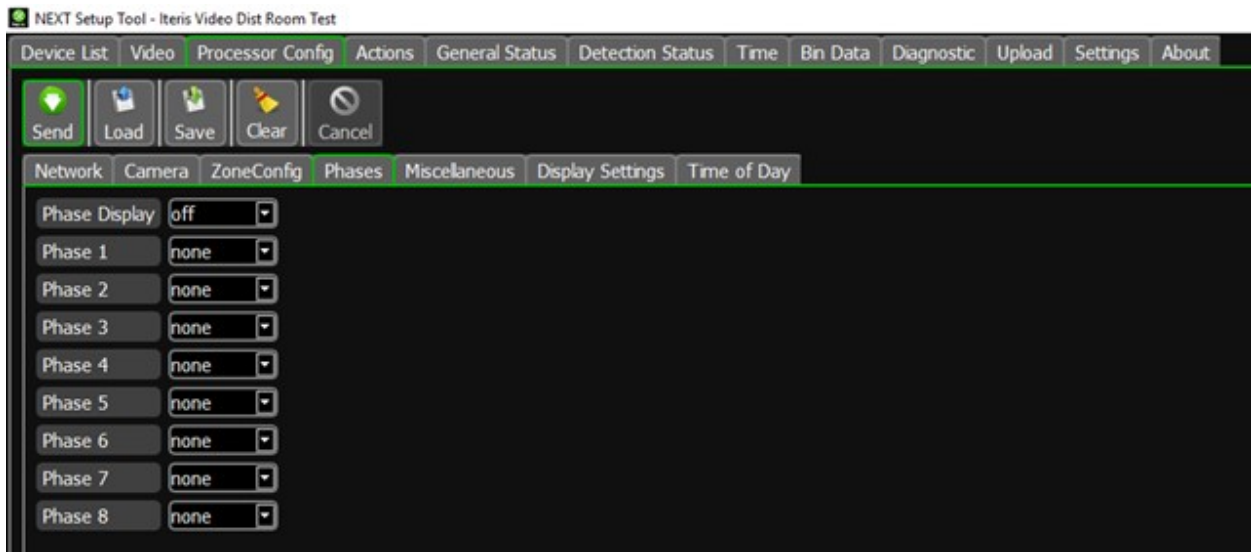
Property	Description
<p><b>And With</b></p>	<p>This function allows the user to "AND" zones together for special operation. Zones that are AND'ed together will only place a vehicle call when there is a vehicle placing a call in both of the zones simultaneously. If there is a vehicle in only one of the zones, a call will not be placed. If normal operation is desired, be sure that the value of AND/W is set to the same number as the zone detail number; this is the default setting.</p> <p> <b>CAUTION!</b> <i>The accidental setting of this parameter to a random value can result in unpredictable and undesirable operation. Be sure you understand the AND/W function before attempting to use it. If you do not intend to use AND/W operation, be sure that the AND/W value is set to the same value as the zone detail number.</i></p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>Zone Detail # 1 AND/W : 1 Ch/Out : PROC:2 <b>Parent Zone</b></p> </div> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>Zone Detail # 2 AND/W : 1 Ch/Out : NONE <b>Child Zone</b></p> </div> <p style="text-align: center; color: green;"><i>Correct AND/W Setup Example</i></p> <p>In the above example please notice that the And/W value number of the child zone is set to the detail number of the parent zone. Also notice that the channel output (Ch/Out) of the child zone is set to NONE. It is also of interest to notice that the parent zone is set up like any other zone, all the changes were made to the child zone. The child zone will now place a call on the output channel of the parent zone (VP-1:2 in this example) when a vehicle is present on both zones at the same time.</p> <p>To change the AND/W parameter, move the mouse cursor to AND/W and click either the left or right mouse button to increment the AND/W values. When the desired value is selected, simply move the mouse cursor to another zone parameter in the menu to set the value. The AND/W value is set to the same value as the zone detail number by default, which effectively "OR's" the channel outputs. If you do not intend to use the AND/W function, be sure that the AND/W value is set to the same value as the zone detail number.</p>

Property	Description																								
<p><b>Detection Type</b></p>	<p>This setting allows you to select the type of detection zone to create. There are several different zone types available.</p> <table border="1" data-bbox="412 380 1398 919"> <thead> <tr> <th data-bbox="412 380 651 422">Zone Type</th> <th data-bbox="651 380 1398 422">Function</th> </tr> </thead> <tbody> <tr> <td data-bbox="412 422 651 464">PRESENCE</td> <td data-bbox="651 422 1398 464">Places a call as long as vehicle is in the zone.</td> </tr> <tr> <td data-bbox="412 464 651 506">EXTEND</td> <td data-bbox="651 464 1398 506">Extend the vehicle call for a programmable length of time.</td> </tr> <tr> <td data-bbox="412 506 651 548">DELAY</td> <td data-bbox="651 506 1398 548">Delay the vehicle call for a programmable length of time.</td> </tr> <tr> <td data-bbox="412 548 651 632">PULSE</td> <td data-bbox="651 548 1398 632">Produces a pulse output for a user programmable rate of time (pulse width).</td> </tr> <tr> <td data-bbox="412 632 651 674">COUNT</td> <td data-bbox="651 632 1398 674">Count vehicles that pass through the zone and store the data.</td> </tr> <tr> <td data-bbox="412 674 651 716">Low Contrast (LC)</td> <td data-bbox="651 674 1398 716">Create an LC zone for low contrast stabilization.</td> </tr> <tr> <td data-bbox="412 716 651 758">Demand</td> <td data-bbox="651 716 1398 758">Demand zone for high traffic congestion.</td> </tr> <tr> <td data-bbox="412 758 651 800">Passage</td> <td data-bbox="651 758 1398 800">Passage zone for high traffic congestion.</td> </tr> <tr> <td data-bbox="412 800 651 842">CSO</td> <td data-bbox="651 800 1398 842">Count, Speed, Occupancy zone.</td> </tr> <tr> <td data-bbox="412 842 651 884">Bike</td> <td data-bbox="651 842 1398 884">Bicycle differentiation zone.</td> </tr> <tr> <td data-bbox="412 884 651 919">Advanced</td> <td data-bbox="651 884 1398 919">Advanced loop simulator.</td> </tr> </tbody> </table>	Zone Type	Function	PRESENCE	Places a call as long as vehicle is in the zone.	EXTEND	Extend the vehicle call for a programmable length of time.	DELAY	Delay the vehicle call for a programmable length of time.	PULSE	Produces a pulse output for a user programmable rate of time (pulse width).	COUNT	Count vehicles that pass through the zone and store the data.	Low Contrast (LC)	Create an LC zone for low contrast stabilization.	Demand	Demand zone for high traffic congestion.	Passage	Passage zone for high traffic congestion.	CSO	Count, Speed, Occupancy zone.	Bike	Bicycle differentiation zone.	Advanced	Advanced loop simulator.
Zone Type	Function																								
PRESENCE	Places a call as long as vehicle is in the zone.																								
EXTEND	Extend the vehicle call for a programmable length of time.																								
DELAY	Delay the vehicle call for a programmable length of time.																								
PULSE	Produces a pulse output for a user programmable rate of time (pulse width).																								
COUNT	Count vehicles that pass through the zone and store the data.																								
Low Contrast (LC)	Create an LC zone for low contrast stabilization.																								
Demand	Demand zone for high traffic congestion.																								
Passage	Passage zone for high traffic congestion.																								
CSO	Count, Speed, Occupancy zone.																								
Bike	Bicycle differentiation zone.																								
Advanced	Advanced loop simulator.																								
<p><b>Detection Timing</b></p>	<p>For Zone Types that include a timing element this sets the variable from .1 second (1) to 25 seconds (250).</p>																								
<p><b>Occlusion Rejection</b></p>	<p>This feature is recommended to be used when you want to minimize the effects of tall trucks or tree shadows causing false calls in the left turn lanes.</p>																								
<p><b>Desensitize</b></p>	<p>If a zone is desensitized it will no longer participate in the dynamic three-stage algorithm most of the time. If the camera is in LC then the desensitized zone will go into S3 mode. Care should be exercised when turning on the desensitized option because it could lead to missed calls.</p>																								
<p><b>Pedestrian Rejection</b></p>	<p>As the name implies helps a zone reject pedestrian movement. Zones programmed with Pedestrian rejection are less likely to false call due to pedestrian movement.</p>																								
<p><b>Bike Night S2</b></p>	<p>Because of lighting conditions bicycles are harder to detect at night. Turning this attribute on may help with missed calls in poor lighting conditions as it increases the sensitivity of the zone. The proper solution is to improve the lighting at the intersection.</p>																								
<p><b>Bike Virtual Zone</b></p>	<p>If the camera is not mounted directly above the bike lane the Bike zone drawn may not be rectangular but a parallelogram. Due to the position of the camera, the body of the bicycle rider may appear out of the zone, and the call may be missed. This attribute will extend the zone in an attempt to capture the rider. See figure below.</p>																								

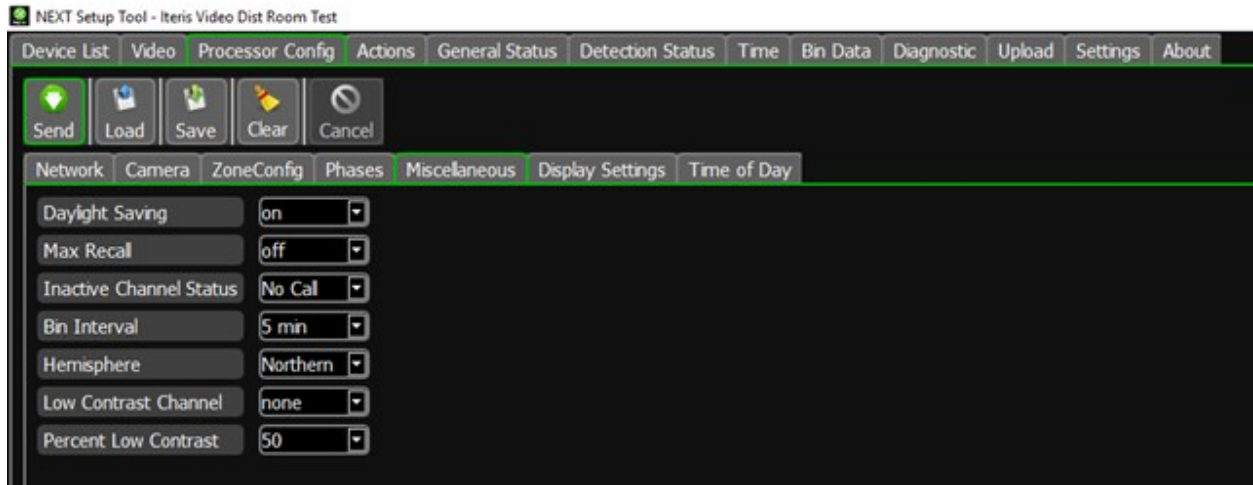
Property	Description
	 <p data-bbox="743 331 1019 449">Bike Zones drawn in red. The bicyclist is only halfway in the zone due to camera positioning.</p> <p data-bbox="743 537 1019 655">Virtual Bike Zone drawn in blue. Extends automatically by the system to capture the bicyclist.</p>
<p data-bbox="191 716 326 743"><b>Bike Count</b></p>	<p data-bbox="381 709 1430 814">Bike zones can have dual functionality providing both presence/extension calls and counting bicycles. Up to six Bike zones can be assigned as count zones. Setting this attribute to 'On' enables bike counting in that zone.</p> <p data-bbox="386 856 1593 928"><input checked="" type="checkbox"/> <b>Note:</b> Once six bike zones have been assigned to count then this option in the Attribute menu will be switched off. See figure at start of this section.</p>

## Phases

The system can accept inputs from the controller to indicate when each phase is in Green. From the drop down boxes assign each phase at the intersection to an input to the system. The phase display can be turned on and off.



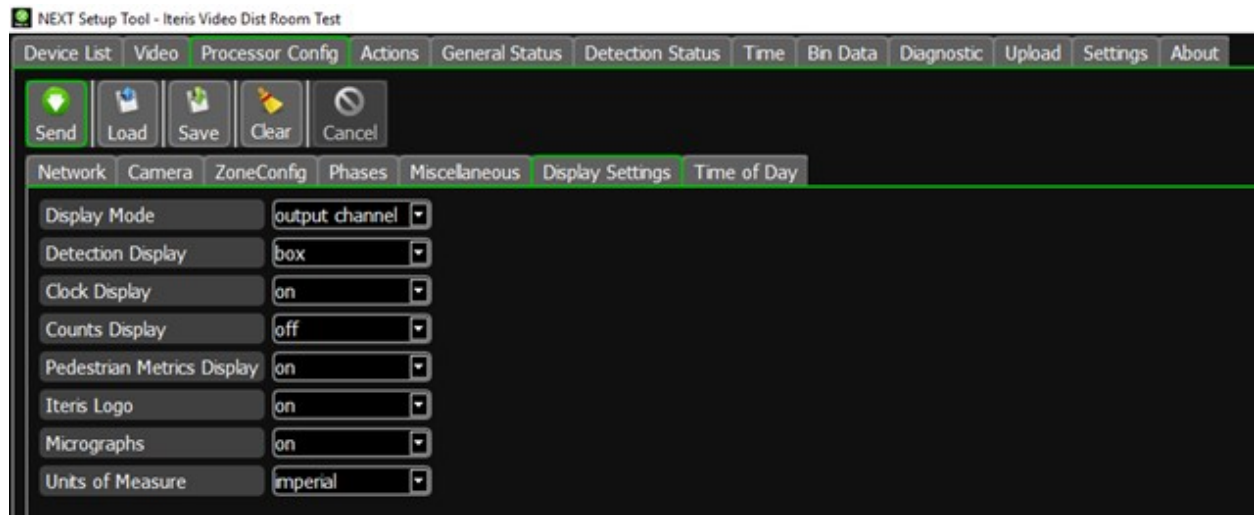
## Miscellaneous



Property	Description
<b>Daylight Savings</b>	<u>Daylight Savings Time (Day/Save)</u> - Left or right click your mouse after selecting the "Day/Save" parameter to choose whether or not to implement daylight savings time. "Off" or "Comply" are the two available choices.
<b>Max Recall</b>	<p>This parameter determines how the output channels will function. This is a global setting.</p> <p>OFF - This is the default setting and is most commonly used during normal operation. The "NORMAL" setting will allow the output channels to function in a "normal" mode. When cars are present in the detection zone the output channel associated with that zone will place a call to the traffic controller.</p> <p>ON - The "MAXCALL" setting places constant calls on all output channels.</p>
<b>Inactive Channel Status</b>	<p>This setting determines how inactive (unused) channels will function. This is a global setting.</p> <p>NOCALL - This is the default setting and is most commonly used during normal operation. The "NOCALL" setting will cause all unused channels not to place any calls.</p> <p>CALL - If this setting is selected, then all unused channels will place constant calls.</p> <p><input checked="" type="checkbox"/> <b>Note:</b> <i>Output Channel and Inactive Channel are two settings that cause new users problems when they are set to other than the default settings. If you are getting constant calls on output channels, even after the learn mode, check the Output Channel setting and make sure it is set to "NORMAL". If unused channels are mysteriously placing constant calls, check the Inactive Channel setting and make sure that it is set to "NOCALL".</i></p>

Property	Description
<b>Bin Interval</b>	A Bin Interval needs to be set to tell the system how often the counts should be stored. You can select a bin interval of either: 10 or 20 seconds or 1, 5, 15, 30, or 60 minutes. For example, if you select five minutes, that means that every five minutes count data for all count zones will be time-stamped and binned. The Next System will store this count information into local memory.
<b>Hemisphere</b>	The internal Real Time Clock is used by the algorithm to estimate when day/night and night/day transitions occur throughout the year. This setting informs the system which hemisphere the system is operating in. This is important as the seasons are reversed from Northern to Southern hemisphere. The default setting is North.
<b>Low Contrast Channel</b>	This option gives the user the ability to tie an output channel to Low Contrast (LC) mode. This means that whenever the system goes into Low Contrast mode the assigned channel will place a call. If "NONE" is selected this feature is disabled. If you choose to tie an output channel to Low Contrast mode, the output channel must not already be assigned as a vehicle detection channel; in other words you must assign a dedicated channel for this special LC output.
<b>Percent Low Contrast</b>	This is the percentage of cameras on a processor that have to exhibit the problem for the alarm to be enabled. It is default to 100% for single camera installations. It can be set to 50% or 100% for two or more camera installations.

## Display Settings



Property	Description						
<p><b>Display Mode</b></p>	<p>This option determines the zone reference that will be used to identify the detection zones. The choices are: CHAN, TYPE, INPSTS, OFF, LABEL, NUMBER, or AND/W. By default, this parameter is set to "CHAN", which stands for channel. This is the most commonly used zone reference.</p> <p><u><a href="#">Zone Identifiers</a></u></p> <p>CHAN - Channel refers to the output channel associated with the detection zone. For more information see the section on Channel Output.</p> <p>TYPE - Type refers to the zone type: Presence (PR), Pulse (PS), Extension (EX), Delay (DL), Count (CN), None (NO), Advanced (AD), Bike (BI), Demand (DE), Passage (PA), CSO (CS) or Low Contrast (LC). For more information see the section on Zone Type.</p> <p>INPSTS – Inputs refers to the phase input that is assign to the zone.</p> <p>    OFF - This selection turns off all visible zone references.</p> <p>LABEL - Label refers to the detection zone label. For more information see the section on Zone Labels.</p> <p>NUMBER - Number refers to the detection zone detail number. For more information see the section on zone Detail Numbers.</p> <p>AND/W - And With refers to the detail number of a parent zone that a child detection zone might be referenced to, if this type of operation is enabled. For more information see the section on zone And With operation.</p> <div data-bbox="550 1098 1256 1549" data-label="Image"> </div> <p style="text-align: center;"><i>Example Showing Reference by Zone Type</i></p> <p>The zones in the picture are being referenced by "Zone Type".</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td>AD = Advanced</td> <td>PR = Presence Zone</td> </tr> <tr> <td>DL = Delay</td> <td>EX = Extension</td> </tr> <tr> <td>BI = Bike</td> <td>CS = Count</td> </tr> </table>	AD = Advanced	PR = Presence Zone	DL = Delay	EX = Extension	BI = Bike	CS = Count
AD = Advanced	PR = Presence Zone						
DL = Delay	EX = Extension						
BI = Bike	CS = Count						



Property	Description
<b>Detection Display</b>	There are three options for the system to display when a vehicle is detected: <ol style="list-style-type: none"> <li>1. Classic – Displays a blue box around the detection zone when activated</li> <li>2. Zone Configuration – Display a red box when all zones are drawn. The zone changes to blue when detections occur.</li> <li>3. Animation – As detections occur the sides of the zone track the vehicle.</li> </ol>
<b>Clock Display</b>	Turns the Real Time Clock display on or off.
<b>Counts Display</b>	When the counter is on you will see the counts for CSO or count type zones displayed on the screen.
<b>Pedestrian Metrics Display</b>	Turns the PedTrax OSD display on and off.
<b>Iteris Logo</b>	Turns the Iteris logo display in the bottom left corner of the image on and off.
<b>Micrographs</b>	Turns the ATV and Occupancy graphs on and off.
<b>Units of Measure</b>	Selects Imperial or Metric for any speed data output.

### Time of Day

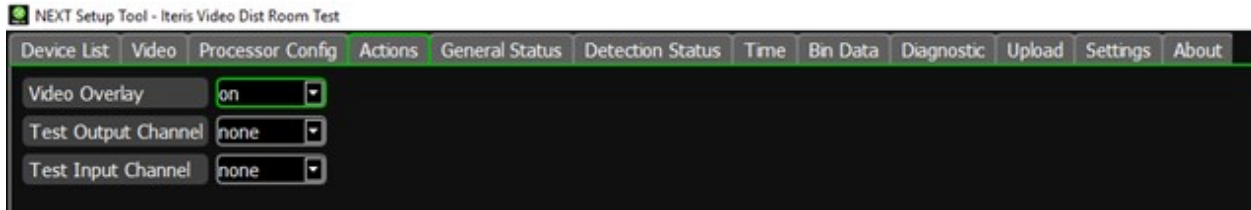
From the **TOD** tab the user can set the camera to operate any combination of the five saved configurations at different hour long intervals for each day of the week. This provides the user with the ability to customize camera zones settings to meet the needs of various situations (i.e., lane closures, weather). By default configuration **1** is set for every hour long interval.

To enable the TOD function, select 'On' from the drop down box. When enabled this function will select the camera configurations based upon the saved schedule.



### 3.4 Actions


This screen provides various actions in the system.

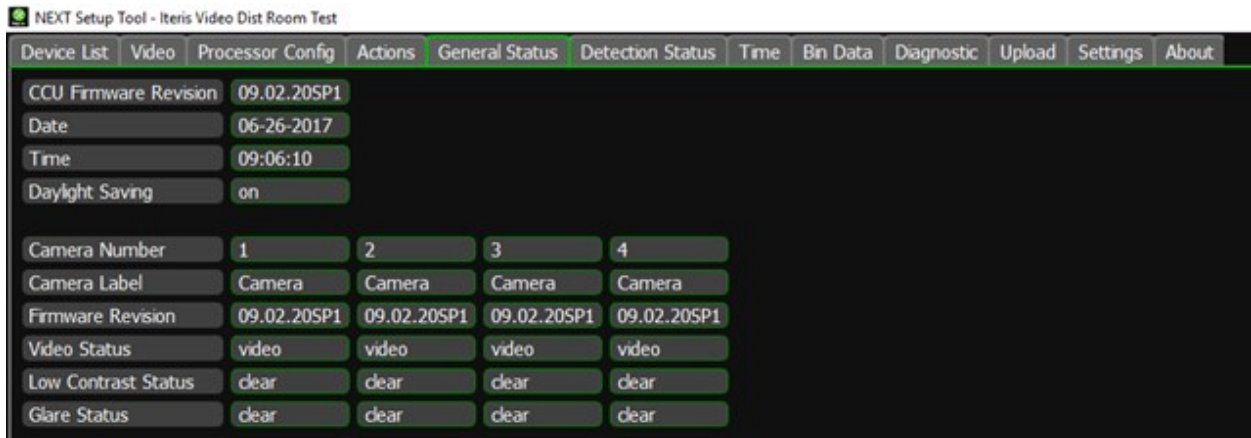


Property	Description
<b>Video Overlay</b>	This parameter turns the overlay either "ON" or "OFF". The default setting is "ON" which is used during normal Next operation. The overlay includes all the zone indicators and camera label information. When the overlay is "OFF", none of this information will be displayed on the screen.
<b>Test Output Channel</b>	This option allows you to test the output channels on the Video Processors. Select an output channel to test from the drop down box. The output channel will repeatedly toggle on and off at a one second interval. Select None from the drop down box to disable this test.
<b>Test Input Channel</b>	This option is for testing inputs on the Video Processors. Select an input channel to test from the drop down box. The input channel will repeatedly toggle on and off at a five second interval. Any phase input or zone that is dependent on the selected input will activate. Select None from the drop down box to disable this test.

### 3.5 General Status

The **General Status** screen displays information on each of the Next cameras connected to the system.

-  **Note:** When calling in with technical questions about your Next system, many times you will be asked what firmware version your system is running. This information is found in the "General Status" page.



Property	Description
<b>CCU Firmware Revision</b>	This parameter is the Vantage Next firmware version. For example: "09.01.18".
<b>Revision</b>	09 This tells us that it is a Next camera processor system.
<b>and</b>	01 This tells us that we are running standard intersection detection.
<b>Firmware Revision</b>	18 This is the actual processor firmware version. Many times it is shortened in conversation to just x.18.
<b>Date</b>	System Date
<b>Time</b>	System Time
<b>Daylight Savings</b>	Current Daylight Savings setting
<b>Camera Number</b>	System defined camera number
<b>Camera Label</b>	User defined camera label
<b>Processor Status</b>	Current status of Video Processors
<b>Video Status</b>	Current status of Camera Video Feed
<b>Low Contrast Status</b>	Current status of Low Contrast Mode
<b>Glare Status</b>	Current status of Glare Mode

### 3.6 Detection Status

The **Detection Status** screen displays the real time detection status of the Next camera system. The current state of each output is displayed near the top of the screen. The switches below the output display can be used to manually toggle the output on and off for testing purposes.

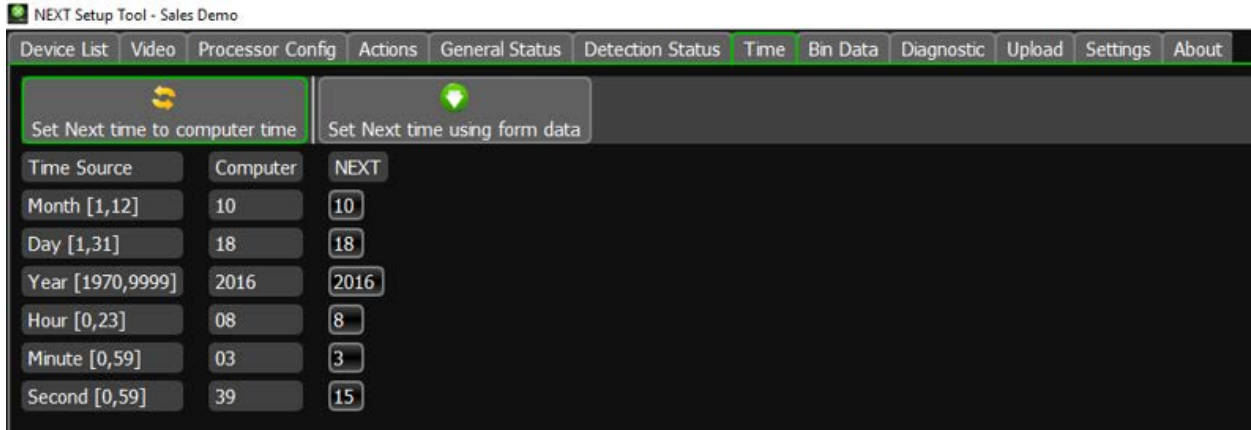


This screen also displays the zone information for each Next camera connected to the system. Use this information to ensure the zones have been configured correctly and that there are no conflicts with the detector outputs.

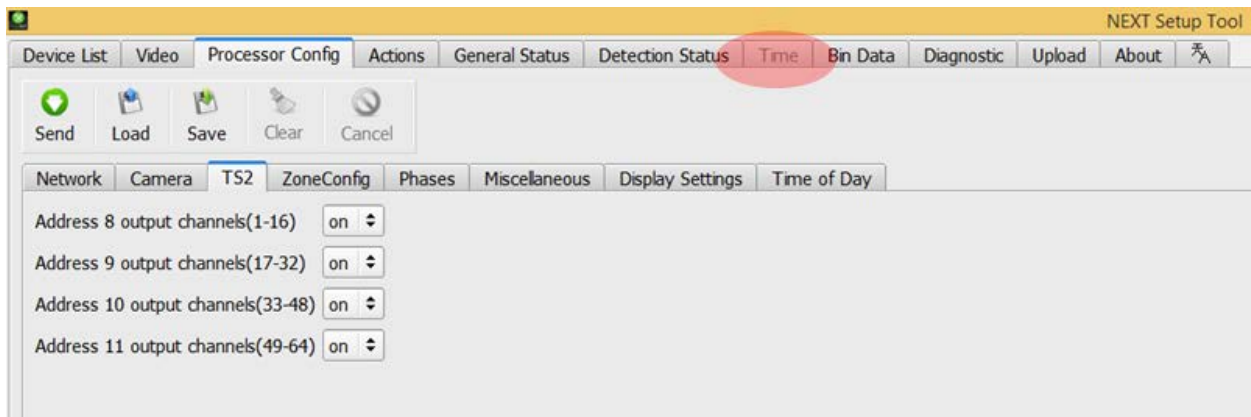
## 3.7 Time

The **Time** screen displays the current time and date set in the PC and the Next camera system.

The time and date can be changed manually by entering the information into each of the boxes and clicking on 'Set Next Time Using Form Data' button. Alternatively the time and date can be synchronized with the PC by clicking the 'Set Next Time to Computer Time' button.



**Note:** If the system is connected to TS-2 (SDLC) system this tab is grayed out and the time is received from the controller through the SDLC connection.



**Important:** If the time observed on the overlay and general status page differ then we recommend that the Next system is rebooted. This usually occurs when the SDLC connection is made after the Next system is booted. Always connect the SDLC before powering on the Next system.

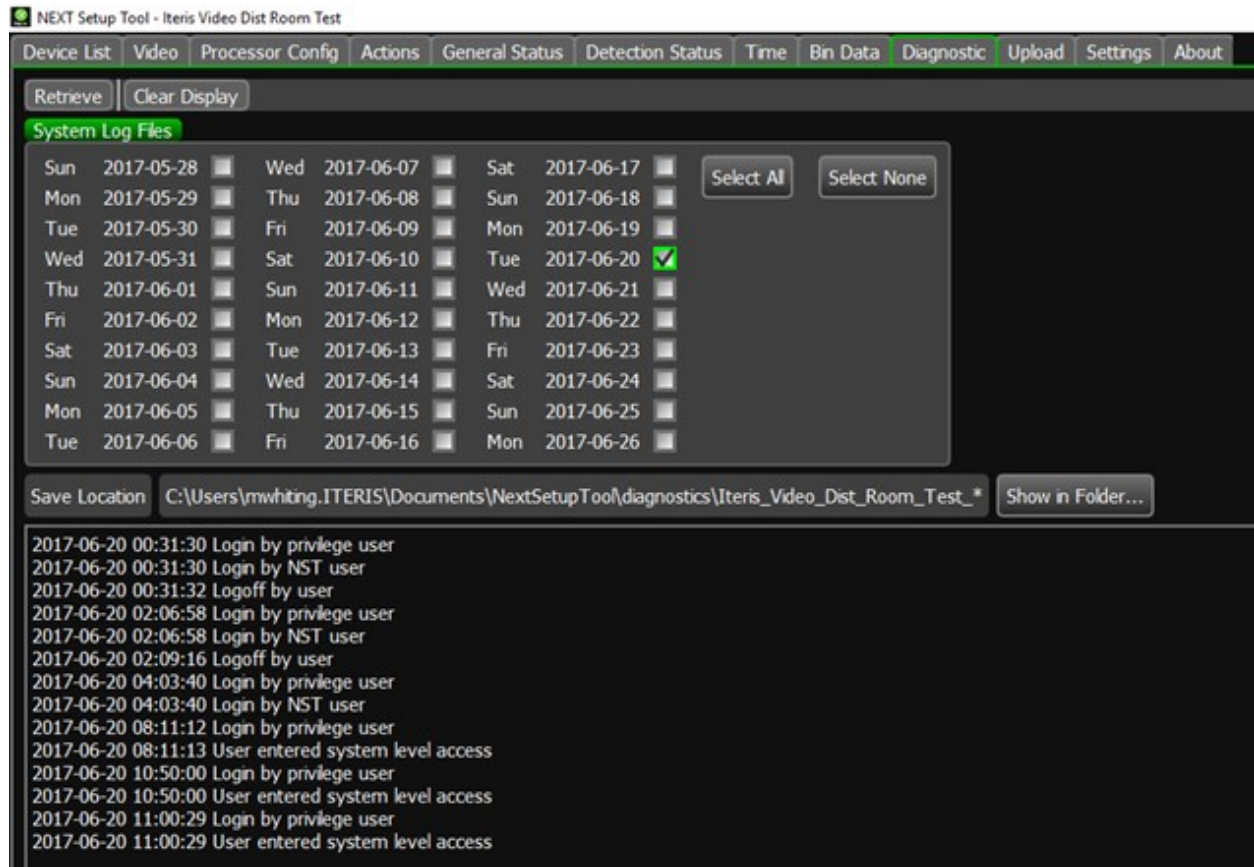
## 3.8 Bin Data

System Log Files

007, 2017-06-25 00:00:00, 1,11,3,0,1,0,300, Video OK,7  
 008, 2017-06-25 00:00:00, 0,0,3,0,0,0,300, Video OK,8  
 009, 2017-06-25 00:00:00, 2,10,5,0,2,0,300, Video OK,9  
 501, 2017-06-25 00:00:00, 3,0,10,0,0,0,0, Video OK,C1 LT  
 502, 2017-06-25 00:00:00, 2,0,0,0,0,0,0, Video OK,C1 T  
 503, 2017-06-25 00:00:00, 4,0,0,0,0,0,0, Video OK,C1 RT  
 601, 2017-06-25 00:00:00, 0,0,0,0,0,0,0,0,0, Video OK,C1 PD  
 602, 2017-06-25 00:00:00, 0,0,0,0,0,0,0,0,0, Video OK,C1 PD  
 039, 2017-06-25 00:00:00, 5,14,4,3,1,1,300, Video OK,39  
 040, 2017-06-25 00:00:00, 0,0,0,0,0,0,300, Video OK,40  
 041, 2017-06-25 00:00:00, 0,0,0,0,0,0,300, Video OK,41  
 504, 2017-06-25 00:00:00, 0,0,1,0,0,0,0, Video OK,C2 LT

Property	Description
<b>Retrieve</b>	Once a file or files have been selected click on the retrieve button to display the data on the screen.
<b>Clear Display</b>	Clears all data displayed on the screen.
<b>Select All</b>	Selects all the files shown.
<b>Select None</b>	Deselects all the files shown
	Click on the check box next to each day to select an individual day or days.
<b>Show in Folder</b>	Displays the Windows folder where Bin Data files are stored.

## 3.9 Diagnostic Log



Property	Description
<b>Retrieve</b>	Once a file or files have been selected click on the retrieve button to display the data on the screen.
<b>Clear Display</b>	Clears all data displayed on the screen.
<b>Select All</b>	Selects all the files shown.
<b>Select None</b>	Deselects all the files shown
	Click on the check box next to each day to select an individual day or days.
<b>Show in Folder</b>	Displays the Windows folder where Bin Data files are stored.

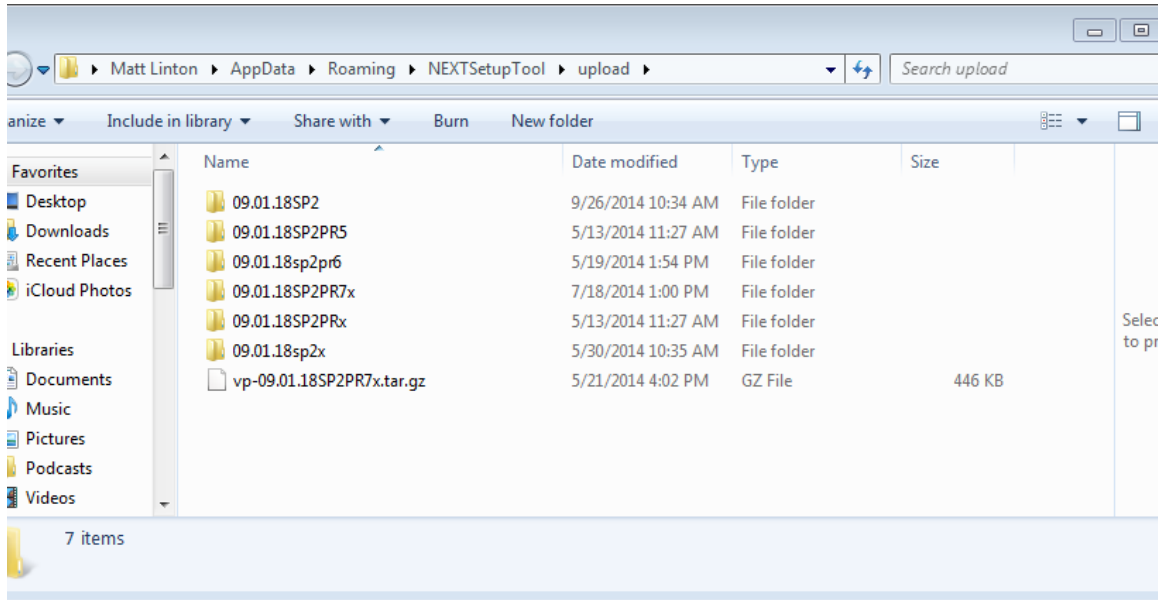
### 3.10 Upload

Upgrade instructions for Vantage Next

1. In the NEXTSetupTool directory create a folder named upload.

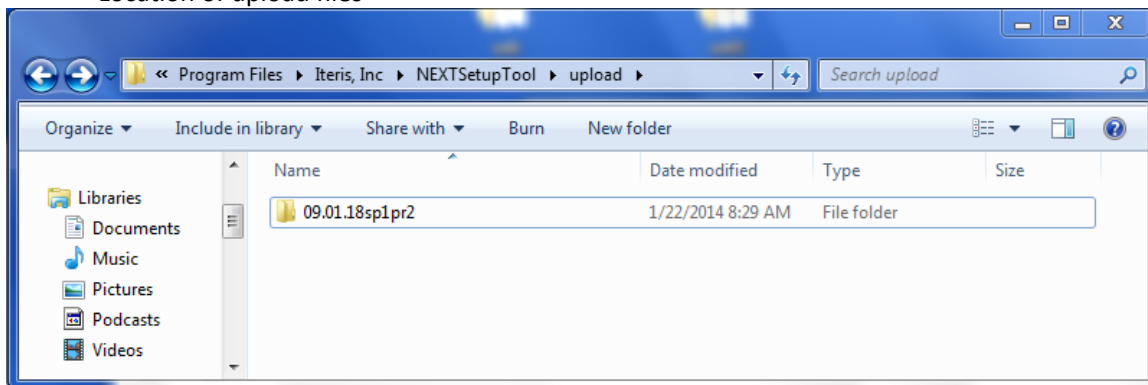
For example:

C:\Users\AppData\Local\NEXTSetupTool\upload



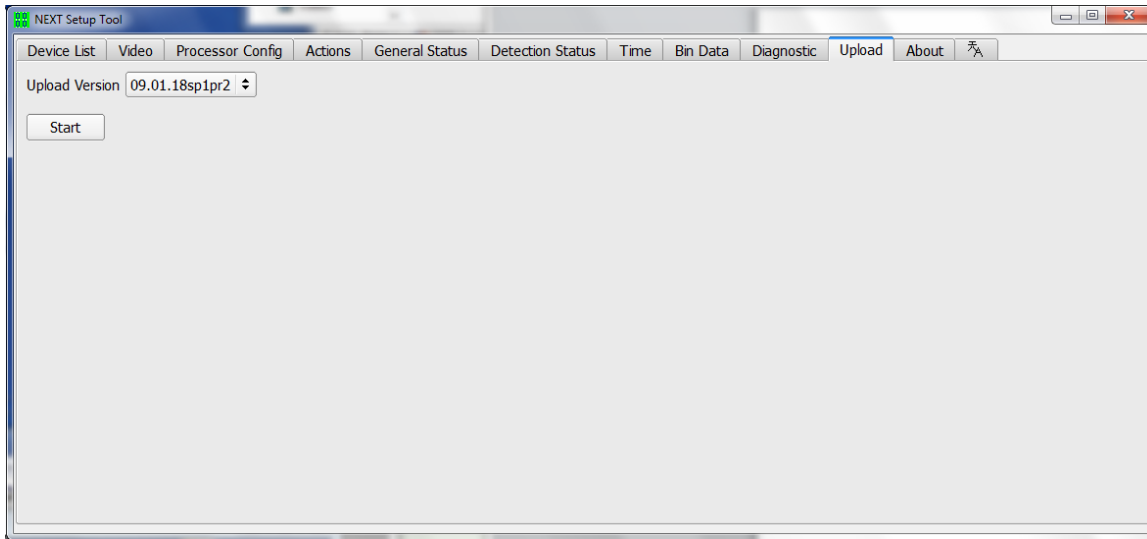
2. Download the Next upgrade files from the Iteris file sharing site. The file is named 09.01.18sp1pr2.zip. Unzip the file and place it in the newly created upload folder.

Location of upload files



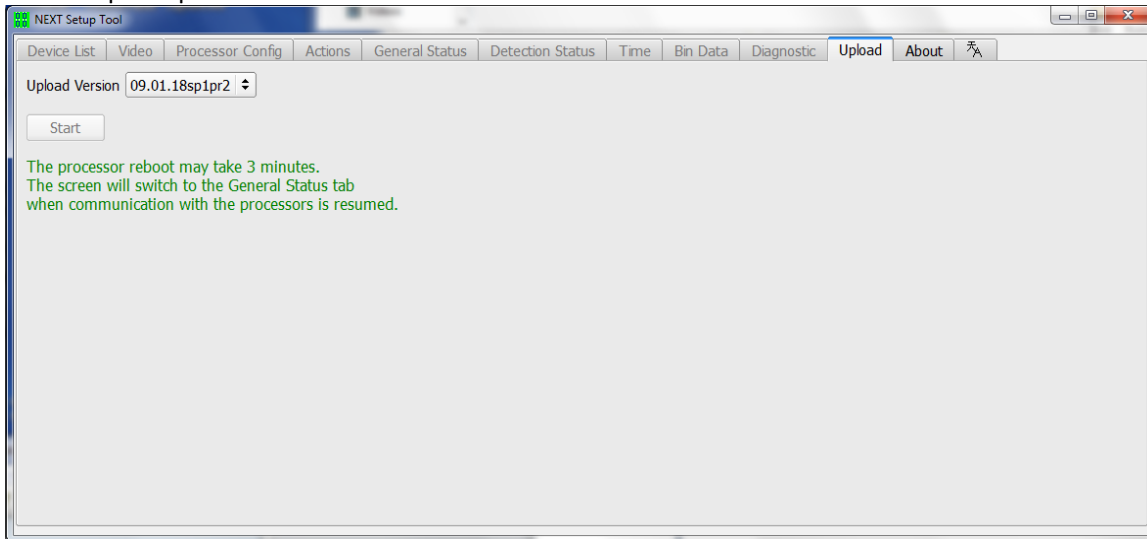
3. Launch the Next Setup tool and connect to the Next system. Click on the upload tab at the top. You should see Upload Version 09.01.18sp1pr2. Click on the start button.



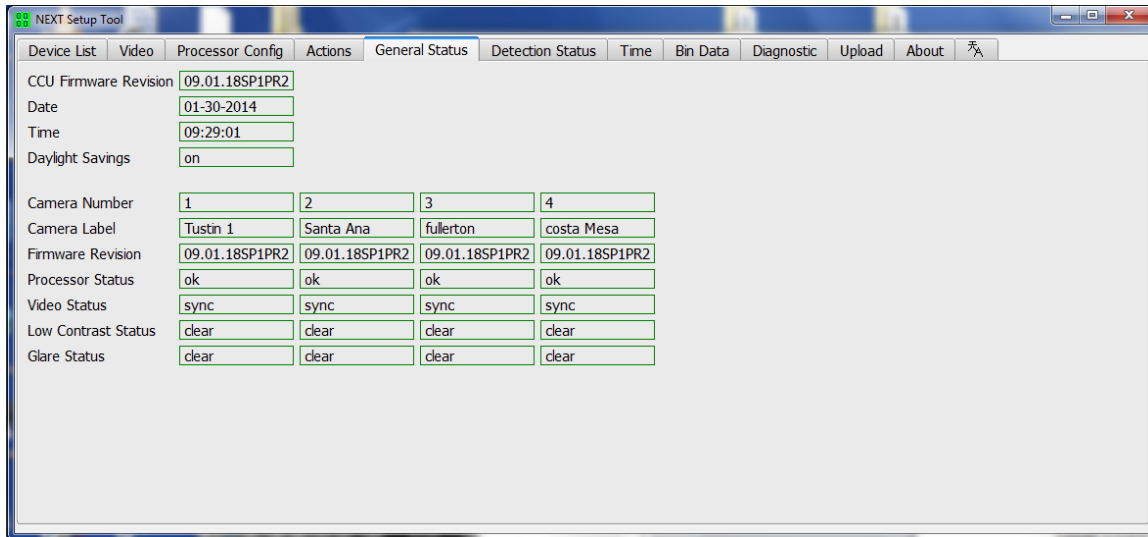


4. The upload process will start. The online LED's on your VP will blink off then on. The whole process takes about three minutes. When the upload process is complete the General Status tab will be displayed. The status page shows the new firmware versions of the CCU and VP's.

Upload process started



Upload process complete. CUU and VP's are showing their new firmware versions.

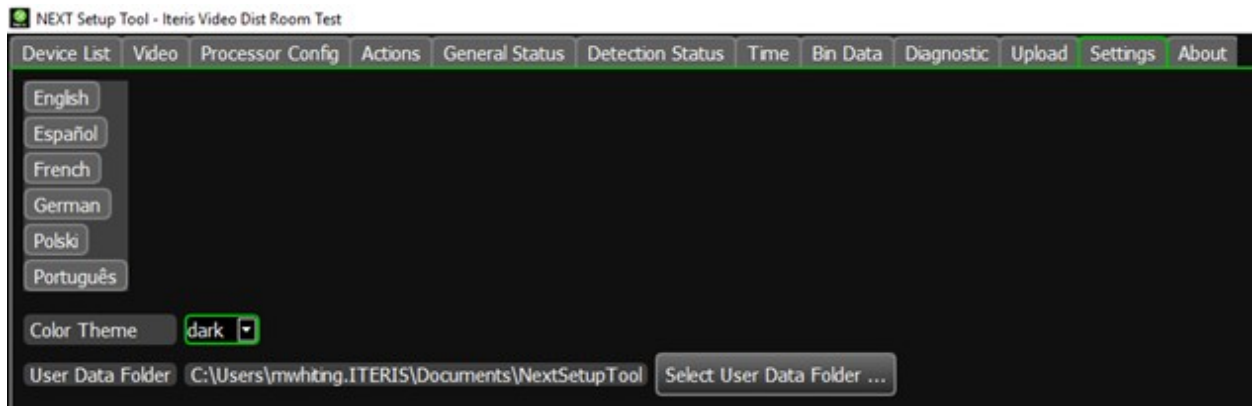


### 3.11 Settings

Use this screen to choose your preferred language. The application will instantly switch to whichever language is chosen.

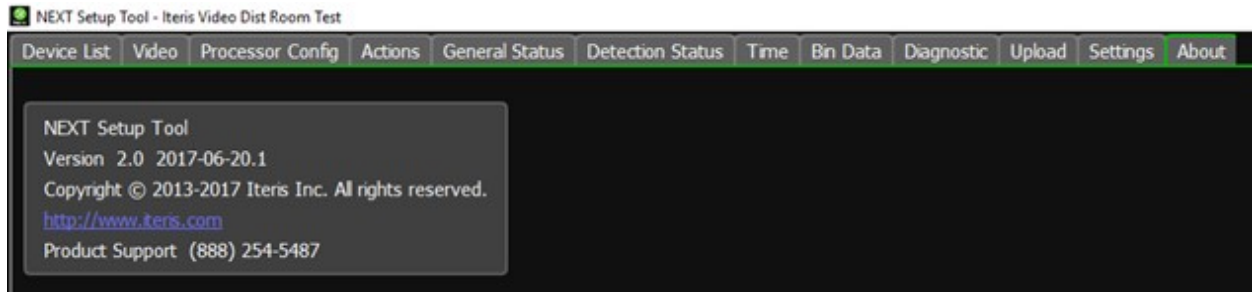
You may also choose a dark or light theme for the app to improve viewing in bright conditions.

Data stored during a Bin or Diagnostic Log download can be stored to a preferred folder by default.



## 3.12 About

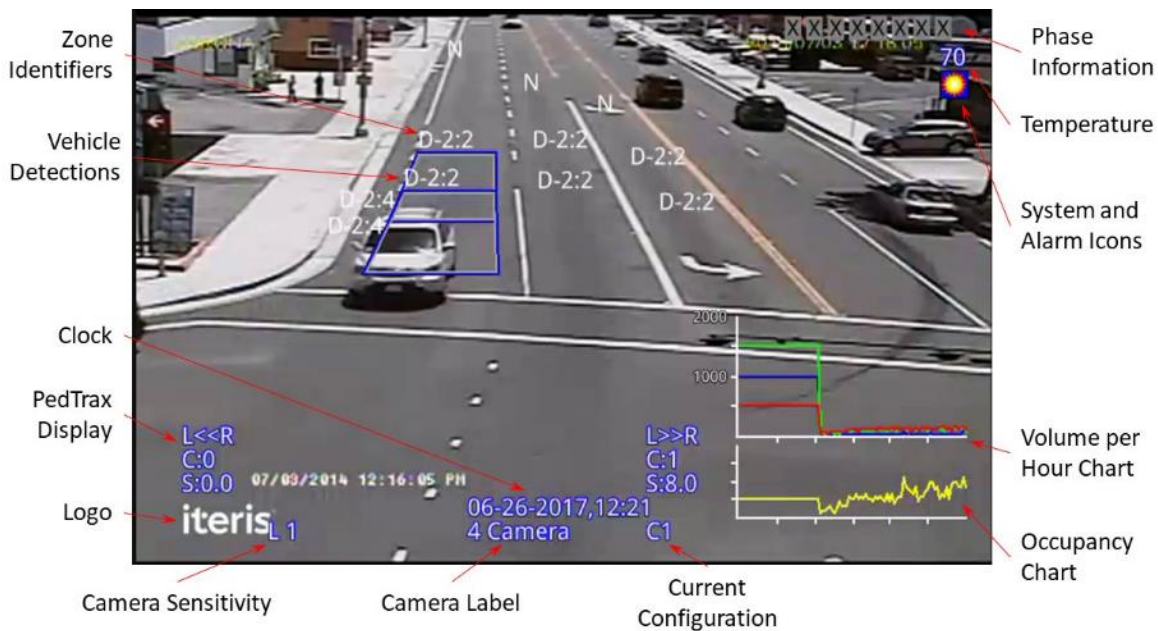
This screen gives some general information about the application and how to contact Iteris in case of questions.



## 4. OPERATION

### 4.1 Run Time Display

✓ **Note:** The following parameters are being used in Vantage firmware version v09.01.18, the current Next System firmware version at the time of this manual's publication. The following section is somewhat firmware dependent and may change in future firmware versions. Always refer to the current Vantage firmware release notes for the latest information on Vantage firmware features and operation. The following information is a high level look at the Vantage firmware.



#### Zones Lighting with Detection

During operation when a vehicle is detected the outline of the zone will light up.

#### Constant Call

If the algorithm determines that a zone is not detecting it will go into failsafe mode. The output associated with the zone will be turned on and a "@" symbol will be displayed above the zone. The system continues to monitor conditions and if detection quality improves the system will exit this mode.

If the system determines that the whole image is a problem due to percentages from other cameras being in LC or DID all detection outputs will be turned on. The system displays "GCC" on screen to indicate that the system is in constant call due. GCC stands for Global Constant Call. This feature is helpful when camera 1 has constant calls but is not in DID or LC and displays "GCC". Then the user can deduce that camera 2 is in DID or LC causing constant calls on camera 1.

### Phase Information

If Phase Information is enabled the information will be displayed in the top left of the screen. For TS-2 applications Red, Yellow and Green information will be displayed. For other applications only the Green information will be displayed.

### Camera Label

The camera label indicates which camera is currently being viewed, along with other important system information.

#### Camera Label Elements:



1 Camera - This part of the camera label tells the user that we are looking at camera one. "2 Camera" would signify camera two.

C3 - This part of the camera label tells us that configuration three is the current active configuration. "C1" would indicate configuration one, "C2" would indicate configuration two.

### Algorithm Data Buffers


The buffers collect specific information about the intersection and allow the Vantage system to operate in a more intelligent manner. Typically, an even greater level of system operational stability is achieved after both buffers have been filled. If power is disrupted to the Video Processor module all the buffers will be reset.

- DS – Day Short, processor in Day time mode and powered up for 0 to 2 days.
- NS – Night Short, processor in Night time mode and powered up for 0 to 2 days.
- D – Day, processor in Day time mode and powered up for more than 2 days.
- N – Night, processor in Night time mode and powered up for more than 2 days.

The mode is indicated by an icon in the top right of the screen. The  icon indicates day and the  icon indicates night.

## 4.2 Three Stage System Operation

The following information is a high level look at the Vantage Three Stage System. This section is designed to give the user further insight into their Vantage Next System operation.

 **Note:** *The following system was being used in Vantage firmware versions 09.01.18, the current Next System firmware version at the time of this manual's publication. The following section is somewhat firmware dependent and may change in future firmware versions. Always refer to the current Vantage firmware release notes for the latest information on Vantage firmware features and operation.*

System operation is broken down into three stages. Each stage is by zone, different zones can be in different stages depending on the road conditions for the zone. For example, some zones may be experiencing glare or shadows when others are not.

Stage 1 (S1) - This stage indicates that the system is in normal operation. Detection should be occurring normally, contrast and field of view image quality is good.

Stage 2 (S2) - This stage indicates a degradation of contrast and or field of view image quality. These conditions usually accompany a decrease in detection strength (weak detections). These conditions trigger the algorithm for increased sensitivity to ensure good detection. This increased sensitivity mode is known as "Hypersensitive" mode.

Stage 3 (S3) - This stage indicates a possible challenging detection condition. Rather than take a chance of detecting poorly, the zone(s) have gone to a failsafe or constant call mode. The system will display a '@' above any zone in S3 mode.

### 4.3 Learn Mode

Learn Mode is the mode that the Vantage Next System uses while it is learning the zone background and your field of view. During the "Learn Mode" the Next System places constant calls on the channels associated with the zones that have changed. These zone changes would include: when zones are first created, when zone size is changed, and when zones are physically moved. Learn Mode can also occur on power-up or after power outages. Receiving and loading new configurations also results in learn mode.

Iteris was one of the pioneers of DZR (Dynamic Zone Reconfiguration). This means that when you make a change to a zone, only the channel associated with that individual zone enters into a learn mode.

When a zone is in "Learn Mode", there will be an " \* " next to the zone that is learning. The learn time on the Next System is three minutes.




**Note:** Notice the zone identifiers in the picture are referenced by "Zone Type" and not "Zone Number". This option is set in the NST "Mode" page under Mode. CN = Count Zone, PR = Presence Zone, etc. For more information see the section on the Mode Option Menu.

### 4.4 System Failsafe Modes

The Vantage Next System is designed to operate under the challenging conditions that are encountered in the traffic and intersection environment.

However, if failures do occur, or when severe conditions might require it, the Next System design incorporates methods to default to a failsafe mode of operation.


If an alarm is triggered the alarm icon will flash in the top right corner of the display .

### Glare Mode

Glare Mode was designed to help in situations where roadway glare, during certain times of the day, may interfere or inhibit the ability to accurately detect vehicles.

"Glare Mode" must be enabled through the "Option" parameter in the "Diagnostic" (Dia) menu. Glare Mode is turned off by default from the factory and must be enabled by the user before it will become active. See the firmware version release notes for specific information on how to enable this feature by setting the correct option number.

When the option is enabled, Glare Mode places a constant call for zones that are saturated by glare. When approximately 75% of a particular zone is covered (saturated) by glare, the output channel associated with that zone will place a constant call to the controller. After a zone is saturated by glare, it takes about three minutes for the processor to generate a constant call condition. It also takes about three minutes to come out of the constant call condition, once the zone is no longer saturated by glare. The zone will revert to normal operation once the glare condition has diminished enough to resume normal operation again.

When the system is in "Glare" mode an icon will flash in the top right corner of the screen. 

### Low Contrast Mode

Low Contrast (LC) mode is a failsafe mode that the Next System will default to during low contrast conditions that could adversely affect the system's ability to adequately detect vehicles. Low Contrast (LC) operates independently of the three stage detection system (S1 - S3). When a camera view is in LC mode, all channels associated with that camera view will place constant vehicle calls. The corners of all the zones will also be illuminated.

Low contrast conditions would include fog and could also include certain contrast limiting conditions like snow and rain. These are just a few of the more common triggers for LC mode.

When a Next Video Processor camera view is in LC mode an icon will flash in the top right corner of the screen



### Low Contrast Mode With Multiple Cameras

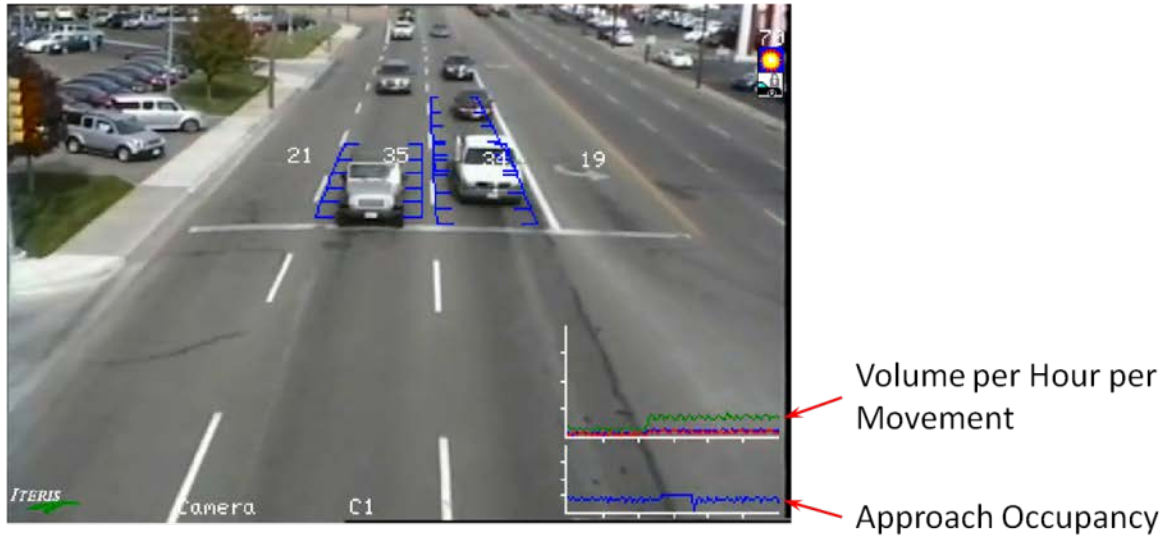
If one of the cameras, on a two camera Next System enters into Low Contrast (LC) mode, the other camera will also enter into a failsafe LC mode and will also place constant calls on all assigned output channels. Realize that the other camera in Failsafe mode will not show "LC" in the camera label.

### Other Conditions

Loss of Video - If video and video sync. is lost, the associated camera and all of its assigned zones will place constant vehicle calls.

Loss of Power - If power is lost to the Vantage Next Video Processor unit, it will place constant vehicle calls on all channels.

4.5 On Screen Graphs



Occupancy

The occupancy graph can be found in the bottom right corner of the screen. It is a rolling 24 hour graph in 15 minute bins. The Next Video Processor calculates the active time for all zones against the total possible active time and calculates the approximate occupancy for the approach.

The graph's y-axis is fixed to 100%. The graph's x-axis

Automatic Traffic Volumes

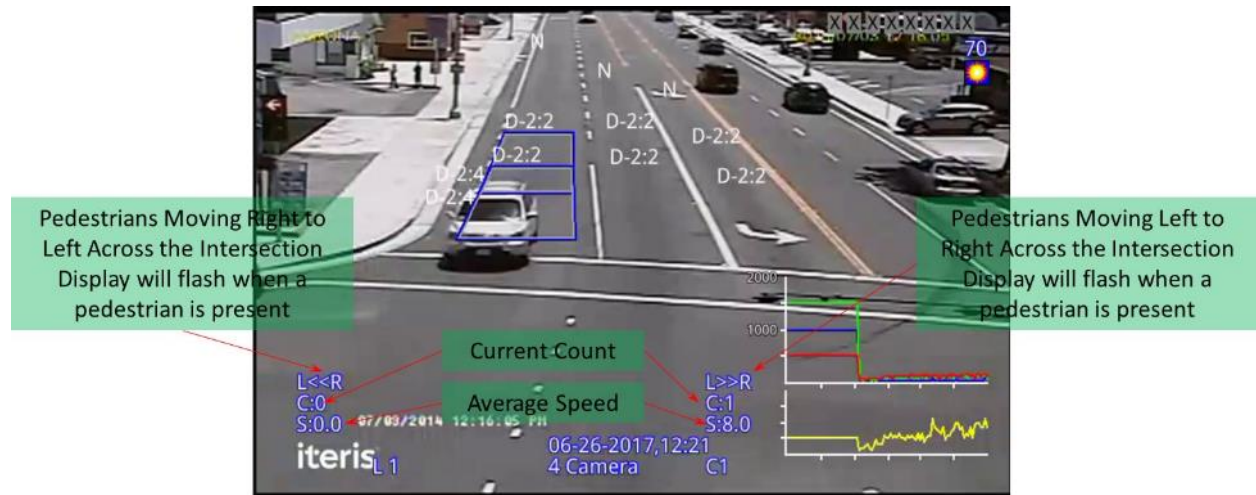
The system automatically counts the number of vehicles for each zone placed closest to the stop bar in each lane and displays a rolling 24 hour graph in 15 minute bins. The system calculates the approximate traffic volume for each movement every 15 minutes by totaling the counts for each movement and multiplying by four.

The graph's y-axis is fixed to 2000 which is approximately the maximum number of vehicles per hour at saturation. The red line on the graph is for the right turn movement, the blue line on the graph is for the left turn movement and the green line on the graph is for the through movement. See [Section 3.3: Processor Configuration/Zones](#) for how to set the zone movement options.

**Note:** For the graphs to display properly the system Bin Interval must be set to 15 minutes. Any other setting will cause the graphs to be incorrect.



## On Screen Display



The On Screen Display is based on the current Bin. At the end of the Bin Interval the data is stored in the system and the display is reset.

The On Screen Display may be disabled through the NST.

## Next Bin Data Zone Numbers

The data from the automatic counts is stored in memory in 15. The data can be accessed through the Next Setup Tool. See [Section 3.8 Bin Data](#) for more information on retrieving Bin Data.

Automatic counts are stored in special bin zones. Refer to the table below for information on each bin zone number and how it relates to the system.

Direction	Camera 1 Bin Data Zone Numbers	Camera 2 Bin Data Zone Numbers	Camera 3 Bin Data Zone Numbers	Camera 4 Bin Data Zone Numbers
Down Left	501	504	507	510
Down Through	502	505	508	511
Down Right	503	506	509	512

### Camera 1:

501 - Relative left turn

502 - Relative thru

503 - Relative right turn

### Camera 2:

504 - Relative left turn

505 - Relative thru

506 - Relative right turn

### Camera 3:

507 - Relative left turn

508 - Relative thru

509 - Relative right turn

### Camera 4:

510 - Relative left turn

511 - Relative thru

512 - Relative right turn

## 5. TROUBLESHOOTING - FAQ

### Symptom A: No video display on monitor.

- i. Check the monitor cable.
- ii. Check the monitors operation. Does the monitor have power? Try a different monitor. If the monitor cable and the monitor are good then the fault lies with the processor. Send the processor in for repair.
- iii. If using a HDMI to VGA adaptor ensure the adaptor is powered and the connections are good.

### Symptom B: Video Processors' online LED is blinking constantly.

- iv. The processors online LED will blink for a couple seconds during startup. This is normal. For a continuous blinking see the steps below.
- v. Power cycle the processor to see if blinking goes away.
- vi. Check the red dip switch on the board. All of the switches should be off or open.
- vii. Make sure the reset line of the detector rack is not grounded (pin C).
- viii. If the blinking persists there is a problem with the processor and it needs to be sent in for repair.

### Symptom C: Video Processor has an output channel that is locked on.

- i. Is there "GLR" (glare) or "LC" (low contrast) in the camera label? Glare or LC can cause a zones' output channel to lock on.
- ii. Reset a zone that is associated with the stuck on channel.
- iii. Delete all of the zones associated with that channel and redraw them.
- iv. Is the zone that is stuck on programmed as the LC output channel? If the processor is in LC mode the LC out channel will be on for as long as the processor is in LC mode.
- v. If none of these suggestions work the processor may have a shorted channel and needs to be sent in for repair.

### Symptom D: Video Processor is locked up with constant calls and no NST response.

- i. Power cycle unit and go to the utilities menu and do a bin reset and log reset.
- ii. Upgrade processor to latest firmware version.
- iii. If these steps fail to remedy the situation the processor maybe bad and needs to be sent in for repair.

### Symptom E: Video Processor has constant calls.

- i. Under the Miscellaneous tab is the Max Recall set to "on"? If it is, set the output to "off".
- ii. Does the processor have a good video source? If the video in LED is on then the processor is seeing sync from the camera. If the video in LED is off then the video signal is missing or bad and the processor will output constant calls.
- iii. Does 1 or more cameras labels display the LC Icon? Then the constant calls are appearing because the processor is in low contrast mode. This is normal behavior if the camera cannot see because of fog. If LC is coming on when it should not, try drawing LC zones over areas of contrast. Try cleaning and focusing the camera lens. If the LC problem persists that camera may need to be sent in for repair.
- iv. Does the monitor camera label display "S3" stage 3? Then the constant calls are appearing because the processor is in "S3" stage 3 detection. If the strength of detections degrades enough the processor will go from S1 to S2 to S3. If S3 is coming on when it should not, try cleaning and focusing the camera lens. Try drawing the zones where the vehicles travel. If the S3 problem persists that camera may need to be sent in for repair.

- v. Does the camera label display “GCC” or global constant call? One camera maybe in LC causing the other camera to constant call.

**Symptom F: Extension module has constant calls.**

- i. Does the extension module have a dash (-) in its display? If so the extension module needs to be reset to get an address (0,1,2,3...). Make sure Cat-5 cable is connected and power cycle the extension module.
- ii. Does the extension have a Cat-5 cable connected from the CCU RJ45 out to the extensions modules RJ45 input port? Connect the Cat-5 cable. Push in the Cat-5 cable until it clicks.
- iii. The Cat-5 cable maybe bad. Try another Cat-5 cable between the processor and the extension module.
- iv. Are the test switches in the down position? If yes then move them to middle position.
- v. If these steps fail to remedy the situation the extension module maybe bad and needs to be sent in for repair.

**Symptom G: No NST communication with system.**

- i. Make sure you are using the correct Ethernet cable (straight not crossover).
- ii. Make sure the NST has the same communication parameters as the Next system.
- iii. The computer may have a bad Ethernet port. Try to connect with a different computer.
- iv. The Ethernet Switch/Router may have a bad port. Try a different port or different switch/router.
- v. If these steps fail to remedy the situation the processor may have a bad com port and needs to be sent in for repair.

**Symptom H: NST comes up but no mouse movement.**

- i. Make sure the mouse connector is properly seated into the processor. Unplug mouse and plug it in again.
- ii. Try swapping the mouse out with a spare.
- iii. Disconnect the mouse. Power cycle the system. Reconnect the mouse.
- iv. If these steps fail to remedy the situation the processor maybe bad and needs to be sent in for repair.

**Symptom I: Next system places constant calls in TS2 rack.**

- i. Check the system in set for SDLC communications.
- ii. If this steps fails to remedy the situation the processor maybe bad and needs to be sent in for repair.

**Symptom J: Next system places constant calls on unused channels.**

- i. The system may place constant calls on all channels for 3 minutes when first powered up until the learn period has expired.
- ii. Check to make sure under the Miscellaneous tab that “inactive channel” is set to “no call”. If inactive channel is set to call then all unused channels will be on.
- iii. If these step fail to remedy the situation the processor maybe bad and needs to be sent in for repair.

**Symptom K: One channel constantly blinks on and off every 1 seconds.**

- i. Make sure the Test Output Channel under the Actions tab is programmed for none. If a Channel is programmed it will turn on for 1 second and the turn off for 1 second continuously. The test channel will time out after 1 hour.

**Symptom L: Next system placing constant calls on the TS2 controller.**

- i. Make sure SDLC cable is firmly attached to the CCU and the controller.
- ii. Make sure the correct SDLC address is selected either 08:09 or 10:11. The SDLC address is programmed in the MOD menu.
- iii. During a NST snapshot the Plus places constant calls to the controller.
- iv. Try a different SDLC cable.
- v. If these step fail to remedy the situation the processor maybe bad and needs to be sent in for repair.

**Symptom M: The overlay shows the corners of the zones blinking on and off but the processors outputs do not match.**

- i. Make sure you are not using the same output channel on 2 or more camera views. Each output channel should be used for only 1 camera view. Having the same channel on multiple cameras can cause erratic channel output behavior.
- ii. Make sure that the Glare out, LC out and Video Lock channels are not assigned to the same channels being used by zones.

**Symptom N: The video on the monitor looks too bright.**

- i. Adjust the brightness and contrast controls on the monitor.
- ii. If these steps fail to remedy the situation the camera maybe bad and needs to be sent in for repair.

**Symptom O: The video on the monitor looks dark.**

- i. Adjust the brightness and contrast controls on the monitor.
- ii. Check the RJ-45 connectors at both ends of the Cat-5 cable to the camera. A poor connection can result in high resistance and a dark picture.
- iii. If these steps fail to remedy the situation the camera maybe bad and needs to be sent in for repair.

**Symptom P: I cannot zoom and focus my camera with the NST.**

- i. Check the RJ-45 connectors at both ends of the Cat-5 cable to the camera. A poor connection can result in high resistance and a problem with communications to the camera.
- ii. In extremely cold weather apply power to the camera and let it warm up for a while before using the NST to adjust the field of view.
- iii. Connect the NST to a different camera and see if you can zoom and focus.
- iv. If these steps fail to remedy the situation the LAM maybe bad and needs to be sent in for repair.

**Symptom Q: After a power cycle my processor the time resets to 01-01-2000 and bin data is lost.**

- i. The battery is dead or missing and needs to be replaced. The part number for the battery is CR2032.

**Symptom R: The green inputs on my Next system do not work.**

- i. Check the position of the DELAY/EXTEND dip switches. If the switches are in the up position then the green inputs come in on pins 1, 2, 3 and 10. If they are in the default down position they come in on pins D, E, J, and K.

### Symptom S: Bike Missed Calls

**Bike Night Sensitivity** – Because of lighting conditions bicycles are harder to detect at night. Turning this attribute on may help with missed calls in poor lighting conditions as it increases the sensitivity of the zone. The proper solution is to improve the lighting at the intersection.

**Note:** This attribute only works on zones at the stop bar. If you have a zone away from the stop bar, then turning on this attribute will have no effect on performance.

**Bike Virtual Zone** – If the camera is not mounted directly above the bike lane the Bike zone drawn may not be rectangular but a parallelogram. Due to the position of the camera, the body of the bicycle rider may appear out of the zone, and the call may be missed. This attribute will extend the zone in an attempt to capture the rider. See figure below.



Bike Zones drawn in red. The bicyclist is only halfway in the zone due to camera positioning.

Virtual Bike Zone drawn in blue. Extends automatically by the system to capture the bicyclist.

*Bike Virtual Zone*

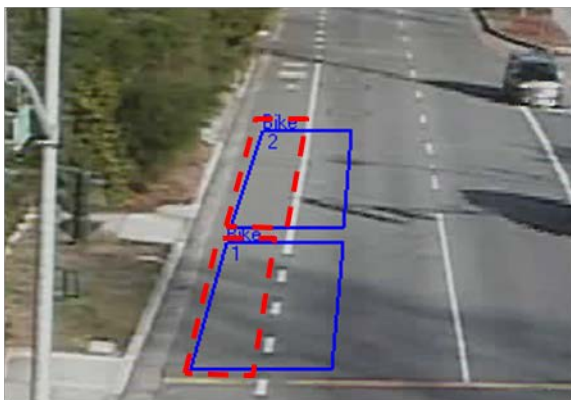


*On Screen Menu displaying Bike Zone Attributes*

**Note:** The two attributes for Bike zones, both are set to off by default.

### Symptom T: Bike False Calls

There may be occasions when false calls occur in the bike zone at the stop bar closest to the sidewalk caused by right turn vehicles. To help overcome this, extend the bike zone half way into the next vehicle lane. Making this adjustment will help the algorithm determine if an object is a vehicle or a bicycle. See figure below.



The red dotted rectangle represents a typical bike zone deployment. The blue rectangle represents the corrected measure taken.

*Extending Bike Zones into the Vehicle Lanes to overcome false calls*

#### Symptom U: No Spare Inputs on Controller for Bicycle Green Min Time

If the controller you are interfacing to does not have extra inputs for extending the minimum green time you can use the following method.

- i. Program a spare phase in the controller with the bike minimum green timing.
- ii. Program the Bike Zone to output to this phase.
- iii. Overlap the new phase with the existing phase.
- iv. When a vehicle only is present the standard minimum green time will activate through the normal phase.
- v. When a bicycle is present the extended minimum green time will activate through the additional phase.

#### Symptom V: Motorcycles and Multiple Bikes

Due to the size and shape of motorcycles the system may occasionally find it difficult to determine if the object is a bicycle or a car and may classify it as a bicycle.

If multiple bicycles appear in a bike zone at the same time the system may occasionally classify them as a vehicle and not produce a detection output.

#### Symptom W: Processors not Connected

After the first time a Processor is connected to the CCU the system assigns an internal IP Address. Swapping the patch cables from the Processor to the CCU after this occurs will cause the system to become unstable. If cables have been swapped power cycle the CCU and Processors to restore normal operation

## 6. VIDEO STREAMING OPTIONS

### 6.1 Streaming Video

Video feeds are available direct from the system. Use Next Viewer (either PC or mobile version), VLC Player or a similar app which is capable of accepting RTSP streams.

**Note:** RTSP streams can be blocked by firewall rules. Check with your IT department to ensure the necessary ports for RTSP are open (554 and 6900 thru 6999).

The video URL is:

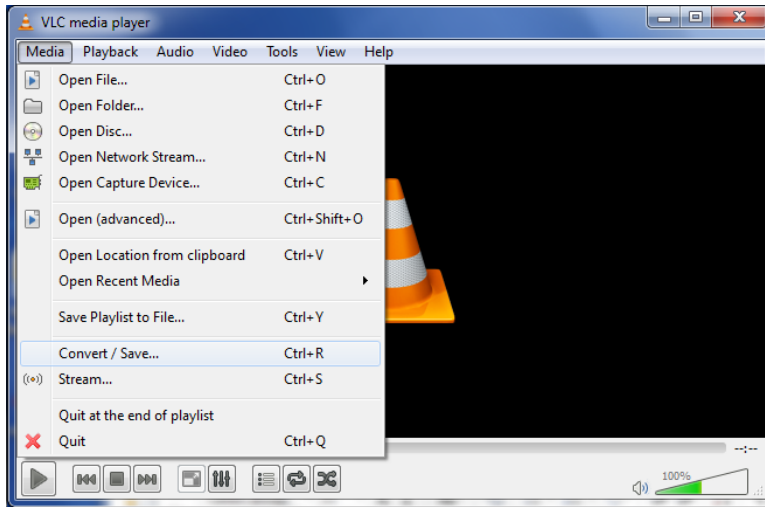
RTSP://x.x.x.x/y

Where x.x.x.x is the IP Address and y is the channel # (1, 2, 3 or 4).

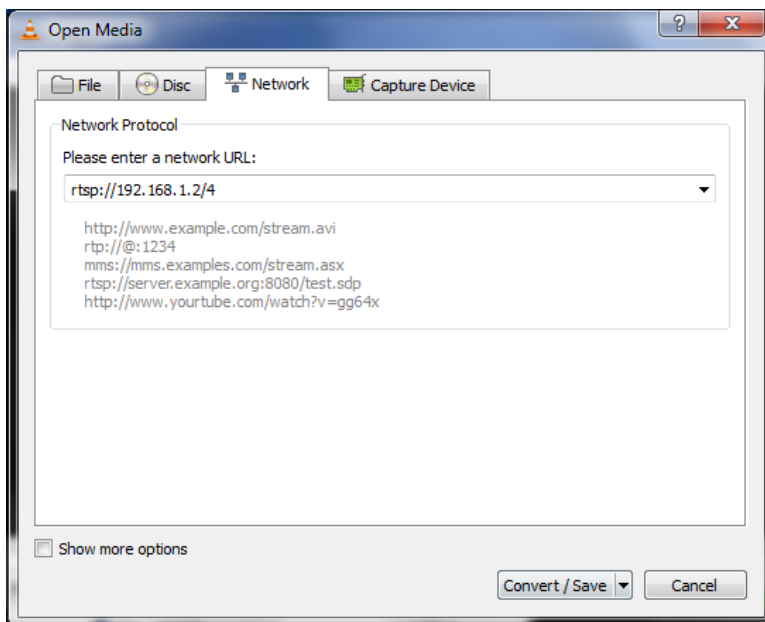
## 6.2 Recording streaming video

How to record a Next generation video stream with VLC media player.

1. Launch VLC media player.
2. Under the “Media” tab select “Convert / Save”.

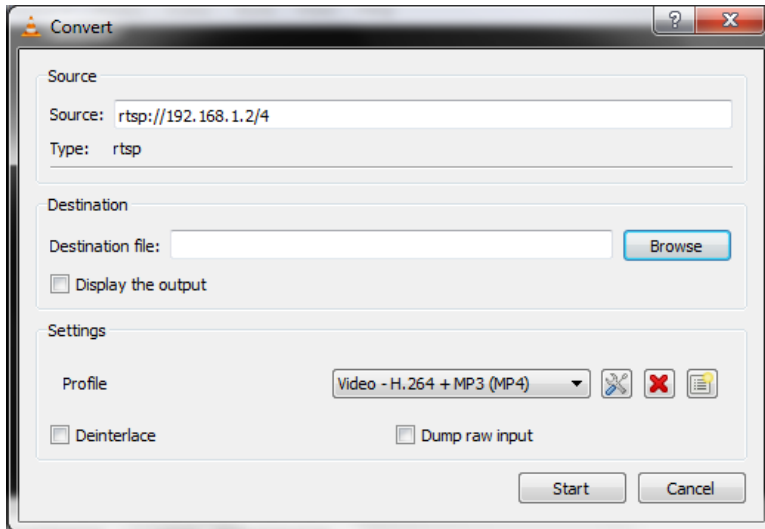


3. Under “Open Media” select the “Network” tab.
4. Enter a network URL.
5. Press the “Convert/Save” button.

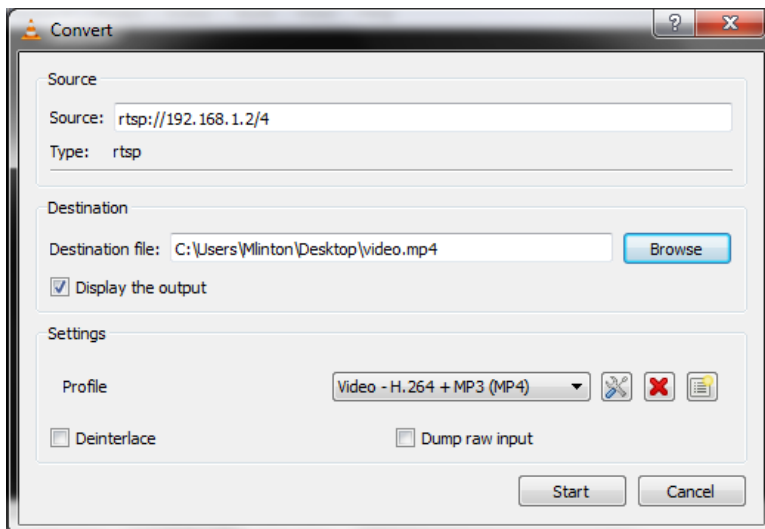


6. Click the Browse button.

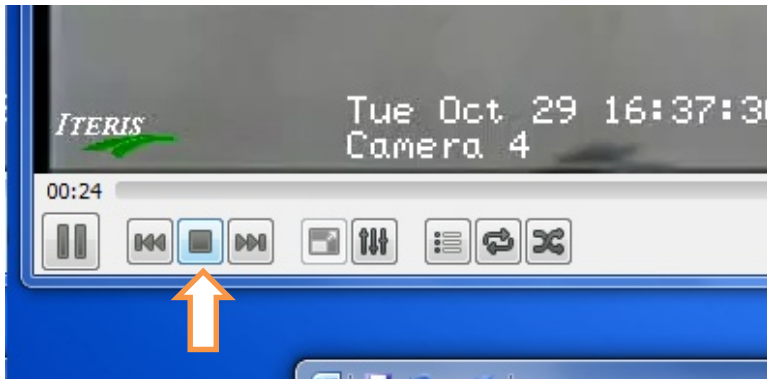




7. Select a location to save the video file.
8. Select a file name with an .mp4 extension.
9. If you would like to see the video you are recording then check the “display the output” checkbox. (This step is optional).
10. Click the “Start button”. If you checked the checkbox a video will appear in the VLC media player’s window.



11. When you want to stop recording click the “stop” button.



A video file is now created and saved from the streaming video.

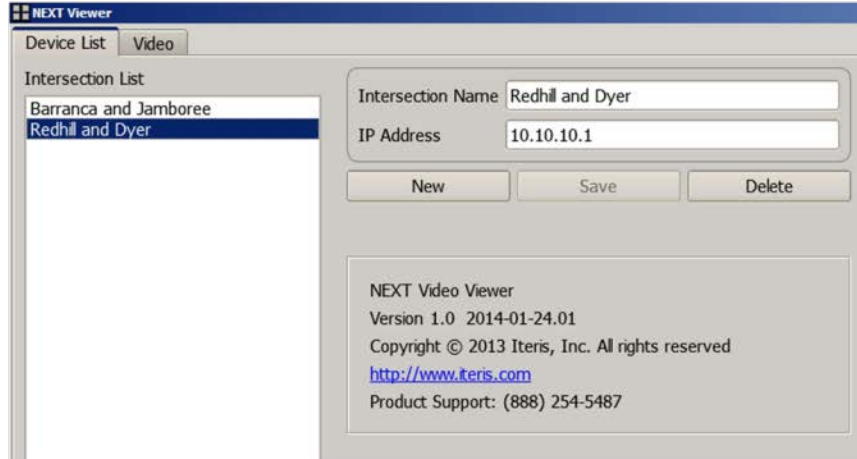
## 7. NEXT VIDEO VIEWER

Next Video Viewer is an app that connects directly to any of your deployed Next systems and streams video to your screen. It has the ability to show 1, 2, 4 or 8 streams simultaneously from a single intersection. An unlimited number of intersections can be configured for later viewing.

### 7.1 NVV for Windows

#### [Setting Up An Intersection](#)

To add an intersection. Click on the New button. Enter the intersection name and IP Address and click on the Save button. The new intersection will appear in the list on the left.



To edit an intersection. Click on the intersection name on the list. Change the name or IP Address and click on the Save button. The intersection has been updated.

To delete an intersection. Click on the intersection name on the list. Click on the Delete button. The intersection has been removed from the list.

[Viewing Video](#)

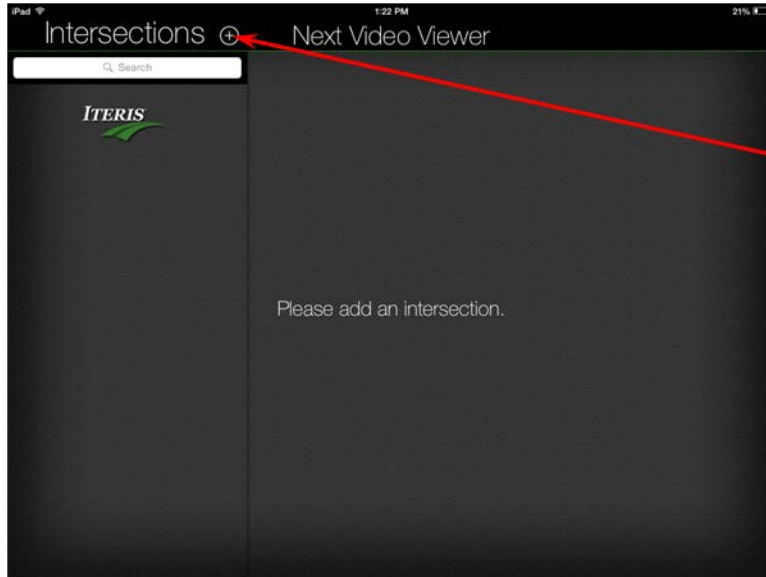
Click on an intersection name to begin streaming video.



Double click any video to make full screen.  
Double click again to return to quad mode.

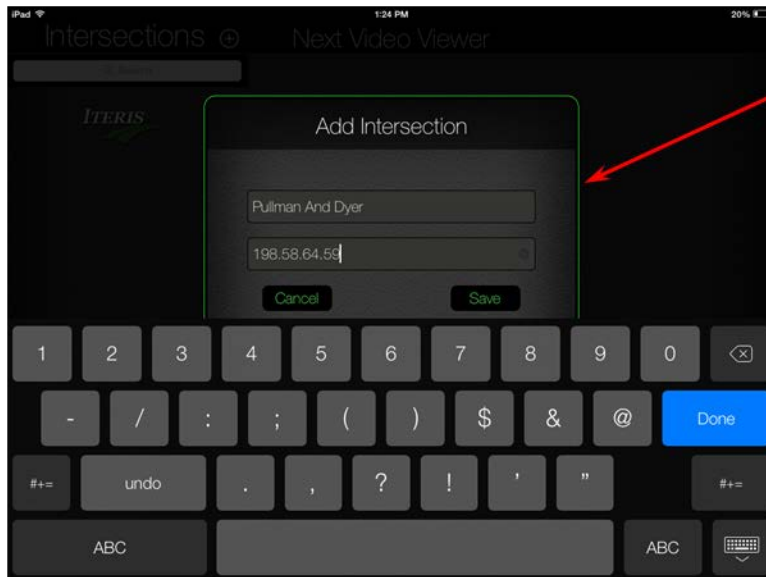
NVV for iOS is available from the App Store. It is compatible with all iOS7 devices (iPad2/3/4/Air, Mini and iPhone 4S/5/5C/5S). NVV is also available from the Google Play store and is compatible with a majority of Android smart phones and tablets.

## Setting Up An Intersection

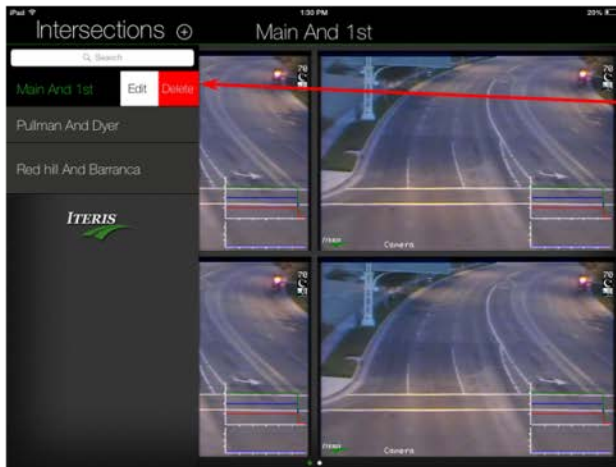


### Landing Page

Tap this icon to add an intersection

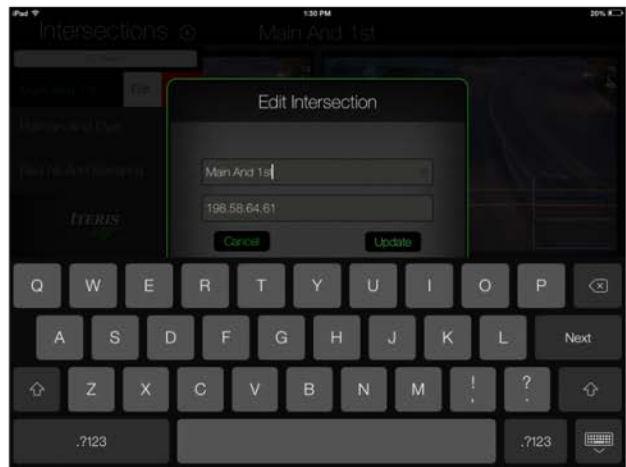


## Editing or Deleting an Intersection

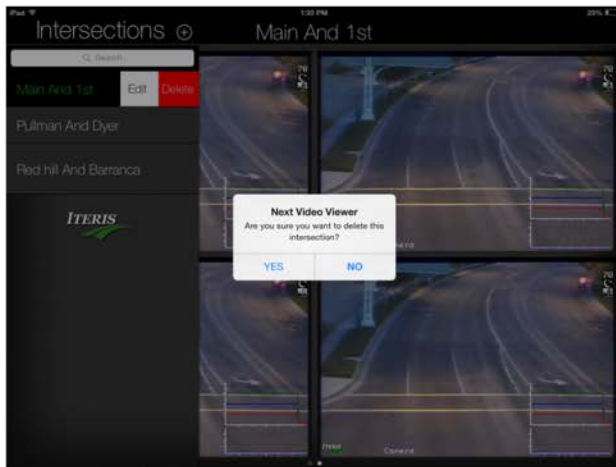


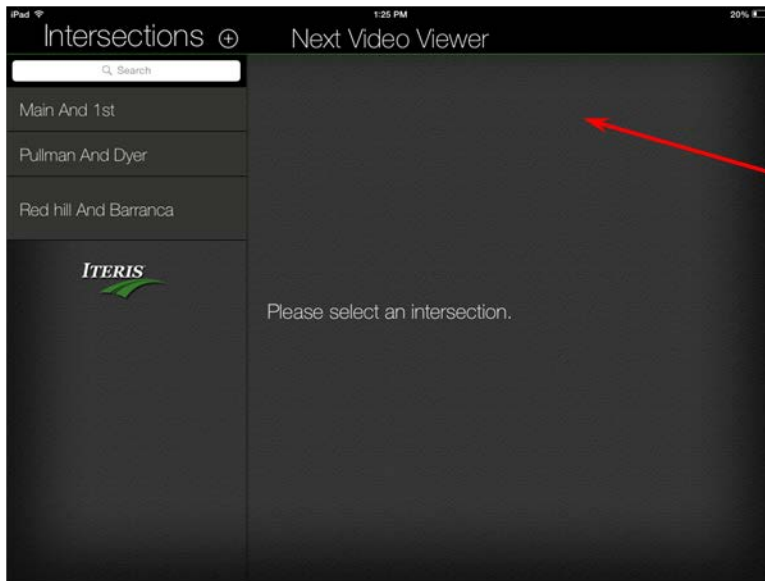
Swipe right on intersection name to edit or delete

Edit intersection details

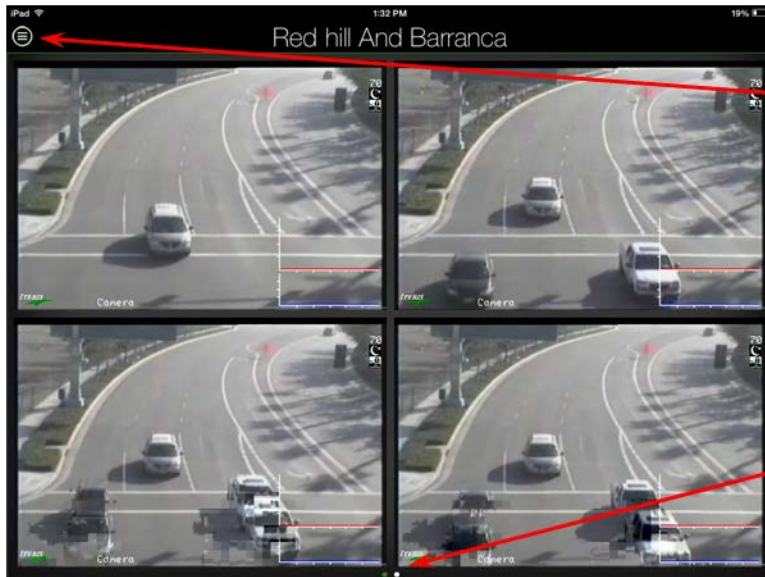


Delete intersection





Tap on intersection name to view video



Tap this icon to see list of intersections

Swipe left and right to switch between video streams 1-4 and 5-8



Full screen view

Swipe left and right to switch between all video streams

Select quad or octo view



Single tap to view options

Octo view



Pinch out for quad view

Double tap any video to view in full screen

## File Sync

File Sync feature allow you to upload bulk data easily i.e. if you have intersection list available in text file then instead of entering all the intersections manually, using iTunes you can upload the file with in the app and all the intersection would be added to the Intersection list in the application.

On successful sync, file is displayed in "Documents" folder with updated extension as ".Processed"

How to use File Sync:

1. Connect iOS device to your computer
2. Launch iTunes 9.1 or later on your computer
3. In iTunes, Select the device and click on Apps at the top of screen
4. In File Sharing section, click on Add to upload the file
5. Launch the application and pull down and release the intersection list for File Sync



Points to remember:

1. Application only supports Text file (extension .txt).
2. Each entry in file would be delimited by an Enter (new line).

Example:

Warner and Redhill = 10.10.10.58  
 Pullman and Dyer = 10.11.12.13  
 Barranca and Carver=10.12.14.15  
 Honesto and Antonio=11.12.13.14



Pull down  
 intersection list to  
 file sync

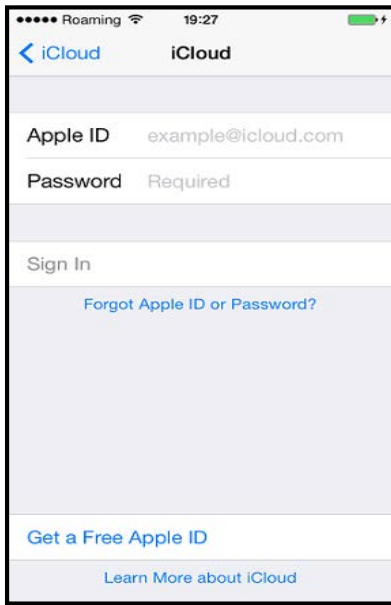
## iCloud Use

iCloud stores your contents and wirelessly pushes it to all your devices. If your app is iCloud enabled then data in the application would be shared to other devices on which user has logged in using same iCloud account. iCloud enabled app maintains two type of repositories:

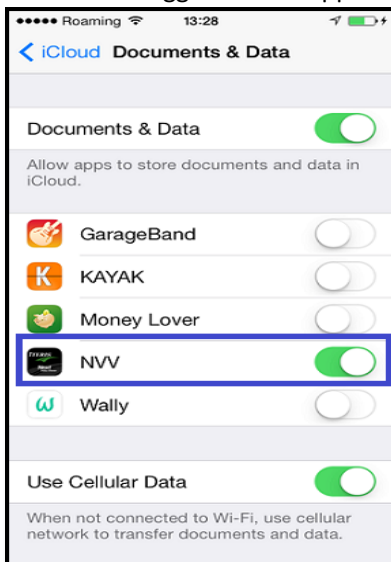
1. Local Store: If user is not logged into iCloud account or switches OFF iCloud sync in Settings then intersections added in the list would be stored in local store. Data stored in local store would not be shared on other devices.
2. iCloud Store: If user logs into iCloud account and switches ON iCloud sync in settings then intersections added in the list would be stored on iCloud. Data stored on iCloud would be shared on other devices.

## iCloud Login:

1. Go to Settings >> iCloud



2. If user have on Apple/iCloud account then user can enter the credentials in “Apple ID” and “Password” field
3. On tap of “Sign In” button user would be logged in to iCloud account
4. If user do not have Apple/iCloud account then user can create by tapping on “Get a Free Apple ID”
5. Once user is logged in NVV application would be listed in Setting >> iCloud >> Document & Data

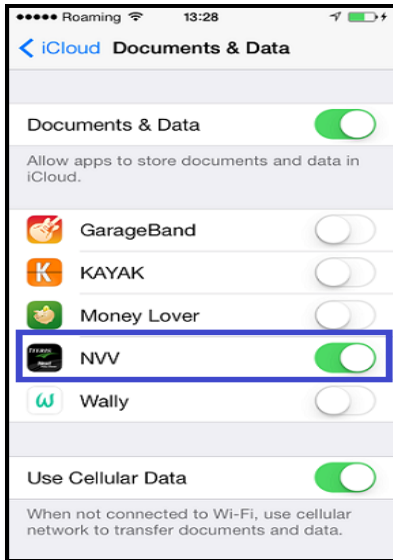


6. User can ON/OFF the iCloud syncing from this screen

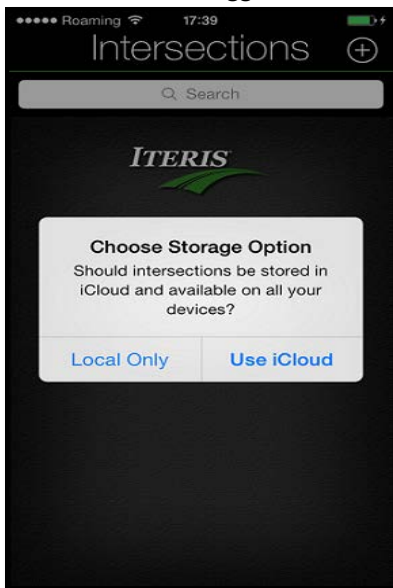
Below are various scenarios describing the iCloud behavior:

Case 1: If user added intersections on iCloud and no intersections available on local store (user’s device)

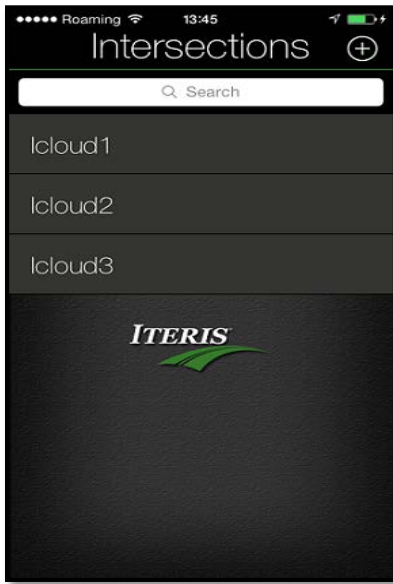
1. If iCloud Sync is On initially (Settings >> iCloud >> Documents & Data)



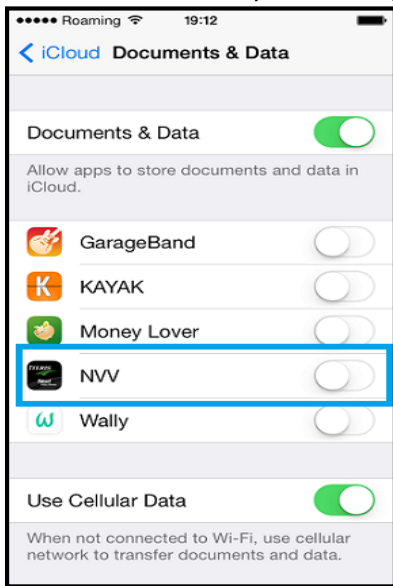
2. User launches the application for first time then alert message should be displayed with below 2 option:
  - a. Local Only: Intersections would be stored on device only and would not be shared on other devices via iCloud.
  - b. Use iCloud: Intersection list would be stored on iCloud only and would be shared on other devices if logged in user is using same iCloud credentials.



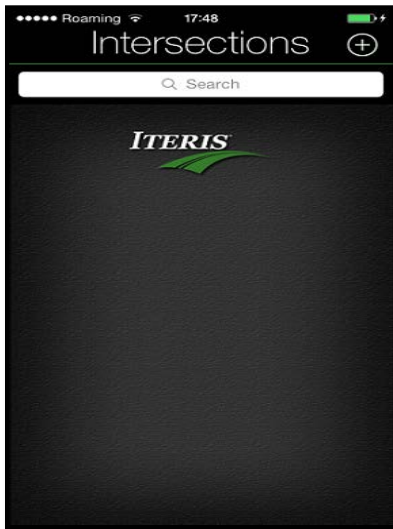
3. Select “Use iCloud” option
4. Add intersection to the List



5. User turns off iCloud Sync in Settings NVV app

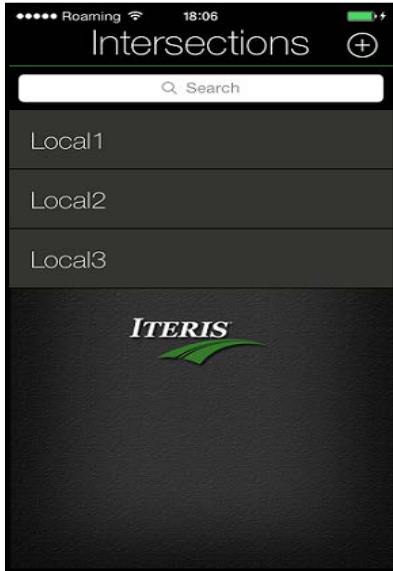


6. User again launches the app then intersection list on iCloud would not be displayed and since no intersections available on user's device, blank intersection list is getting displayed.

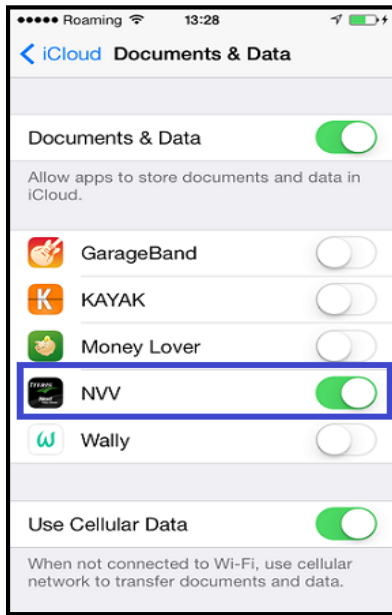


Case 2: If intersection list is available on local as well as iCloud

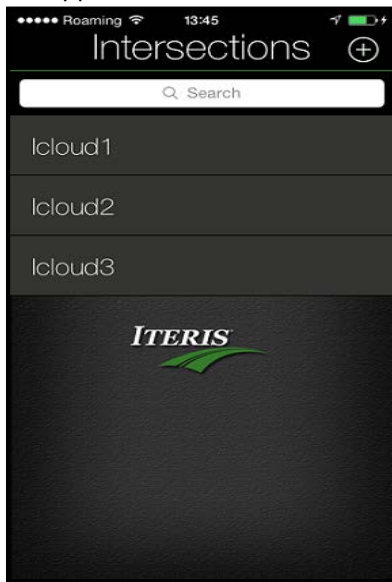
1. If iCloud sync is OFF initially
2. User launches the application and add intersections in the list



3. User switch ON iCloud sync from Settings screen



4. Application re-launches and intersection list available on iCloud would be displayed



5. Intersection list on local store would not be displayed once the iCloud Sync is ON.

Case3: If iCloud Sync is OFF initially and user adds intersections

1. If iCloud sync is OFF in Settings
2. User launches the application for first time
3. User adds intersection in the list then Intersections would be stored locally and would not be synced to other devices using iCloud

**Case 4:** If user logs in with other iCloud account on one device

1. User logged in to iCloud account (using : [iCloud1@icloud.com](mailto:iCloud1@icloud.com))
2. User launches the application for first time and chooses the “Use iCloud” option
3. User adds intersection in the list then Intersections would be stored on iCloud
4. User logs out from iCloud account ([iCloud1@iCloud.com](mailto:iCloud1@iCloud.com))
5. Now user logged in to other iCloud account (using: [iCloud2@iCloud.com](mailto:iCloud2@iCloud.com))
6. User launches the application
7. Intersection list added to iCloud account of ‘iCloud1@iCloud.com’ would not be displayed.

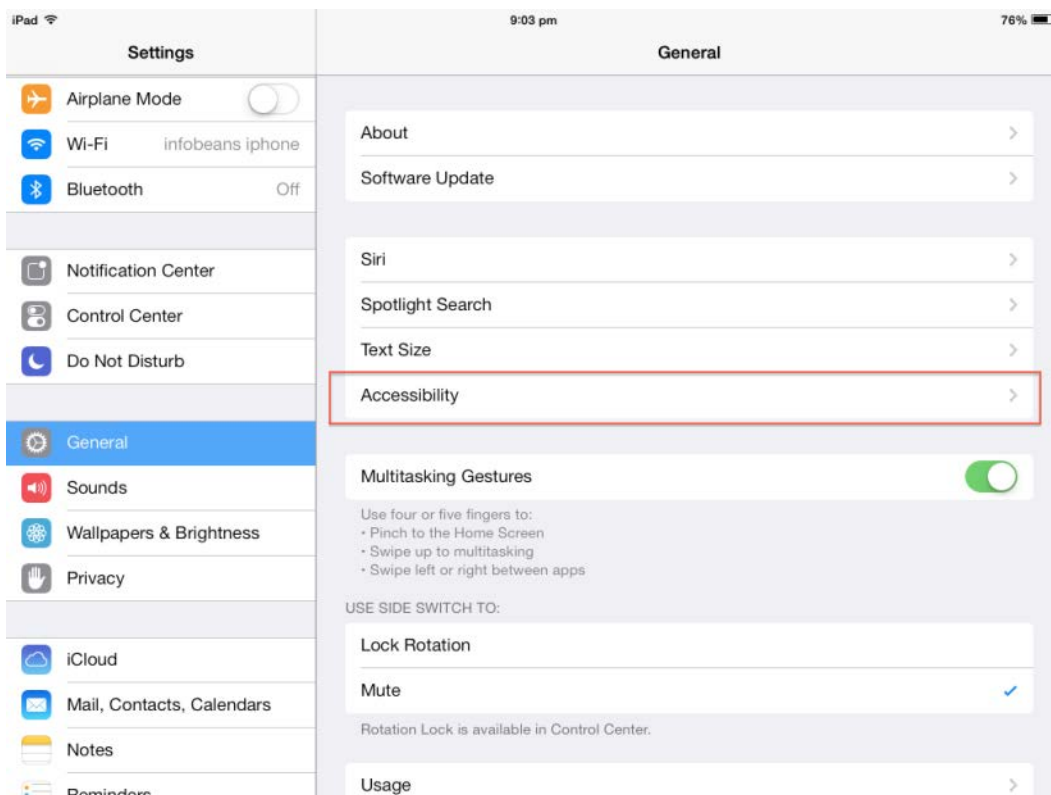
Intersections would be shared among the same iCloud account on different devices but intersection list would not be shared from one iCloud account to other.

**Performance issues of NVV app on iOS 7**

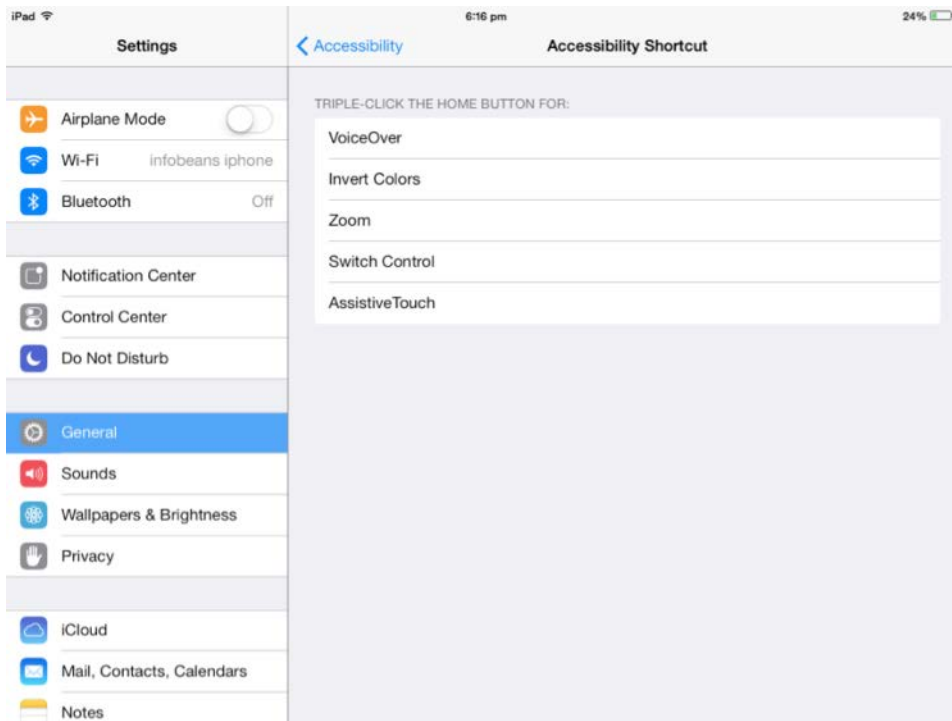
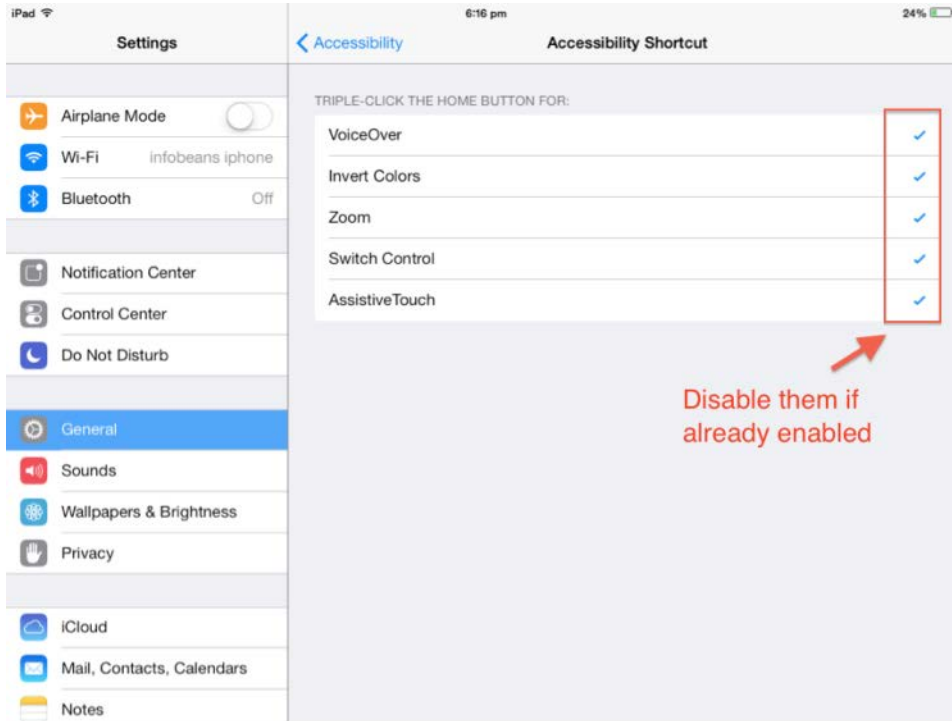
During QA of the NVV app, it has been observed that, if an Accessibility Shortcut is enabled (e.g. VoiceOver) and if the app uses collection view (in our app the screen which displays video feeds) then the performance of the app degrades severely. This is a known bug of iOS 7.0 release and it can be fixed by applying following solution.

**Solution:** Turn off ‘Accessibility Shortcuts’ from ‘Settings App’.

1. Launch ‘Settings App’ and select ‘General’. In ‘General’ you will see ‘Accessibility’ option in the center. Select ‘Accessibility’.



2. You will see different options in accessibility. Uncheck all options if they are 'Checked'.



3. Launch the NVV app. Now you would see noticeable performance improvements in the app. It would not crash frequently.



### 7.3 Network Bandwidth Requirements

There are certain network requirements necessary to get maximum performance from video streams from the Next system.

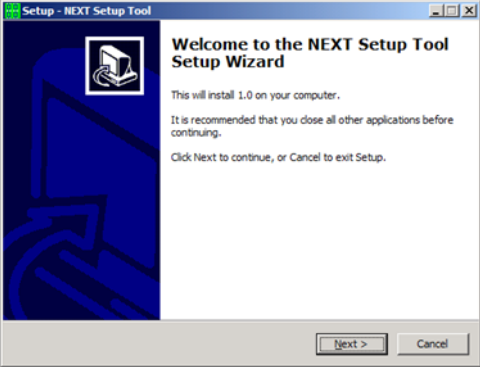
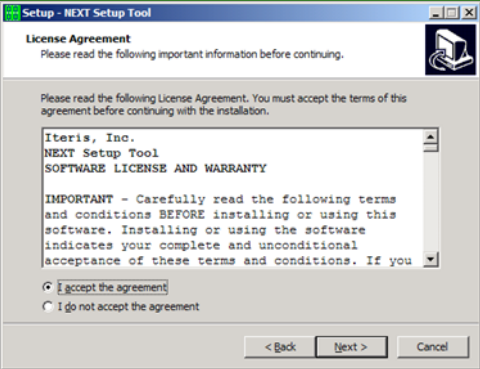
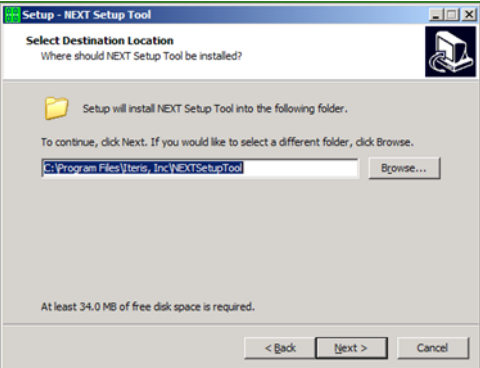
Each video stream uses approximately 500kbps. Multiple the total number of video feeds by the number of people viewing those feeds to calculate total network bandwidth.

For example if you have 6 video feeds from various Next systems with 2 people viewing them you will use a network bandwidth of:

$$6 \text{ times } 2 \text{ times } 500\text{kbps} = 6\text{Mbps}$$

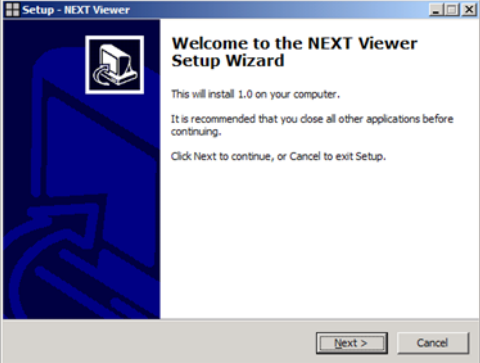
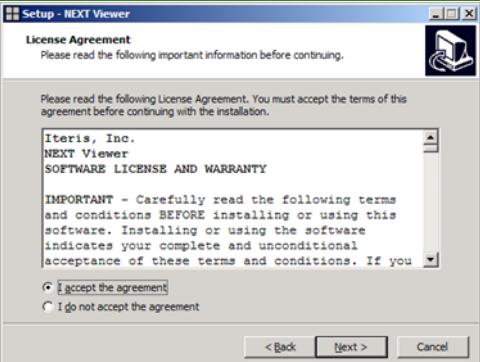
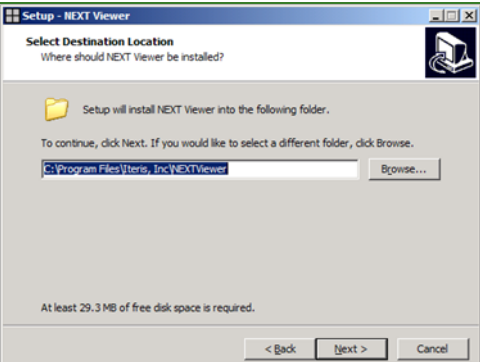
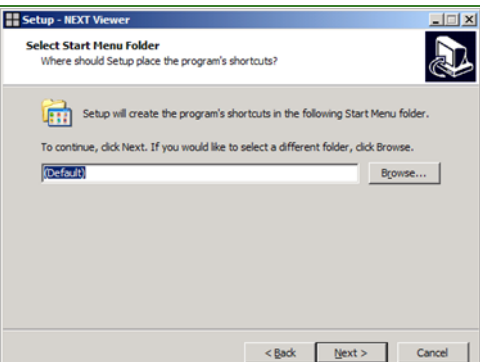
## 8. SOFTWARE INSTALLATION

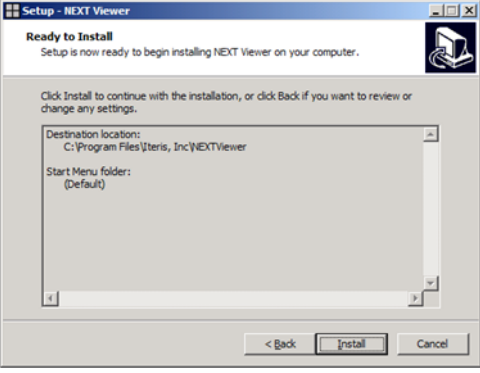
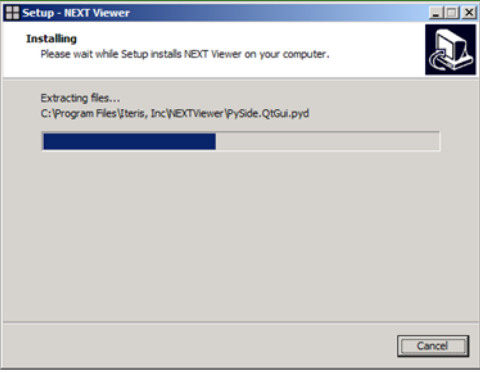
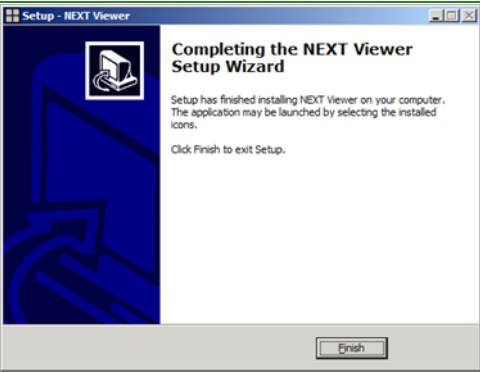
### 8.1 Installing the Next Setup Tool (NST)

Step	Screen Shot
<p>i. Start the installation by clicking on the NEXTSetup.exe file on the CD provided.</p>	
<p>ii. Check the 'I accept the agreement' box. Click on the Next button.</p>	
<p>iii. Accept or change the installation folder. Click on the Next button.</p>	
<p>iv. Accept or change the Start Menu folder. Click on the Next button.</p>	

Step	Screen Shot
	
<p>v. Click on the Install Button</p>	
<p>vi. The installation will begin and the progress bar will be shown.</p>	
<p>vii. Installation complete. Click on the Finish button.</p>	

8.2 Installing the Next Video Viewer (NVV)

Step	Screen Shot
<p>i. Start the installation by clicking on the NEXTVIEWerSetup.exe file on the CD provided.</p>	
<p>ii. Check the 'I accept the agreement' box. Click on the Next button.</p>	
<p>iii. Accept or change the installation folder. Click on the Next button.</p>	
<p>iv. Accept or change the Start Menu folder. Click on the Next button.</p>	

Step	Screen Shot
<p>v. Click on the Install Button</p>	
<p>vi. The installation will begin and the progress bar will be shown.</p>	
<p>vii. Installation complete. Click on the Finish button.</p>	

## 9. MAINTENANCE

The Vantage Video Detection System, once correctly installed, requires a minimal amount of maintenance.

### Camera Cleaning

Because Vantage video detection is a machine vision based system, one of the big operational concerns is keeping the front camera glass reasonably clean. A regular maintenance program should be implemented to ensure the front camera glass is kept free from dirt and debris. The camera housing glass should be cleaned at least once a year, or more frequently if required, especially under severe environmental conditions. Dirty camera glass is one of the leading contributors to decreased Vantage system performance. The use of a soft cotton cloth (non-abrasive) and water is the recommended method for camera glass cleaning. Avoid leaving streaks on the glass. Avoid anything that might scratch the glass, cloud the glass, or leave an undesirable residue.


### Connector and Cable Inspection

Periodically, it is wise to check camera cat-5 cable connections. Look for connector corrosion or moisture damage. Replace any defective connectors. Cabinet cat-5 cable and connections can also be checked for excessive wear or other defects. Repair or replace the defective cable or connectors as needed.

## 10. PRODUCT SUPPORT

### Product Support Team

The Iteris® Product Support Team consists of a group of highly skilled individuals that are knowledgeable and readily available to answer your questions or assist you with any of our Vantage products. Please do not hesitate to contact us at:

 Toll free: (888) 254-5487

For more information on Iteris, as well as the products and services that we provide, visit our website at:

 [www.iteris.com](http://www.iteris.com)

### Iteris Resource Center

This site contains additional training and technical support information covering the whole range of Vantage products. Registration is easy. Visit the address below to register and begin enjoying the benefits immediately.

 [www.iteris.com/support](http://www.iteris.com/support)

The Resource Center app is available from the Apple App Store or the Google Play store.



## 11. TECHNICAL INFORMATION

### 11.1 Bin Data Structure - Vehicle and Bike Zones

Each line in the bin data has the following structure

Data String:

xxx, yyyy-mm-dd hh:mm:ss, V, S, O, Csm, Cmd, Clg, I, Video Status

String Definition:

xxx – Zone Detail Number

yyyy-mm-dd – Year-Month-Day

hh:mm:ss – Hour:Minute:Second

V – Volume (Count) for the bin interval

S – Average Vehicle Speed for the bin interval

O – Occupancy, expressed as a percentage for the bin interval

Csm – Volume (Count) for small vehicle classification

Cmd – Volume (Count) for medium vehicle classification

Clg – Volume (Count) for large vehicle classification

I – Amount of green time for the bin interval (seconds)

Video Status – OK or No Video

### 11.2 Log Data Structure

Each line in the log data has the following structure

Data String:

yyyy-mm-dd hh:mm:ss text string

String Definition:

yyyy-mm-dd – Year-Month-Day

hh:mm:ss – Hour:Minute:Second

text string – One of the log entries listed above

Log Data Entries

Possible Diagnostic Entries – Replace # with Camera Number

- Camera # enter alt sensor fallback
- Camera # exit alt sensor fallback
- Camera # alt sensor no data
- Camera # alt sensor interference
- Camera # alt sensor errors
- Camera # alt sensor no errors



- System running TOD config #
- System running config #
- System rebooted
- Login by privilege user
- Login by non\_privilege user
- Login by VSU user
- User entered system level access
- Logoff by user
- User set reboot in boot loader mode flag
- User entered reboot system command
- System entered DID mode
- System exit DID mode
- Camera # algo DID in T mode
- Camera # algo DID in W mode
- Camera # algo DID in TW mode
- Camera # algo in all clear mode
- System enter low contrast mode
- System exit low contrast mode
- System enter constant call mode
- System exit constant call mode
- Camera # enter low contrast mode
- Camera # exit low contrast mode
- Camera # algo detection quality in S1 mode
- Camera # algo detection quality in S2 mode
- Camera # algo detection quality in unknown mode
- Camera # enter glare mode
- Camera # exit glare mode
- Menu enabled
- Menu changes aborted
- Reset system to factory default & reboot system
- Changes saved to config #
- Changes not saved to config
- System enter alarms mode
- System exit alarms mode
- Camera # - Video restored
- Camera # - Video lost

The following group of messages are put in the log when the unit boots up to show the extension modules enumerated on the EM bus. What is shown below are all possible modules. The '#' in the first column is an incrementing number of each extension module in the order of enumeration. The '#' for total shows the total number of extension modules found.

- ue module set
- #,EM\_2CHAN(2)
- #,EM\_2CHAN(4)
- #,EM\_4CHAN(2)
- #,EM\_4CHAN(4)
- #,IO\_24CHAN
- #,IO\_32CHAN
- #,EM\_MCOMM
- #,EM\_MCOMM(64)
- #,TS2(####)
- #,EM\_PROC(2)
- #,EM\_PROC(4)
- total,#

### 11.3 Location of Intersection List

The intersection list for the NST can be found at:

C:\Users\another\AppData\Local\NextSetupTool

Type %localappdata% into file explorer to quickly get to this folder.

Copy the file: **device\_list.xml** to other machines to quickly populate a new PC with the list of intersections.

### 11.4 Recommended items for installation

Below is a list of the items needed to install the Next system. Refer to the Installation Guide for more details.

#### Cable – CAT-5E/6E Shielded Outdoor Rated

CAT5ECABLEGUY.COM	C5E-1000-CMXTT
PRIMUS CABLE	C5CMXT-2152BKWS
PRIMUS CABLE	C5CMXT-416BK
VERTICAL CABLE	059-486/CMXT

#### Stripping Tool

B&H PHOTO VIDEO	15015C
PLATINUM TOOLS	15015

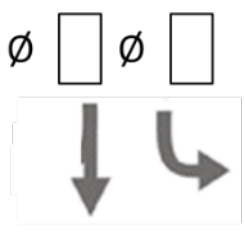


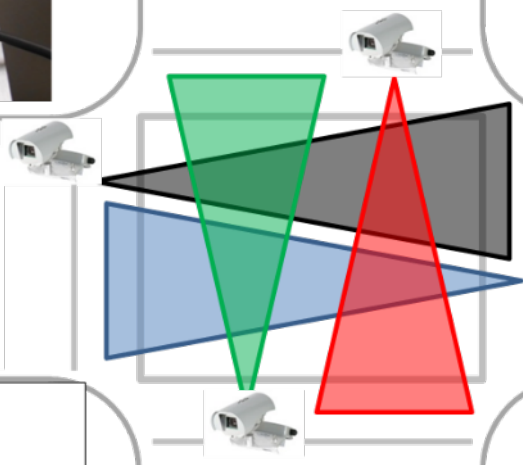
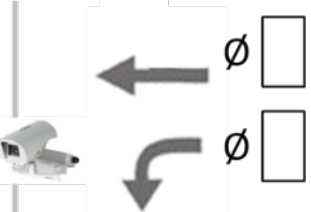
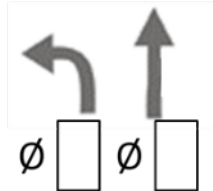
#### Crimp Tool

PLATINUM TOOLS	100054C
----------------	---------

#### Connectors – Shielded

PLATINUM TOOLS	100022 (Bag of 50)
PLATINUM TOOLS	100022C (Clamshell of 50)
PLATINUM TOOLS	100023C (Clamshell of 10)

## 11.5 Intersection Program Sheet

Intersection Name: N/S: _____ E/W: _____		
<b>Camera Serial Numbers</b> NB: _____ C#: _____ SB: _____ C#: _____ EB: _____ C#: _____ WB: _____ C#: _____		
		
<b>CCU</b> IP Address: _____ Subnet Mask: _____ Default Gateway: _____ Serial Number: _____		<b>Video Processor Serial Numbers:</b> VP1: _____ VP2: _____ VP3: _____ VP4: _____

NOTES:

**iteris<sup>®</sup>**

1700 Carnegie Avenue, Suite 100,

Santa Ana, CA 92705

Phone: +1 (949) 270-9400

Fax: +1 (949) 270-9401