Tunnel Logic User's Guide

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CHAPTER 1 : Wash Configuration

To navigate to the wash configuration menu, click on the *WASH* tab.

Be sure to save your changes often to ensure no data is lost in case of a communication error! To save your changes, click the *Save* button located throughout the screens. Note: If you try to save an output while the conveyor is running, you will get a message indicating the tunnel is in use. You will be allowed to save the output even if the conveyor is running.

Figure 1-1

When you click on any icon on the *WASH tab screen*, you will be prompted to enter a password. Once you enter your password, the computer will connect to the ***Tunnel Logic*** car wash controller's PLC (Programmable Logic Controller) and read its current settings.

If the computer is not able to detect the tunnel controller on the local network, it will give the option of connecting over the Internet. If you decide to connect over the Internet, you will need to enter the site number for the location you wish to connect to. See Chapter 10 "*Remote Access"* for more information on connecting remotely.

When you exit the *WASH tab screen*, you will be asked if you want to save your changes. If you click *YES*, your tunnel controller will be updated. If you click *NO*, you will exit without saving changes. Don't forget to save your changes often to avoid losing data in case of a communication error.

HOW TO: Setup your system

Before adding wash packages into your system, you will need to configure your outputs. Auto Data recommends wiring your outputs first in your controller and then going into the outputs section of the *WASH* tab and configuring them according to your hardware wiring.

1. Wire your inputs and outputs.
2. Print a blank *Outputs Worksheet* from the *Miscellaneous* menu. See Appendix A for sample worksheet.
3. Configure your outputs based on the information collected about outputs, such as distances measured, output types and output descriptions.
4. Print out another copy of the *Outputs Worksheet,* after configuring your outputs, and keep for your records.
5. Configure your setup options in the *Miscellaneous* menu.
6. Program your wash packages, add-on's (a-la-carte items) and overrides.
7. Configure wet down settings.

CHAPTER 2 : Car Wash Inputs

Auto Data requires all inputs to be sourcing inputs. For the photo eye, input is expected to be ON always, except when photo eye beam is broken.

To configure inputs in Pos-I -Lube, go to the Miscellaneous menu and then select INPUTS. Inputs 0-15 are reserved for common input types and must be wired as follows:

0. Emergency Stop
1. Entry Photo Eye
2. Pulse Switch
3. Anti-Collision
4. Wash Start Button
5. Roller Counter
6. Axle Locator – Will count every time a tire passes this sensor. If the tire counter is not zero at closing, the tire total will be displayed on reports.
7. Auto Load

8 -15. Dry Contact Auto Cashier inputs

28-31. Gate Control

Inputs 16-27 are user-defined and may include any of the following input types.

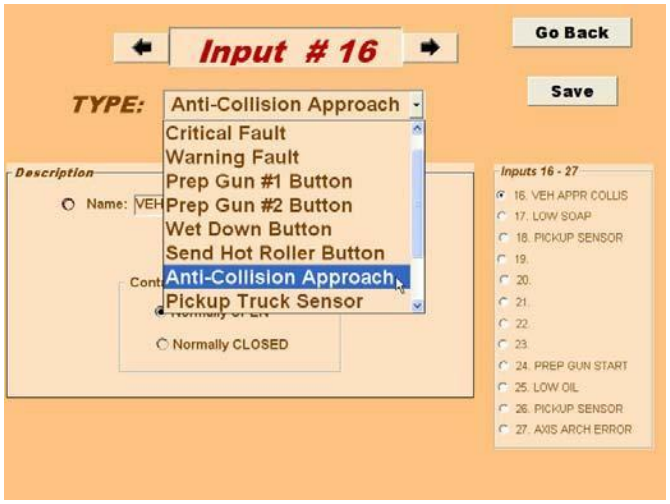


Figure 2-1

Critical Fault– When a critical fault occurs, the conveyor will be stopped. For more information on this type of input, see Chapter 18 “System Stop Conditions”. Examples of critical faults include:

- Low Oil
- Low Air
- Entry Door Closed

Warning Fault – If a warning fault occurs, a warning message will appear on the touch button station, alerting of the problem, but the equipment will continue to operate. An example of a condition that would trigger a warning fault would be low soap.

Manual– Manual Inputs are optional and may include physical buttons mounted at the tunnel location to manually activate equipment, such as:

- Prep Gun Switches
- Wet Down Start Button
- Send Hot Roller Button

Anti-Collision Approach (Optional) Second anti-collision sensor located near end of tunnel. This sensor will indicate if a car is approaching, while the first sensor, located at end of tunnel will indicate if a car is at the end of the tunnel. If both conditions are met, the conveyor will stop.

Pickup Truck Sensor – This sensor will indicate if the vehicle entering the tunnel is a pickup truck. If it is, the settings that have been configured for a pickup truck override will automatically be applied to the wash.

High Hood Sensor - This sensor will indicate if the hood of a vehicle is square and high than a normal hood. If it is, the settings that have been configured for a high hood override will automatically be applied to the wash.

Contact Default Setting - For all inputs that are user-defined, the contact must be set to either Normally OPEN or Normally CLOSED. Normally OPEN indicates this input is always OFF and if it turns ON an action should be taken. Normally CLOSED indicates the input is always ON and if it turns OFF, an action should be taken. Normally OPEN is the default setting.

CHAPTER 3 : Outputs

Outputs are used by the controller to turn equipment in the tunnel on and off.
Auto Data recommends first wiring your outputs and then configuring them in the Output configuration menu. To assist with entering your output settings, first print your Outputs Worksheet (See sample in Appendix A) by going to the Outputs section of the Wash tab and clicking Print. Once the worksheet is displayed, click Print All Pages.

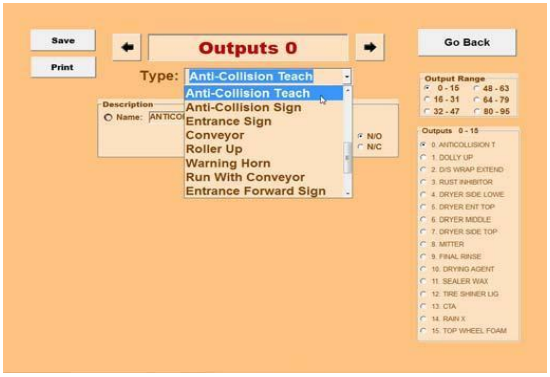


Figure 3-1

Types of Outputs

The following output types are pre-defined in the system and will be found in your drop-down list in the outputs screen. Any output that you program in the system will fall into one of these types.

- ***Full* -** Output will be active for the full length of the car.
- ***Front Bumper Only* -** Output will only operate for the front portion of the car.
- ***Rear Bumper Only* -** Output will only operate for the rear portion of the car.
- ***Dryer / Blower* -** Drying device will operate for the full length of the car.
- ***Tire Device* -** Will operate when a tire passes. Example: Wheel washers.
- ***Retract (Full Car)* -** Will retract the selected output as the vehicle passes.
- ***Retract (Front Bumper)-*** Will retract the selected outputs for the front bumper of the car.
- ***Door Entrance*** and ***Door Exit***
- ***Prep Guns #1,2* -** Timed outputs for manually applying pre-wash chemicals.
- ***Anti-Collision Teach* -** Anti-Collision sensor calibration.
- ***Anti-Collision Sign* -** Sign at the end of tunnel to alert customer their wash is complete and they should move forward. Sign turns off automatically when vehicle has left the collision zone.
- ***Entrance Sign* -** Sign at tunnel entrance to display type of wash selected. Turns on when wash started and off when car passes entry photo eye.
- ***Conveyor***
- ***Roller Up* -** Sends roller to push vehicle through wash.
- ***Warning Horn* -** Buzzer sounded prior to conveyor startup.
- ***Run with Conveyor* –** Output will operate whenever the conveyor is running. This option is not available for testing and calibration sensors. This output will not activate if in test mode.
- ***Entrance Forward Sign*** – Output will activate when vehicle is added to the queue.
- ***Entrance Stop Sign*** – Output will activate when vehicle reaches auto load switch and will stay active for five seconds.
- ***Entrance Neutral Sign*** – Output will activate when Entrance Stop Sign turns off and will stay active until vehicle breaks photo eye.
- ***Manual* –**The output can only be activated manually from the touch button station.
- ***POS Go Sign*** – Output at the beginning of the tunnel that will activate when it is clear for a car to enter.
- ***Wash Code OK Sign*** – Output that activates once a wash code has been scanned.
- ***Exit Door Open/Closed Sign*** – Output at the end of the tunnel that will activate when a car can exit the tunnel.

Full Car Output and *Dryer* Output

With a full car output, enter the distance, in inches, from the entry photo eye to the beginning of the equipment station. To activate this output before the vehicle arrives at the station, enter the number of inches in the *ON* field. If you would like this output to stay active after the vehicle passes, enter the number of inches in the *OFF* field.

For large equipment stations, such as mitters or wraps, add the length of the equipment station to the *OFF* distance.

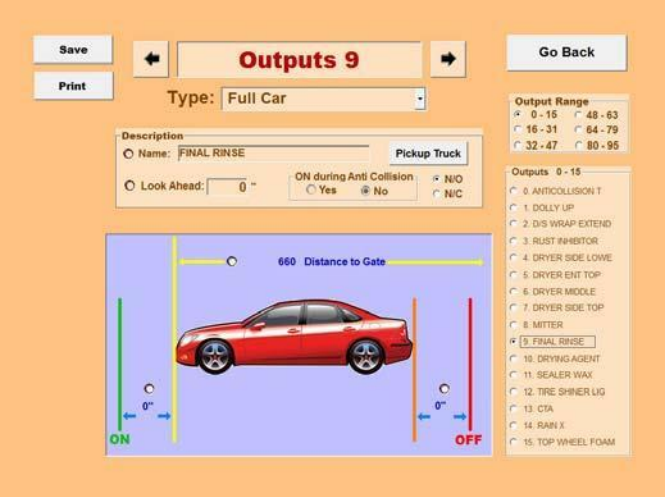


Figure 3-2

***Look Ahead* parameter** - The *Look Ahead* parameter will keep the current output ON, for example a dryer, if it 'sees' another car within the *Look Ahead* distance. This may help extend the life of the equipment and also cut back on energy cost, since the dryer will not need to stop and re-start with each vehicle.

***ON during AntiCollision* parameter –** This option allows the current output to stay ON in case the conveyor stops to prevent a collision. Only outputs that will not damage cars if they remain on, such as dryers, should have this option set to "*Y*", for yes.

Normally Open, Normally Closed parameter *(N/O, N/C)* – Indicates whether, in normal conditions, the contact for this output is normally open or normally closed.

***Pickup Truck* –** This parameter may only be used with the Full Car, Retract, and Dryer / Blower outputs. To configure, click on *Pickup Truck* button and then select whether you would like the output to operate for the *FULL LENGTH, CAB ONLY,* or *BED ONLY* of the truck. The default setting is *NONE OF THE ABOVE.*

Figure 3-3

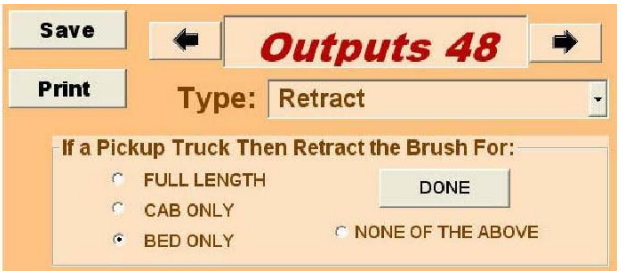


Figure 3-4

Front Bumper Only Output

For front bumper outputs, you can activate the output before the vehicle arrives at the station and specify how long it should remain active after the bumper passes by adjusting the *ON* and *OFF* distances. You will also need to enter the distance for the entry photo eye to the front of this station.

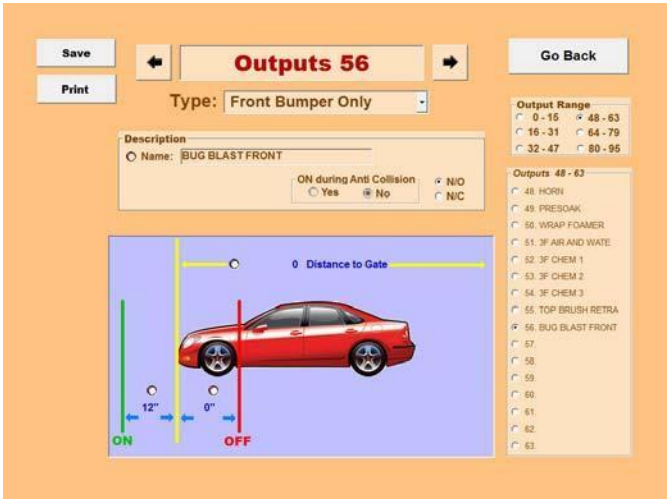


Figure 3-5

Rear Bumper Only Output

For rear bumper outputs, you can specify how far in advance of the rear bumper the output should activate, by entering a value in the *ON* distance. To set the distance the output should remain active after the vehicle has passed the station, enter a value in the *OFF* distance. You will also need to enter the distance from the entry photo eye to the beginning of this station.

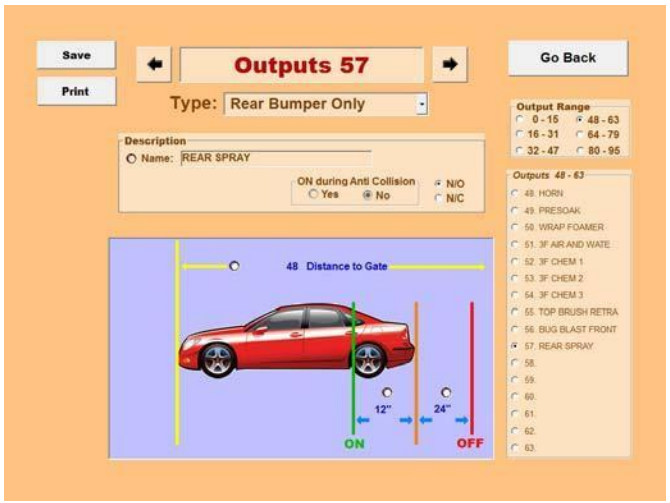


Figure 3-6

Retract Output

If you would like a piece of equipment to retract for certain vehicles, you can use the *Retract* output. For example, if you would like tire brushes to retract to prevent damage to vehicle aftermarket wheels, you can create a *Tire Brush Retract* output, with type *Retract*, then when the corresponding override is initialized, the tire brushes will retract as the vehicle passes. The setup parameters for this type of output are the same as the *Full Car* output type.

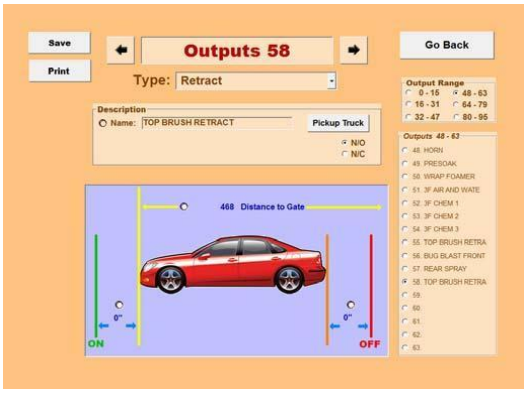


Figure 3-7

Prep Gun Outputs

Prep Gun outputs can be configured to operate for a specified amount of time. Enter the amount of time you would like this output to operate in the *Timeout* field.

Tire Device Output

Tire Device outputs are used to apply chemicals or activate equipment specifically to tires. This output type is dependent upon a tire treadle switch, located at the tunnel entrance, to determine the location of the tires relative to the vehicle front bumper. Note that the treadle is only active when the entry photo eye beam is broken by the vehicle and thus must be located 12 inches from the photo eye.

The parameters required for this output type are the distance from the tire application station to the tire treadle, and the *ON* and *OFF* distances to adjust output activation.

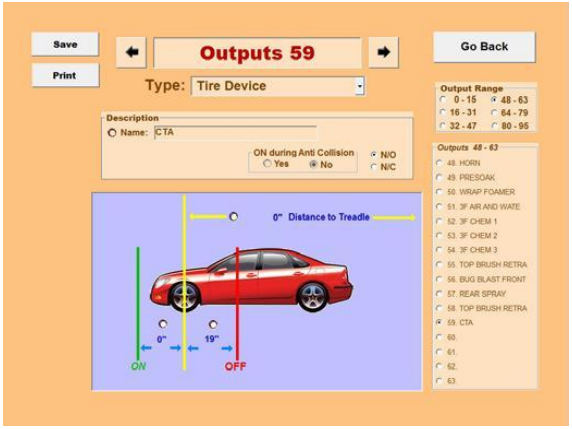


Figure 3-8

CHAPTER 4 : Wash Packages

Click the *WASHES* icon on your *WASH* tab screen to access your wash packages.

A wash package is a "recipe" of the equipment outputs to be activated, or chemicals applied, to a vehicle moving through the tunnel. Other services such as vacuuming or detailing may be included as part of a package price. These, however, do not need to be programmed into the system, since they are not applied in the tunnel.

You can program up to ten wash packages.

Figure 4-1

To add a new wash package

Click on the arrows at the top of the screen to advance to the next car wash number (See Figure 4-1). Click on the radio buttons next to *Name, Price* and *Taxable* and enter wash package details. Then select the appropriate outputs, which will be activated as part of this wash package.

To select outputs, click on an *Output Range* and then click on the check box next to the appropriate output.

Note that some output types are used for all wash packages, such as the *Conveyor, Warning Horn* and Roller *Up*, so they are always selected and cannot be de-selected. Others, such as *Prep 1, Prep 2* , and *Anti-Collision Teach* are independent of all wash packages, and thus cannot be selected as part of a wash package.

> ***Default Wash Code:*** If wash codes are enabled(See Chapter 9 “Setup Options”), this code will allow a wash to be started manually without having to enter a real wash code, or scanning a wash receipt. This can be used by a manager in case a wash receipt is lost or a wash is accidentally deleted from the queue.

To copy a wash package

Click on the arrows at the top of the screen to advance to the wash that you want to copy. To easily set up a new wash package, click the *COPY* button. A message box: “Copy All Outputs from Wash # 2 to Wash # 3?” will appear. Click *YES* to confirm the copy. Once you click *YES*, a new wash package will be created with the same outputs as the wash package you had selected. At this point you can edit your outputs, if needed, name your new wash package, and enter pricing details.

To edit a wash package

Scroll to the wash package you would like to edit (See Figure 4-1). Click on radio button next to line you would like to edit. Don't forget to save changes when you exit the *WASH* tab screen. You can also check or uncheck outputs included in the package

To delete a wash package

Scroll to the wash package you would like to delete and click the *Delete* button (See Figure 4-1). You will be prompted with "*Do you really want to delete this entry*?" Click *YES* to delete the wash package. The sales data will be cleared and this number will be available for a new wash package.

Remember: Save your changes frequently to ensure no data is lost in case of a communication error! To save your changes, click the Save button located throughout the screens.

POS Options:

Commissionable – If you would like for a package to be considered commissionable, make sure to check this option. If a wash is commissionable, choosing that wash at the POS will cause a list of clocked in employees to appear. Whichever employee is chosen will be credited with that sale in the commission's report.

Non-Discountable – Choosing Non-Discountable means that the wash will not be discounted if it is put on a ticket with a discount.

Award Club Point Eligibility – Checking this option for a wash will cause a customer to receive a loyalty point whenever they get that wash. This will count towards a loyalty program that was requested by you. Buy five and get the sixth free for example.

CHAPTER 5 : *Add-Ons*

Add-Ons , or upsells, are a-la-carte services performed or products applied in the tunnel not included in the car wash package, but instead applied at an additional cost.

Figure 5-1

Setting up *Add-Ons*

1. Go to the *WASH* tab screen and click *Add-Ons*.
2. Scroll using the arrows at top of the screen and select a number not currently in use (See Figure 5-1).
3. Enter a *Name*, a P*rice* and a *Taxable* amount.
4. Assign which output, or outputs, to activate when this *Add-On* is selected.
5. As with wash packages, A*dd-Ons* can be modified or deleted.

Note: Coupons can be configured as *Add-Ons* and will affect the price of the wash. To have an *Add-On* act as a coupon, enter a negative *Price* and make sure no outputs are selected.

Remember: Save your changes frequently to ensure no data is lost in case of a communication error! To save your changes, click the Save button located throughout the screens.

CHAPTER 6 : *Override Options*

Overrides, when selected by the operator, will activate the R*etract* output type and/or suppress the activation of other output types. *Overrides* are used when a vehicle requires a certain function, or functions, to be de-activated at the time of the wash by the technician operating the car wash. For example, if the vehicle entering the tunnel is a convertible, the operator may want to select an *override* option for the top brush to prevent possible damage to the convertible roof.

Configuring *Overrides*

1. Go to the *WASH* tab screen and click *Overrides*.
2. Scroll using the arrows at top of the screen and select a number not currently in use.
3. Enter a *Name* for the new *Override*.
4. Assign which output or outputs to de-activate or retract when this *Override* is selected.

Additional Information

By default, the first override is *Pickup Truck*. This override cannot be changed or removed, but options may be configured by going to *Outputs*.

Note that certain output types may not be overridden. These include: *Conveyor*, *Roller up*, *Anti-Collision Teach, Anti-Collision sign* and *Warning Horn.*

Output types that will be suppressed when overridden include: *Full Car, Front Bumper only, Rear Bumper only*, *Dryer* / *Blower*, *Tire Device* and *Entrance Sign*.

The *Retract* output type will be activated when included as part of an O*verride*.

Figure 6-1

Remember: Save your changes frequently to ensure no data is lost in case of a communication error! To save your changes, click the Save button located throughout the screens.

CHAPTER 7 : *Miscellaneous Menu*

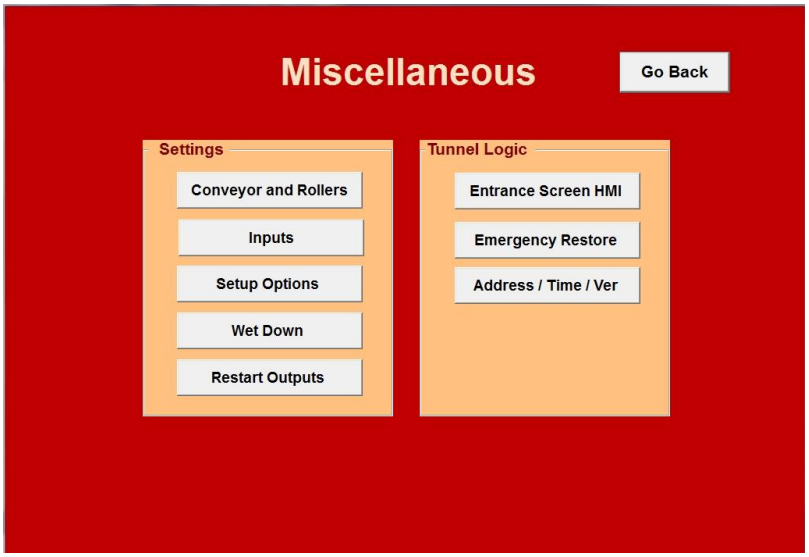


Figure -7-1

Conveyor and Rollers

See Chapter 9 “Setup Options”.

INPUTS

See Chapter 2 “*Car Wash Inputs”*.

Setup Options

See Chapter 9 “*Setup Options”*.

Wet Down

Wet down configuration.

Figure 7-2

Wet down is typically used in the morning prior to beginning car wash operations, or whenever there has been a significant period of time between washed to ensure that brushes, mitters, etc. are sufficiently wet and ready for vehicles. If not sufficiently wet down, the dry brushes may cause vehicle damage. The Wet down function will operate equipment only for the period of time specified, and is only available when the tunnel is otherwise not in use.

Wet Down Time: The time, in seconds, you want selected outputs to operate.

Restart Outputs

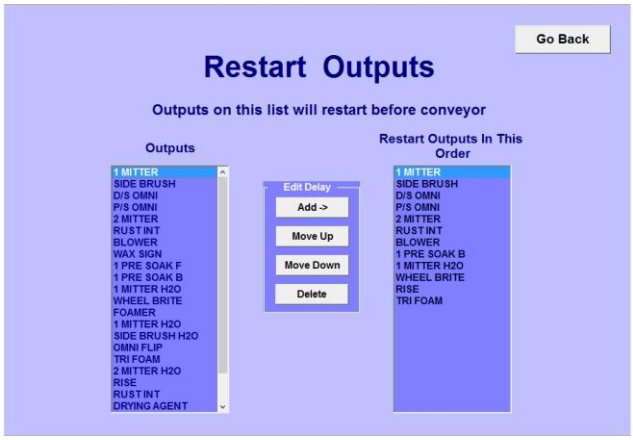


Figure 7-3

When recovering from an emergency stop, you can configure the order in which outputs re-start. To add items into the re-start list, select the output in the *Outputs* list (see Figure 7-2), click *Add* and then move up or down, as needed. Items will re-start in order, at two-second intervals. After the last item in your *Restart* list is started, the *Conveyor* and any other remaining outputs will start. This feature is intended to minimize the power spike of equipment startup.

Entrance Screen HMI

Allows remote access to the touch button station.

Emergency Restore

This option will restore controller settings from a copy automatically stored on a local machine. This option is password protected and should only be used in case of an emergency.

Address / Time / Version

Click *Update Tunnel Logic* to synchronize the time on the controller with your computer time (See Figure 7-4)

Note: This feature should be used only if the wash equipment is not in use.

Figure 7-5

CHAPTER 8 : *Tunnel Logic Reports*

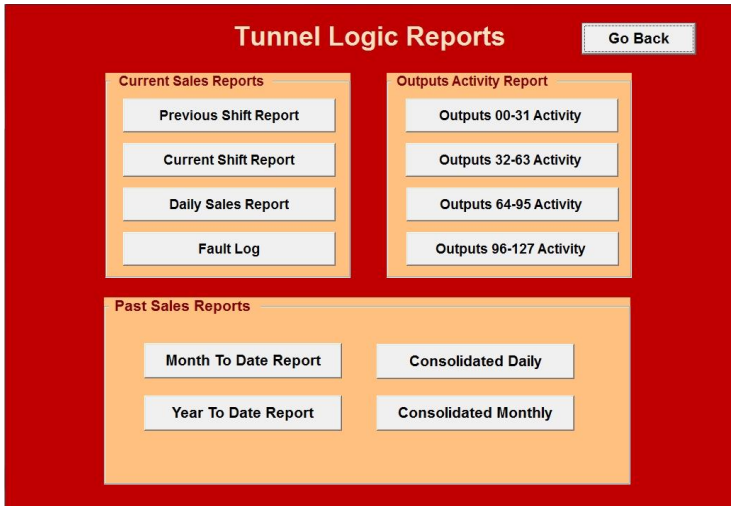


Figure 8-1

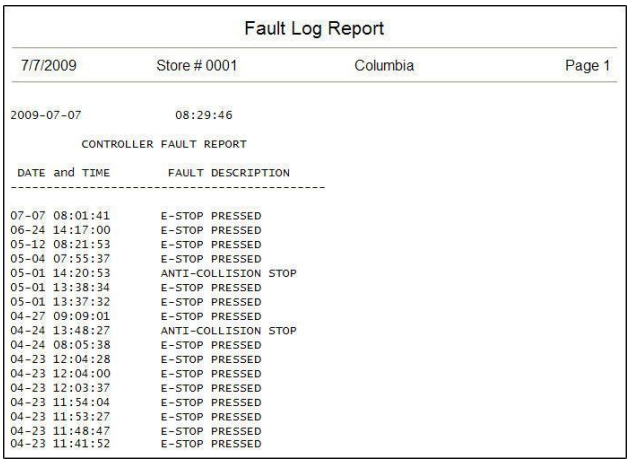
Current Sales Reports

Previous Shift Report: Total sales for previous shift.

Current Shift Report: Total sales for current shift.

***Daily Sales Report*:** Total sales for current day.

Fault Log: Will display a listing of all controller faults.



Fault Log Report

7/7/2009 Store # 0001 Columbia Page 1

2009-07-07 08:29:46

CONTROLLER FAULT REPORT

DATE and TIME	FAULT DESCRIPTION
07-07 08:01:41	E-STOP PRESSED
06-24 14:17:00	E-STOP PRESSED
05-12 08:21:53	E-STOP PRESSED
05-04 07:55:37	E-STOP PRESSED
05-01 14:20:53	ANTI-COLLISION STOP
05-01 13:38:34	E-STOP PRESSED
05-01 13:37:32	E-STOP PRESSED
04-27 09:09:01	E-STOP PRESSED
04-24 13:48:27	ANTI-COLLISION STOP
04-24 08:05:38	E-STOP PRESSED
04-23 12:04:28	E-STOP PRESSED
04-23 12:04:00	E-STOP PRESSED
04-23 12:03:37	E-STOP PRESSED
04-23 11:54:04	E-STOP PRESSED
04-23 11:53:27	E-STOP PRESSED
04-23 11:48:47	E-STOP PRESSED
04-23 11:41:52	E-STOP PRESSED

Figure 8-2

Past Sales Reports

***Month to Date Report*:** Total sales for current month.

***Year to Date Report*:** Total sales for current year.

***Consolidated Daily and Monthly*:** Total sales for a selected range of dates. Click the name of the report you would like to generate, a starting date and an ending date and then click *OK.*

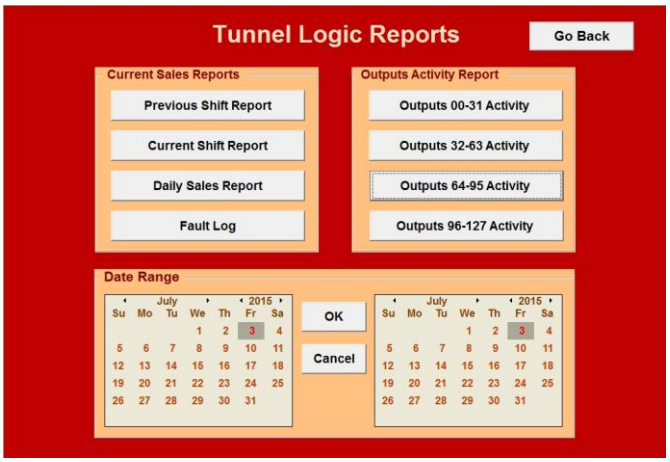
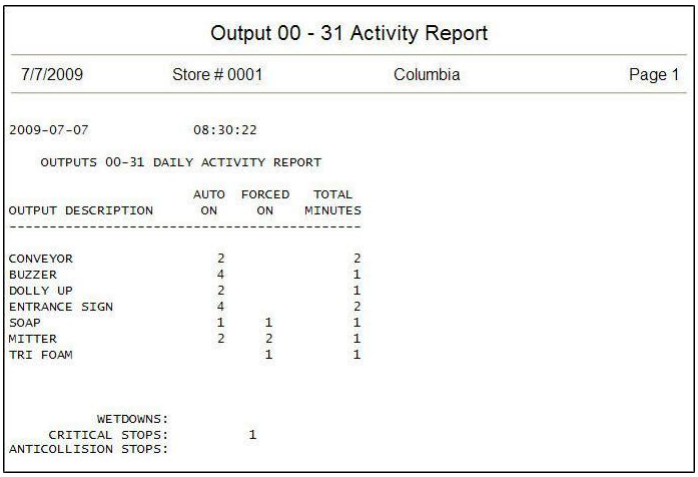


Figure 8-3

Outputs Activity Report

Summary of output activity, including minutes the output has been on during the day.



Output 00 - 31 Activity Report

7/7/2009 Store # 0001 Columbia Page 1

2009-07-07 08:30:22

OUTPUTS 00-31 DAILY ACTIVITY REPORT

OUTPUT DESCRIPTION	AUTO ON	FORCED ON	TOTAL MINUTES
CONVEYOR	2		2
BUZZER	4		1
DOLLY UP	2		1
ENTRANCE SIGN	4		2
SOAP	1	1	1
MITTER	2	2	1
TRI FOAM		1	1

WETDOWNS:
CRITICAL STOPS: 1
ANTICOLLISION STOPS:

Figure 8-4

Remember: Save your changes frequently to ensure no data is lost in case of a communication error! To save your changes, click the Save button located throughout the screens.

CHAPTER 9 : Setup Options

Conveyor and Rollers

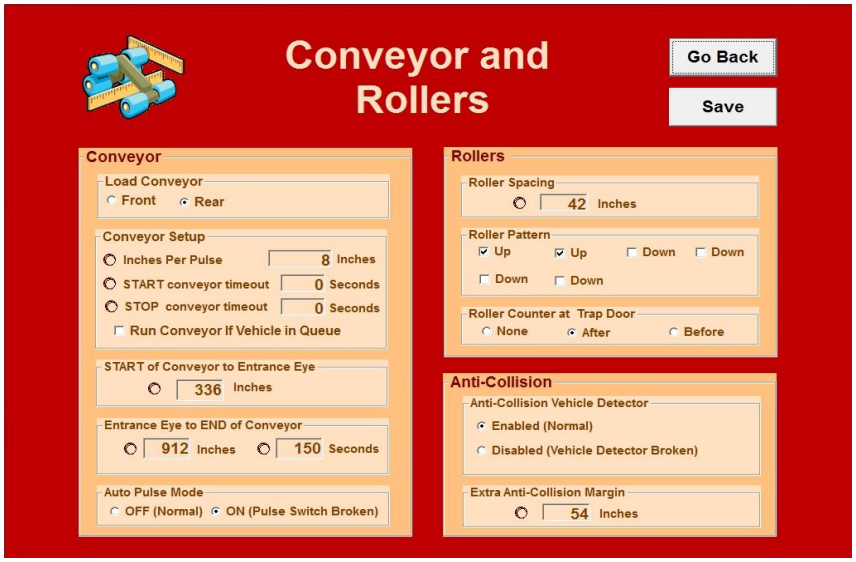


Figure 9-1

Conveyor

***Load Conveyor*:** This parameter tells the system whether the initial roller will engage behind the front tires or behind the rear tires to push the car along the conveyor. The number of rear rollers may also be specified.

Conveyor Setup

***Inches per Pulse*:** Number of inches the conveyor moves forward with each pulse. If this value is not known, it can be calculated by the controller using the *Calibrate Pulse Routine*. For more information on this routine, see Chapter 15 "*Setup"*.

START conveyor timeout: If START is pressed on the touch button station, but no vehicle is present to go through the wash, the conveyor will timeout and stop after specified time.

STOP conveyor timeout: After all washes are complete, the conveyor should continue to operate for the specified amount of time.

Run Conveyor if Vehicle in Queue: Will start conveyor automatically if there is a customer in the queue.

***Start of Conveyor to Entrance eye*:** The distance between the start of the conveyor and the entry photo eye. This parameter is required if the entry eye is not functional and the system is set to *Auto Eye Mode.*

Entrance Eye to End of Conveyor

***Inches*:** The distance from the entry photo eye to the end of the conveyor measured in inches.
***Seconds*:** The travel time of a vehicle from the entry photo eye to the end of the conveyor measured in seconds. This parameter will be used if the system is set to *Auto Pulse Mode*.

***Auto Pulse Mode*:** The pulse switch signals the conveyor speed to the controller, which allows the controller to track the distance the vehicle has traveled in the tunnel. If the pulse meter is not functional, set *Auto Pulse Mode* to *ON*. In *Auto Pulse Mode*, the controller will use the *Entrance EYE to END of Conveyor Inches* and *Seconds* parameters to approximate the conveyor speed and simulate a pulse. Note that the conveyor speed can only be approximated, but the wash can continue to operate if the pulse meter is not functional. For more information on *Auto Pulse Mode*, see Chapter 15 "*Setup".*

Rollers

***Roller Spacing*:** Required parameter that specifies the distance between each roller on the conveyor.

***Roller Pattern*:** Configures the pattern for rollers to be sent for each vehicle. The first roller will always be in the *UP* position. Additional rollers may be sent or skipped to ensure the vehicle will be pushed completely through the tunnel.

***Roller Counter at Trap Door*:** Specifies roller location in relation to roller-up fork.

Remember: Save your changes frequently to ensure no data is lost in case of a communication error! To save your changes, click the Save button located throughout the screens.

Anti-Collision

Vehicle Detector: Photo eye at the end of a the tunnel that is able to determine when a vehicle has cleared the tunnel. Enable when eye is working properly.

Extra A/C Margin: Determines amount of space between vehicles for the anti-collision to be activated. 5 Ft (60 inches) by default.

Setup Options

Figure 9-2

HMI Password

Allows the operator to enter *Test Mode* at the Touch Button Station to manually activate outputs for testing and diagnostics. For more information see Section 13 of this manual.

Gate Setup

***Max Cars in Queue*:** The number of cars that can fit between the gates and the tunnel entrance.

Use Wash Codes

When wash codes are enabled, normal tires and loading settings will be ignored. The technician will have to enter the wash code at the Touch Button Station or scan the wash code to be able to start a wash. When wash codes are enabled, there will also be an Auto Load option available to start the wash automatically when the barcode on the wash receipt is scanned = "*Wash Code Scan"*

Add Washes to Queue from HMI

When this is enabled, the technician will be able to add washes to the queue from the touch screen HMI

Auto Load

***Auto Start – Activated By*:** For customer self-loading, enter whether only front tires, or front and rear tires are required to pass over a tire treadle to initiate the wash. This feature requires the installation of an Autoload Tire Treadle Input. Set this value to *None* if the wash is to be started by an operator.

***Auto Load Delay*:** If Auto Load is set to on, the controller will count down from the specified seconds in *Auto Load Delay* before starting the conveyor.

Entry Eye

Input Signal to Controller: Specifies whether the entry eye input will be considered *ON* or *OFF* when vehicle is present.

Pre-Wash Vehicle Prep: If the entry eye is often blocked while preparing the vehicle for the wash, select OFTEN Blocks Entry Eye to better control when certain outputs will be started.

***Auto Eye Mode* :** When the entry photo eye is working and a car enters the tunnel, it will break the beam, signaling that a vehicle is present. By measuring the amount of time the signal is interrupted, the system will determine the length of the vehicle and adjust the car wash accordingly.

If the entry photo eye is not functional, set *Auto Eye Mode* to *ON*. In *Auto Eye Mode*, a standard vehicle size (Ford Expedition) is assumed and the *Roller Spacing* and the *Roller up to Entry Gate* parameters are used to determine when each output should be activated. **These parameters can only approximate vehicle size, location and equipment on and off times, but the wash can continue to operate even if the entry eye is not functional.** For more information on *Auto Eye Mode*, see Chapter 15 "*Setup*".

Installation Type

Offset (Preferred): Photo eye at beginning of tunnel is offset. This is to better determine a pickup truck when it hits the gap between the truck and the bed.

In-Line: Straight photo eye line up.

Restart after E-Stop

To re-start the equipment after an emergency stop, you must first pull out the E-stop button mounted on the ***Tunnel Logic*** controller door, second, press the green start button on the controller and third, press the *RESTART* button on the Touch Button Station screen. To avoid this last step, select *Skip Restart Confirmation* here.

CHAPTER 10 : Touch Button Station

The wash operator will use the Touch Button Station to control all aspects of the tunnel. From this control panel, the operator can initiate a wash, add or delete customers from the wash queue and test, diagnose, or stop any output. In an express wash setting, the operator can also raise or lower the entry gates.

Figure 11-1

Wash button

Displays your active customer list where you can see the washes that are currently in the queue. From there you can initiate a wash and add or remove washes from the queue.

Setup button

Access to the diagnostic menus to view input and output activity, as seen by the controller. From these menus any output can be switched to "Off" or put in "Auto" mode for normal operations, where the output is ready to be turned on or off by the controller as needed.

Sales button

Displays current sales data for wash.

Conveyor Speed / Cars per Hour

Current chain speed calculated using pulse. This figure is not necessarily the same as throughput in any given tunnel. Chain speed could be viewed as any car wash's maximum throughput potential. Throughput cars per hour is only dictated by how fast you can load and prep cars on any given chain speed. (Cars Per Hour = 3600 Seconds in an Hour / # Seconds for one roller to travel 20 feet)

English button

Runs the Touch Button Station in English.

Español button

Runs the Touch Button Station in Spanish.

Français button

Runs the Touch Button Station in French.

русский button

Runs the Touch Button Station in Russian.

Quick Tip: If you select a foreign language by mistake, remember that the yellow buttons always GO BACK.

CHAPTER 11 : Customer Queue

Customers can be entered into the customer queue in 3 ways:

- From a point-of-sale terminal
- Manually from the Touch Button Station
- From an automated cashier

Queuing Customers from the Point-of-Sale terminal

When a customer is added to the wash queue from the greeter station, the customer number and the type of wash will appear in the customer list. This will match the greeter's printed pre-receipt. If the customer is entered from the Cashier's Station, the license plate number will be displayed (If the license plate was not used, the type of wash purchased and the total price will be displayed).

Adding customers to the queue using the Touch Button Station

From the main ***Tunnel Logic*** menu, press *WASH* to access your wash queue.

Figure 12-1

Press *ADD WASH* to build a new wash and you will be taken to the build wash options screen.

Figure 12-2

Select the type of wash by pressing the *WASH* button under the appropriate wash package name. Press *ADDONS* to be taken to a second screen, where you can select additional addons.

Figure 12-3

Select any *Upsells* by pressing *ADD ON* (See Figure 12-3). Select *Overrides* by pressing the *OVERRIDES* button (Figure 12-2).

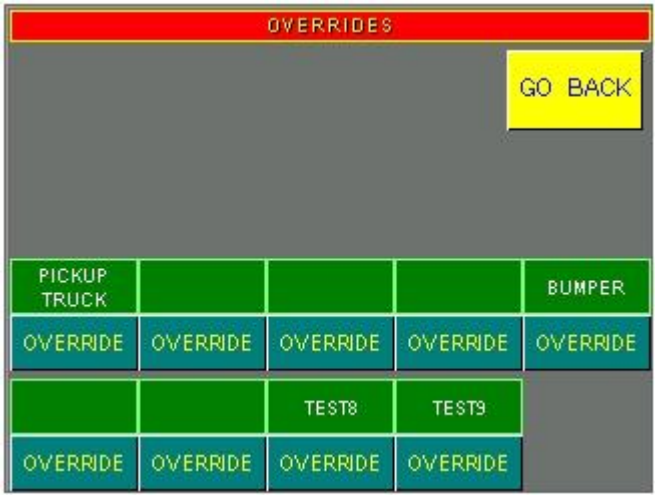


Figure 12-4

Notice that although you can only select one type of *WASH*, you can select as many *Upsells* or *Overrides* as you like.

PRINT RECEIPT button (Figure 12-2) - When the *PRINT RECEIPT* button is pressed, a receipt for the current wash will print. This feature will print if an optional car wash receipt printer is connected to the touch button station. See Chapter 19 "*Car Wash Printers"* for more information on supported printers.

RAIN CHECK button - When the *RAIN CHECK* button is pressed, the current wash will be treated as a rain check redemption. Totals for rain check redemptions will be displayed in the *Car Wash Exception* report.

Once all your options are selected, press *GO BACK* to return to the *ADD* WASH screen, and then press *OK* to add the wash to the queue.

Adding customers to the queue from an Automated Cashier

Automated cashiers can be wired directly to the controller to automatically add customers to the wash queue. When installed in this manner, the queue can be managed with ***Tunnel Logic*** 's built-in gate control to enforce the correct queuing order. When using automated cashiers, the type of wash purchased is displayed in the customer list.

CHAPTER 12 : Initiating a Wash

Pressing the *WASH* button from the ***Tunnel Logic*** main menu will take you to the main wash screen. The first three customers that are in the queue to receive a wash will be listed on this page.

Initiating a wash

To initiate a wash from the touch button station, press *START #1* at the top of the screen(See Figure 13-1).

Figure 13-1

Note that if *WASH* is pressed with no number selected, the controller will assume the first customer in the queue is to be washed. To change the order of the washes, go to *MANAGE QUEUE* (Figure 13-2) If using an AutoLoad Tire Treadle or manual push button input to start a wash, the first vehicle in the queue will automatically be started.

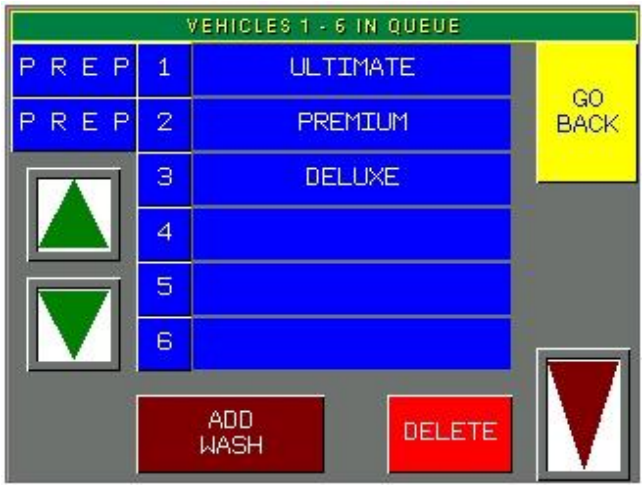


Figure 13-2

Once you press *START*, your wash will begin to load. To select an *OVERRIDE*, simply press *OVERRIDES* next to the number of the wash you want to add an override to (Figure 13-3). *OVERRIDES* can be selected until the vehicle has reached the photo-eye, until another wash has been initiated by the Auto Load Tire Treadle or manual push button start, or until the *GO BACK* button has been pressed.

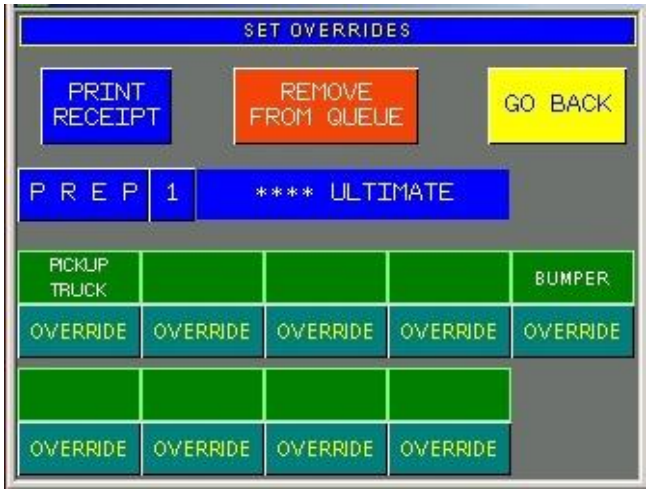


Figure 13-3

Press *START* when you are ready to initiate the wash. The *START button* will bypass the Auto Load countdown and start the wash immediately. Once the wash has been started, the *START* button will change to *WASH IN PROGRESS*.

Note: If the photo eye is blocked, the system will not allow a new wash to be initiated. Instead of the *START* button, a warning message will display (See Figure 13-2). If the photo eye is broken, go to *Auto Control Settings* and turn *Auto Entrance Eye* on. When the photo eye has been repaired, go back to *Setup Options* and turn *Auto Entrance Eye* off*,* therefore resuming normal operating conditions.

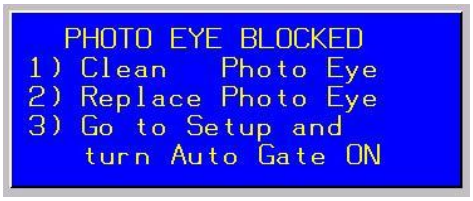


Figure 13-4

PREP GUNS - If the vehicle to be washed requires pre-prepping with prep guns, you can press the Prep Gun 1 or Prep Gun 2 buttons. This will activate the selected prep gun immediately and you will see an "ON" indicator. Prep guns will remain active for the time configured in the controller then automatically turn off.

HOLD DOWN FOR MORE ROLLERS - Sends rollers until button is released. Will only work if the conveyor is already running.

Deleting a wash from the queue

From the main wash screen, press *Manage Queue* (Figure 13-2) to go to your full customer queue.

Select the wash you would like to delete by pressing the number to the left of the wash, then press *DELETE*. From this screen, you can also change the order of the washes, by using the up and down arrow buttons.

Press *GO BACK* to return to the main wash screen.

CHAPTER 13 : Car Wash Sales Data

To access your sales menus, press *SALES* from the main menu and then select *DAILY* or *MONTHLY SALES.*

Figure 14-1

Daily Sales

Figure 14-2

START NEW SHIFT- Pressing this button will close out the current shift and begin a new one. Be sure to print any report you would like to save *before* starting a new shift.

PRINT SHIFT REPORT- Will print current shift data. Day to date values are automatically cleared out at midnight and the shift is re-set to first shift.

PRINT DAILY REPORT – Will print the current days report from an Ithica wash printer that is directly connected to the HMI.

CONSOLIDATED DAILY SALES – Will allow you to select the day and month that you would like to print a daily sales report for. It also prints from the Ithica wash printer connected to the HMI

VIEW CURRENT – Will show all the sales done on washes for that shift, or for that day. The shift's sales are shown in grey, while t*he day's sales are shown in green. The upsell totals are displayed in red.*

Figure 14-3

PRINT MTD REPORT- Will print a summary report of month to date sales, including a relay count of all outputs.

PRINT YTD SALES - Will print a summary report of the year to date sales.

CONSOLIDATED MONTHLY SALES – Allows you to print off the consolidated monthly report for a month of your choosing

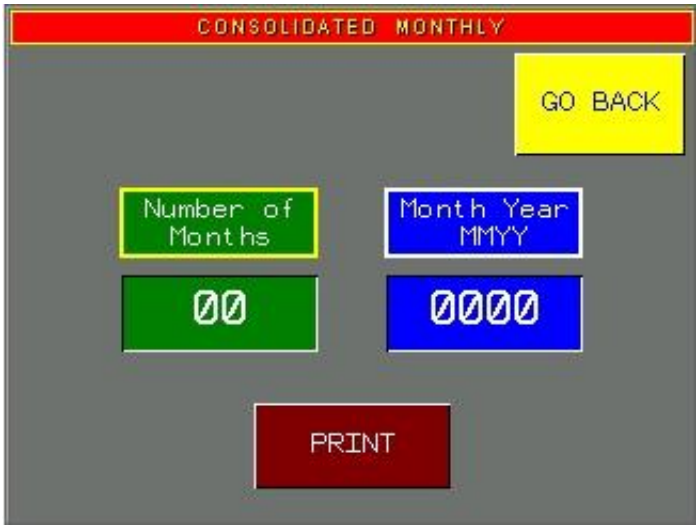


Figure 14-4

Note: A supported car wash printer must be installed on the system to receive output from this report. See Chapter 18 "*Car Wash Printers"* for more information on supported car wash printers

CHAPTER 14 : Setup

To view setup, press the *SETUP* button from the ***Tunnel Logic*** main menu.

Figure 15-1

From *SETUP* you will be able to view inputs and outputs, and also access *AUTO CONTROL SETTINGS* and *GATES* options.

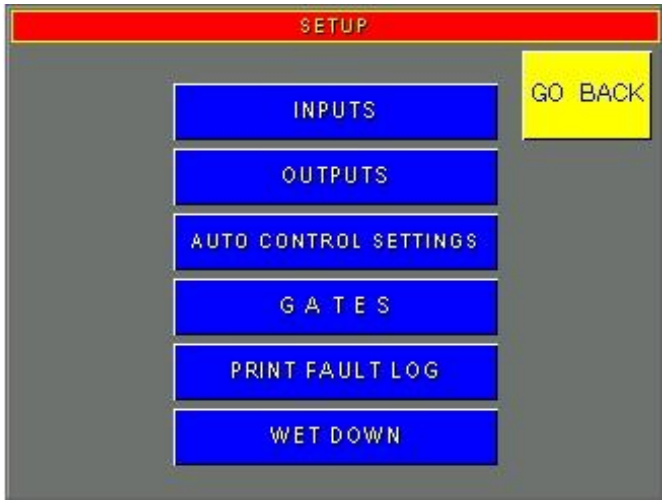


Figure 15-2

Inputs & Outputs

Inputs

Inputs 0-15 are pre-defined in the controller as shown in Figure 15-4. Inputs 28-31 are reserved for gate control. All other inputs are configurable.

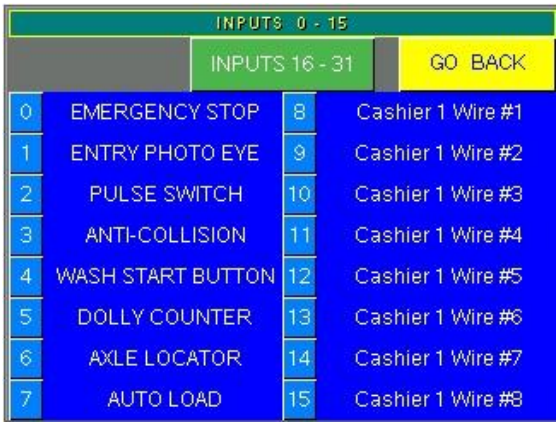


Figure 15-3

If an input is active, the number next to the input name will be displayed in red.

Outputs

Figure 15-4

The *OUTPUTS* screen displays a status of all outputs-- whether the output is set to *ON*, *OFF*, or *AUTO* and whether the output is currently active. When an output is active, the *ON* button will be green. To see more outputs use the up and down arrows.

AUTO
When an output is set to *AUTO* for normal operations, the output can be turned on or off by the controller as needed.

OFF
If the output is set to *OFF*, the output will not activate. If the output is currently *ON* and *OFF* is pressed, the output will stop.

ON
Pressing *ON* will force the output on and it will remain on until set back to *AUTO* or *OFF*.

Auto Control Settings

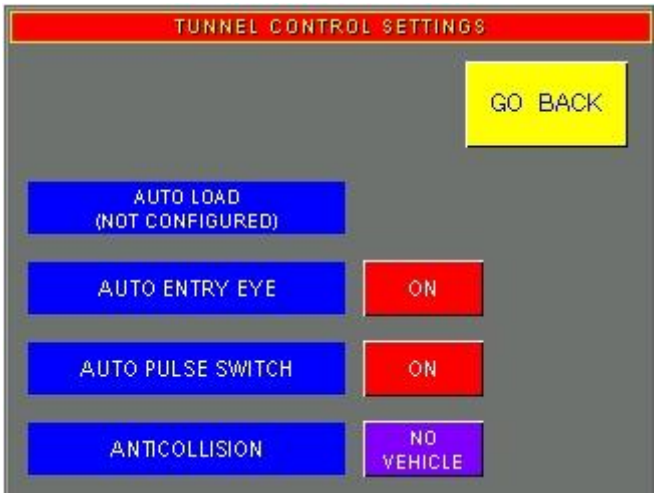


Figure 15-5

AUTO LOAD

Will display current Auto Load setting. Turning Auto Load off will cause equipment to not start automatically, but instead, only when wash is manually started.

AUTO ENTRY EYE

When the entry photo eye is working and a car enters the tunnel, it will break the beam, signaling that a vehicle is present. By measuring the amount of time the signal is interrupted, the system will determine the length of the vehicle and adjust the car wash accordingly.

If the entry photo eye is not functional, set *Auto Entrance Eye* to *ON*. In *Auto Entrance Eye* mode, a standard vehicle size is assumed to determine when each output should be activated. Output activation will not be as accurate, however the wash can continue to operate even if the entry photo eye is not functional. Note that a password is not required to turn *Auto Entrance Eye* on or off.

AUTO PULSE SWITCH

If the pulse meter is not functional, the controller can approximate the conveyor speed and simulate a pulse by turning *Auto Pulse Switch* on. Note that since the conveyor speed is only approximated, output activation may not be as accurate, however the wash can continue to operate. Note that a password is not required to turn *Auto Pulse Switch* on or off.

ANITICOLLISION

This will tell you whether or not Anti-collision is enabled when there is a vehicle in the queue, flashing if it is enabled. When there is no vehicle in the queue, you will see *NO VEHICLE* next to it.

Gates

In the *GATES* control screen, you can raise or lower the gates and calibrate the vehicle detection sensor at each gate. The *VEHICLE SENSOR* indicator will turn on when a vehicle is present at each respective sensor. This is useful for troubleshooting gates.

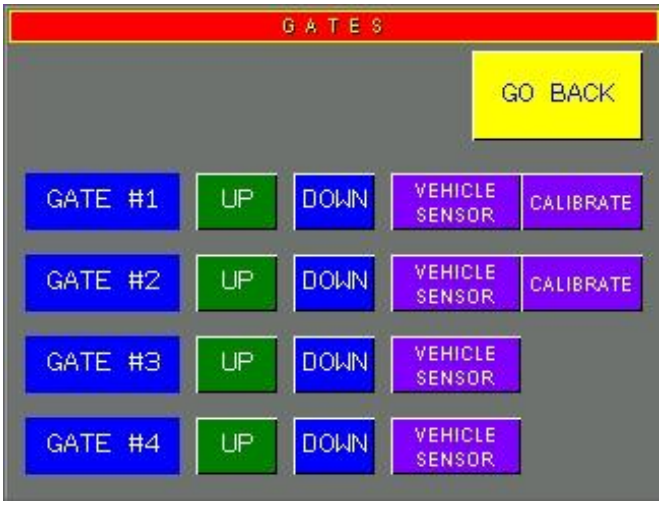


Figure 15-6

Pinch Point

Where the cashier lanes merge to a single lane.

When a wash package is purchased at one of the automated cashiers, the gate will open to allow one vehicle to pass through. Once a gate has opened, no other gates will be allowed to open until the first gate has closed behind the vehicle and the vehicle has passed over the *PINCH POINT* vehicle detection sensor. This ensures that vehicles enter the tunnel in the order they were queued in the controller.

When using a ***Banner*** magnetometer as a vehicle detection sensor, the sensor must be calibrated to measure the ambient magnetic field and establish a baseline reading. Thereafter, the sensor can detect a vehicle by measuring variations in the magnetic field induced by a large metal object such as a vehicle. Thesensor will need to be calibrated after installation and after any structural changes to the area that may have affected the magnetic field.

To calibrate the *PINCH POINT* vehicle detection sensor, press *CALIBRATE*.

Anti-Collision

This calibration should be performed when there are no cars in or near the tunnel. Running this calibration will “teach” the *ANTI-COLLISION* sensor what normal conditions are without the presence of a vehicle. After calibration, the sensor will be able to detect when the magnetic field around the sensor has changed, therefore indicating the presence of a vehicle, and signal the conveyor to stop if necessary, to avoid a collision.

Print Fault Log

Will print a listing of all controller faults.

Wet Down

Initiates equipment wet down.

CHAPTER 15 : Emergency Stop

If the equipment needs to be stopped immediately, you can press the emergency stop button on the side of the Touch Button Station or at the emergency stop button mounted at the far end of the tunnel. Once the emergency stop has been pressed, a message will appear on the Touch Button Station alerting the operator that the tunnel has been stopped.

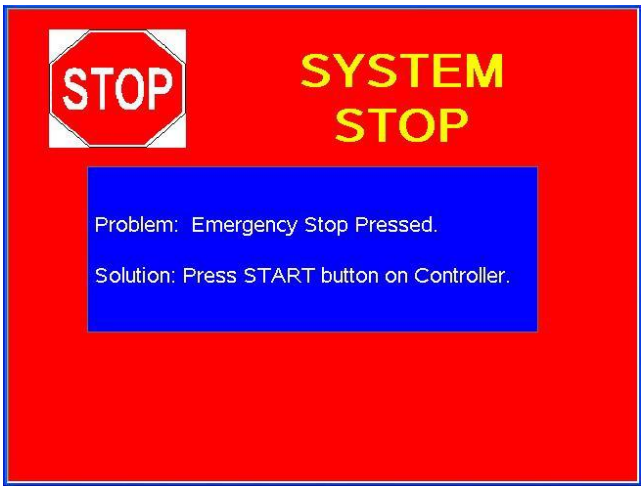


Figure 16-1

To re-start the equipment, you must first pull out the E-stop button mounted on the ***Tunnel Logic*** controller door, second, press the green start button on the controller and third, press the *RESTART* button on the Touch Button Station screen. To bypass the last step, select *Skip Restart Confirmation* in Restart after E-Stop setting (See Chapter 9 “Setup Options”).

Figure 16-2

For more information on configuring the order in which outputs will re-start when recovering from an Emergency Stop, see the *Restart Outputs* section in Chapter 8 “*Miscellaneous Menu”*.

CHAPTER 16 : System Stop Conditions

In cases where the system detects an abnormality and where damage to vital system components or vehicles in the tunnel may occur, the system will stop. For example, a critical fault will occur if the system's hydraulic fluid is low, since this may result in costly damage to tunnel components. In this case, the system will stop until the critical fault is corrected (See Figure 17-1).

Figure 17-1

Once the critical fault has been corrected, the system will continue operating normally.

Another condition that will trigger a *SYSTEM STOP* is if the conveyor has been moving for at least twenty seconds and no pulse has been detected. In this case, the system will be stopped and the following message will be displayed:

Figure 177-2

If the chain is not jammed, and the pulse switch in fact does need to be repaired, set *Auto Pulse Mode* to "*ON*" in the *Setup Options* menu to activate *Auto Pulse Mode* . In *Auto Pulse Mode*, the controller will use the *Entry Eye to End of Conveyor* time and length parameters to approximate the conveyor speed and simulate a pulse. Once the pulse switch is repaired, set Auto Pulse Mode back to "*OFF*" to resume normal operating conditions. For more information on *Auto Pulse Mode*, see Chapter 9 "*Setup Options*".

Note: *Auto Pulse Mode* can also be activated on the Touch Button Station. See Chapter 15 "*Setup*" for more information.

4

CHAPTER 17 : Car Wash Printers

Auto Data recommends the ***Ithaca iTherm 900***, but will configure any serial car wash printer that fits the following specifications: (Baud Rate: 19200 BPS, Mode: 8 Bit Even Parity 1 Stop Bit). The printer will need to be sent in to Auto Data to be configured. As a courtesy, Auto Data can also add your company logo to your car wash receipts.

CHAPTER 18 : Configuring HTK

Communications between the HTK and the controller.

1. From the *Main Menu* go to *Configuration.*

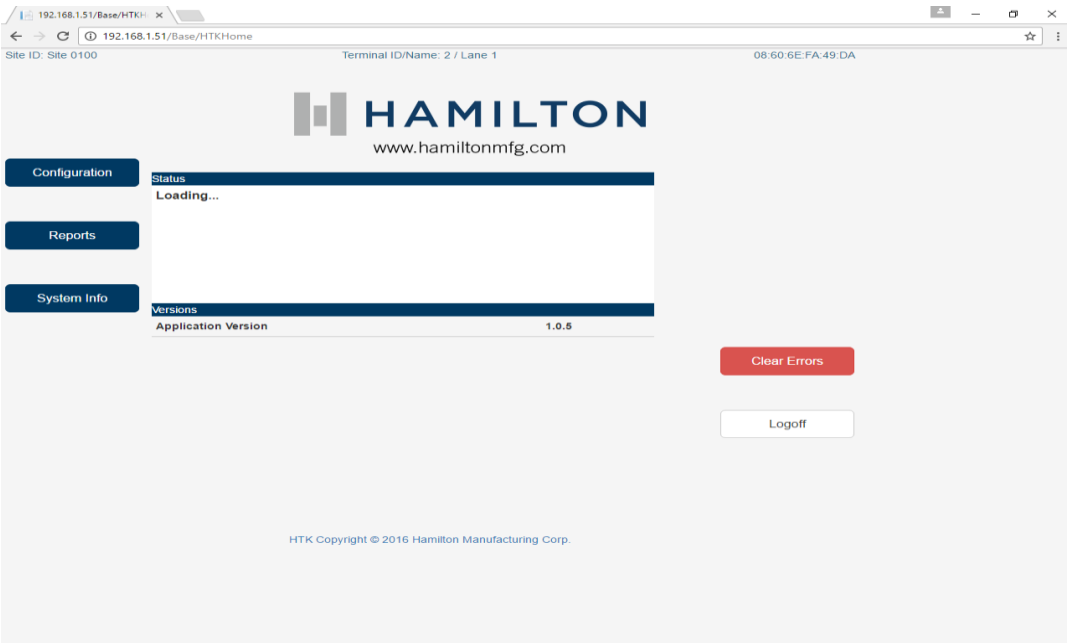


Figure 19-1

2. Press *Application.*
3. Press *Next Page* two times to get to the *Vend* option.

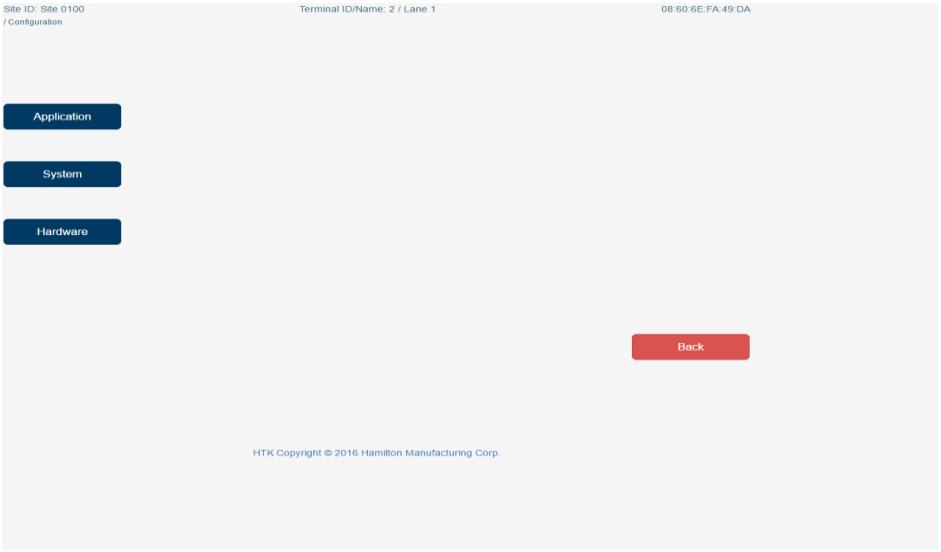


Figure 19-2

4. Press *Vend*.

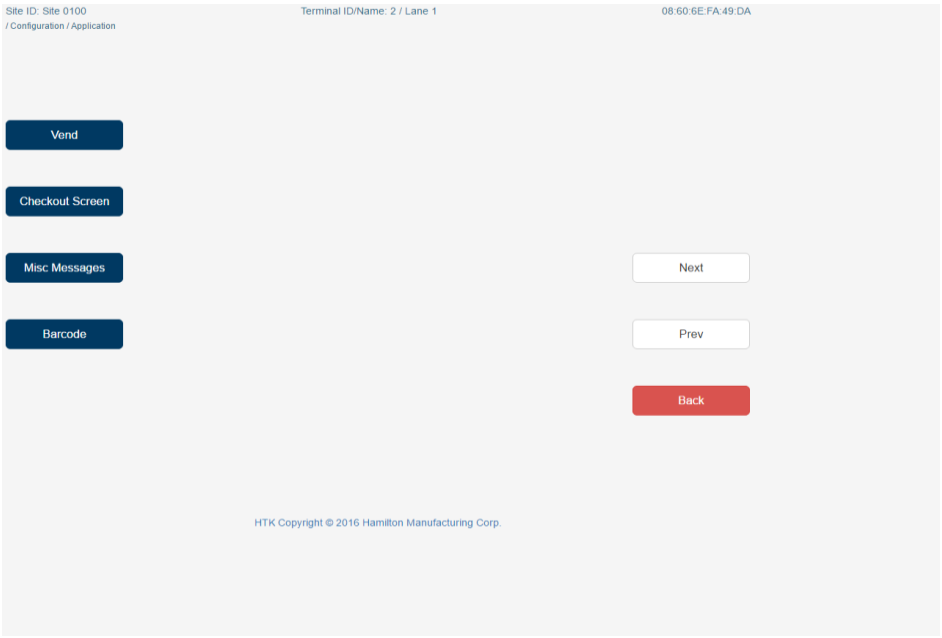


Figure 19-3

5. Select *Ethernet.*

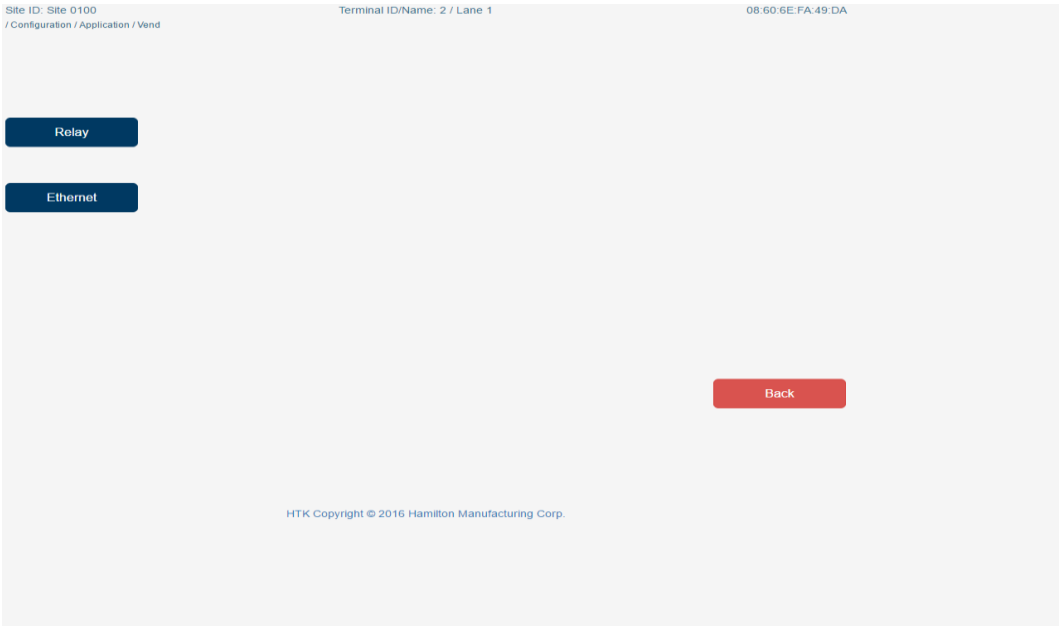


Figure 19-4

6. Apply the following settings for **HTK 1, 2 and 3.** When you are done, press Activate Changes, and then *Back* to exit.

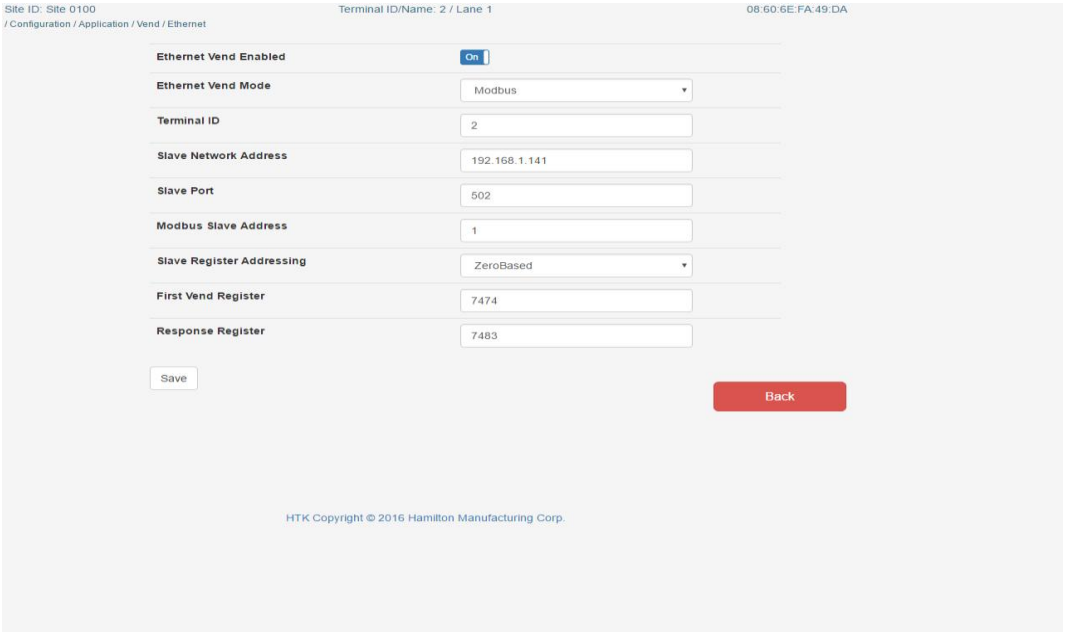


Figure 19-5 – HTK Lane 1 Settings

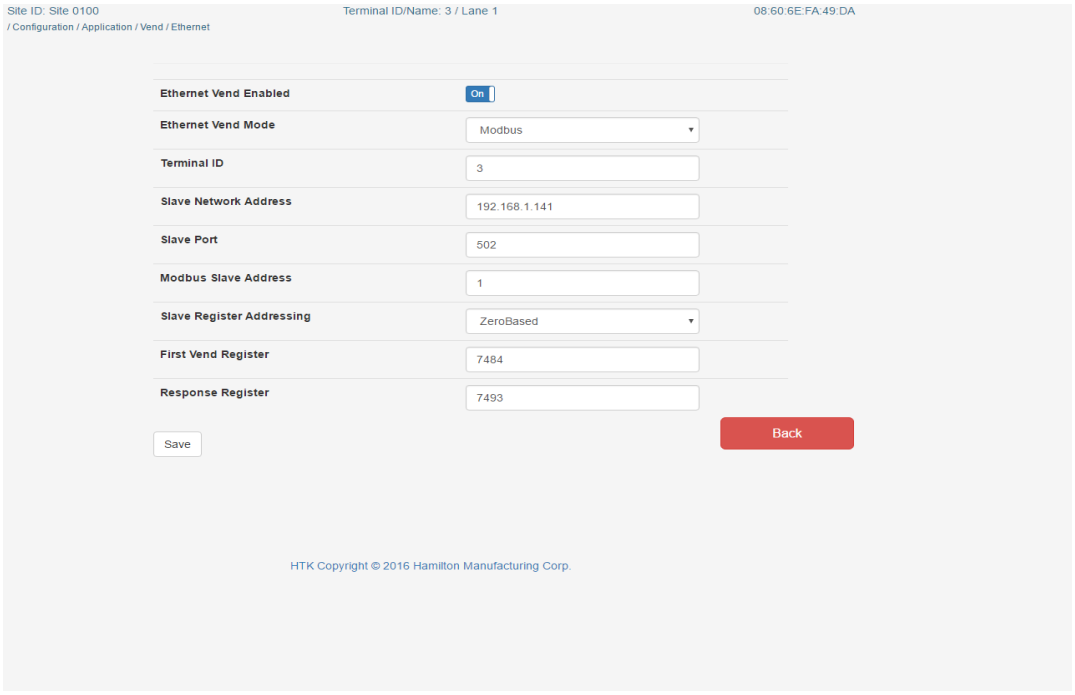


Figure 19-6 – HTK Lane 2 Settings

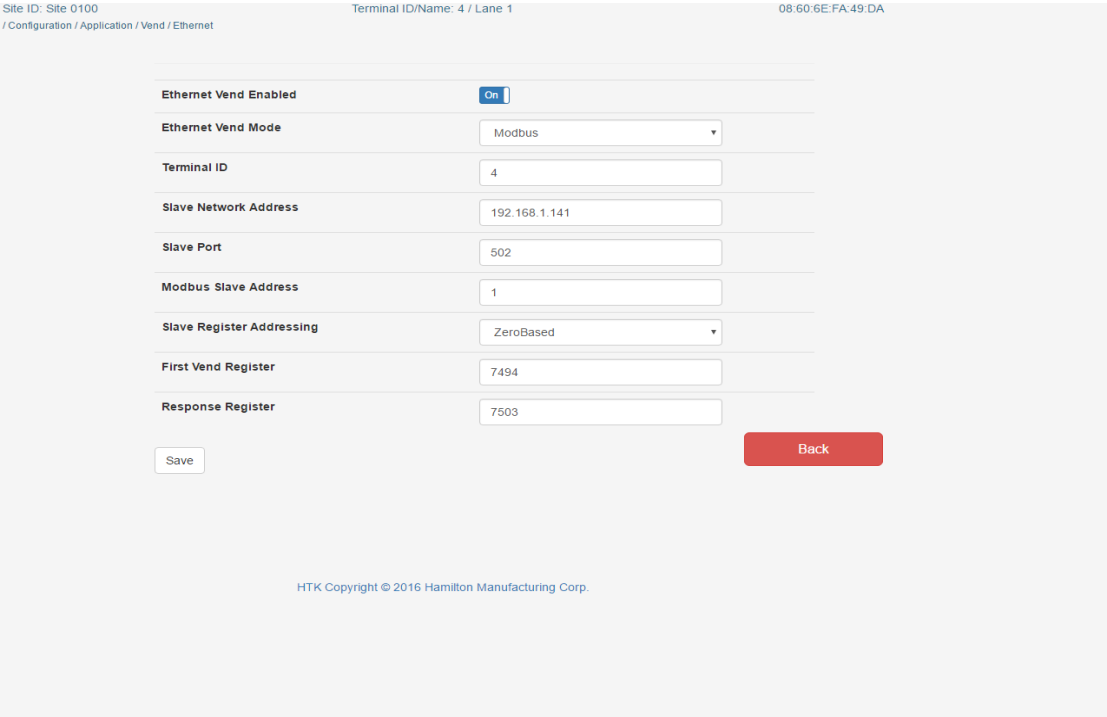


Figure 19-7 – HTK Lane 3 Settings

How to Access 'Service Mode' on HTKs

1.) Use the key at the top of the HTK to access the servicing portion of the HTK screen by turning the key 90 degrees and wait until screen flickers and shows the screen about entering a User Code and Password.

2.) At the HTK, login using the Administrator account:
User Code – 00
Password – 12345
(These are the default passwords to access the HTK Servicing Mode.)

3.) Once at the Hamilton Service Mode screen, select the option "Service Mode" at the upper right corner.

4.) Then select "Service Mode Reboot".

5.) It will bring up a screen asking for a User name and Password that will look familiar to a Windows login screen. Enter these credentials.
Hamilton Administrator Password : 51You92Up

6.) The system will reboot and bring you to Windows User Account screen and will prompt you for the same credentials of Hamilton Administrator so enter the password: 51You92Up.

7.) After entering the credentials you will be at a Windows desktop screen and you will begin by setting the correct date and time.

8.) Finish by setting the Network Configurations as instructed below. There is list of instructions of how to exit the 'Service Mode' once completed with configuring the Network settings.

HTK Network Settings

1. Right-Click Windows Symbol on bottom left hand corner of screen and select the option Control Panel

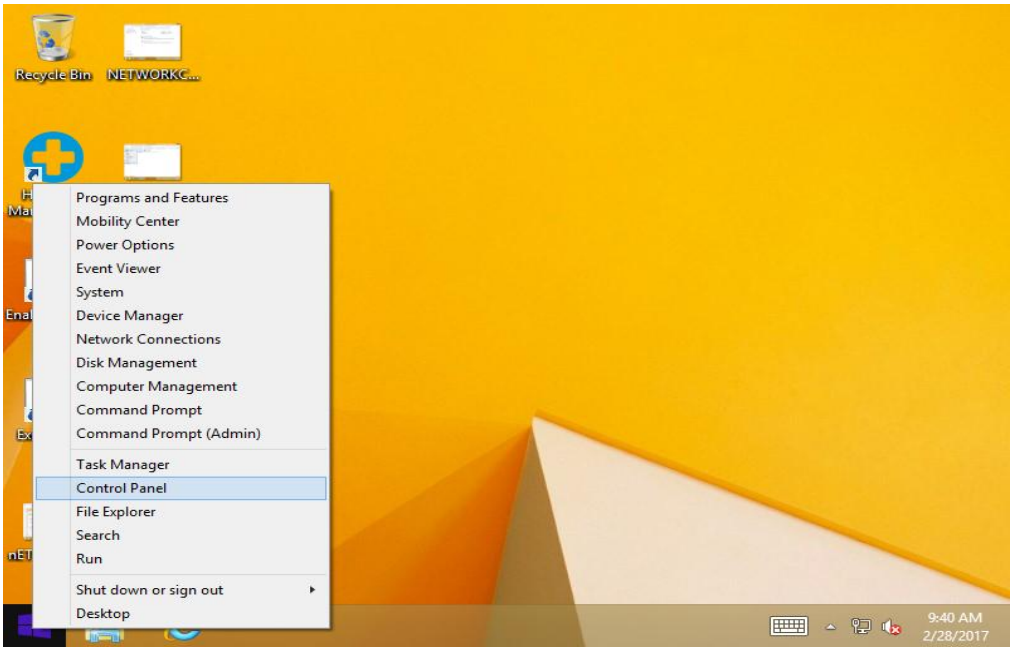


Figure 19-8

2. From the options under the Control Panel menu, select Network and Sharing Center.

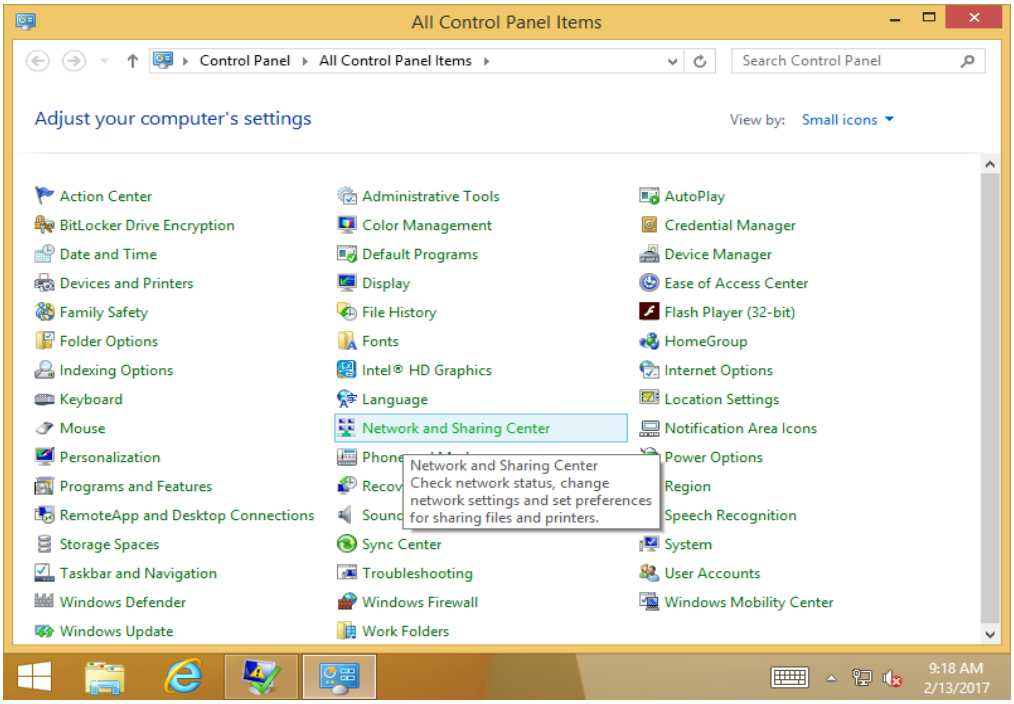


Figure 19-9

3. Inside of Network and Sharing Center, select the option Change adapter settings.

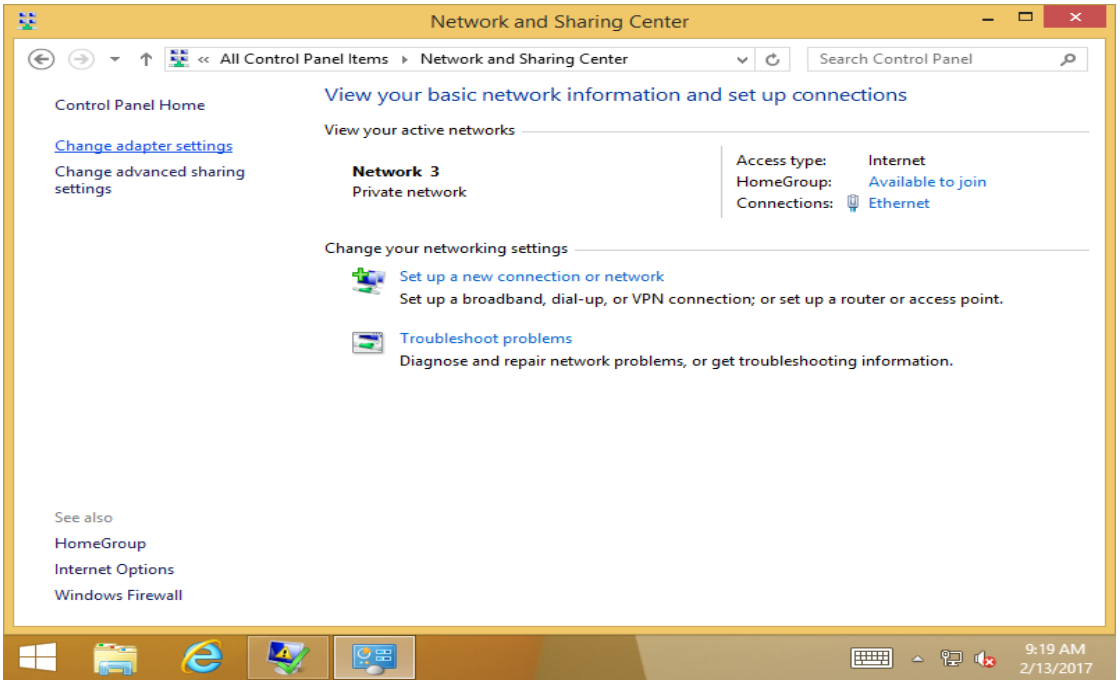


Figure 19-10

4. Select the network (must be a 192.168.1.xxx network ID), you have your HTKs connected to and right-click the network name in order to bring up the options and select properties.

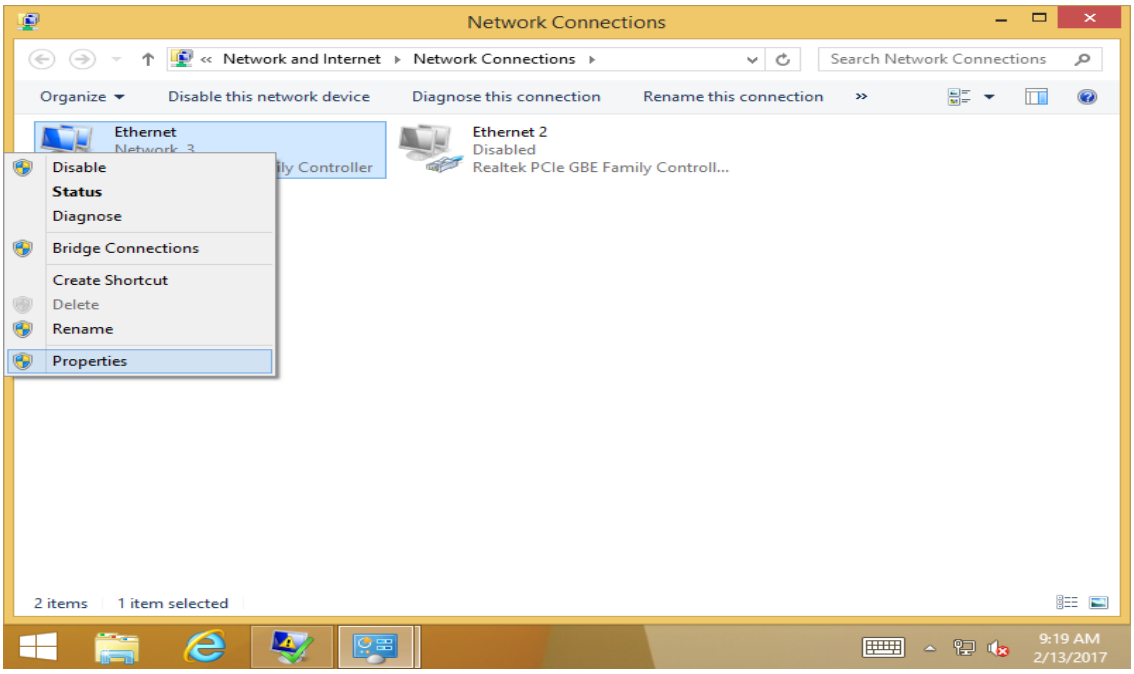


Figure 19-11

5. In Ethernet Properties go to and select the option Internet Protocol Version 4 (TCP/IP).

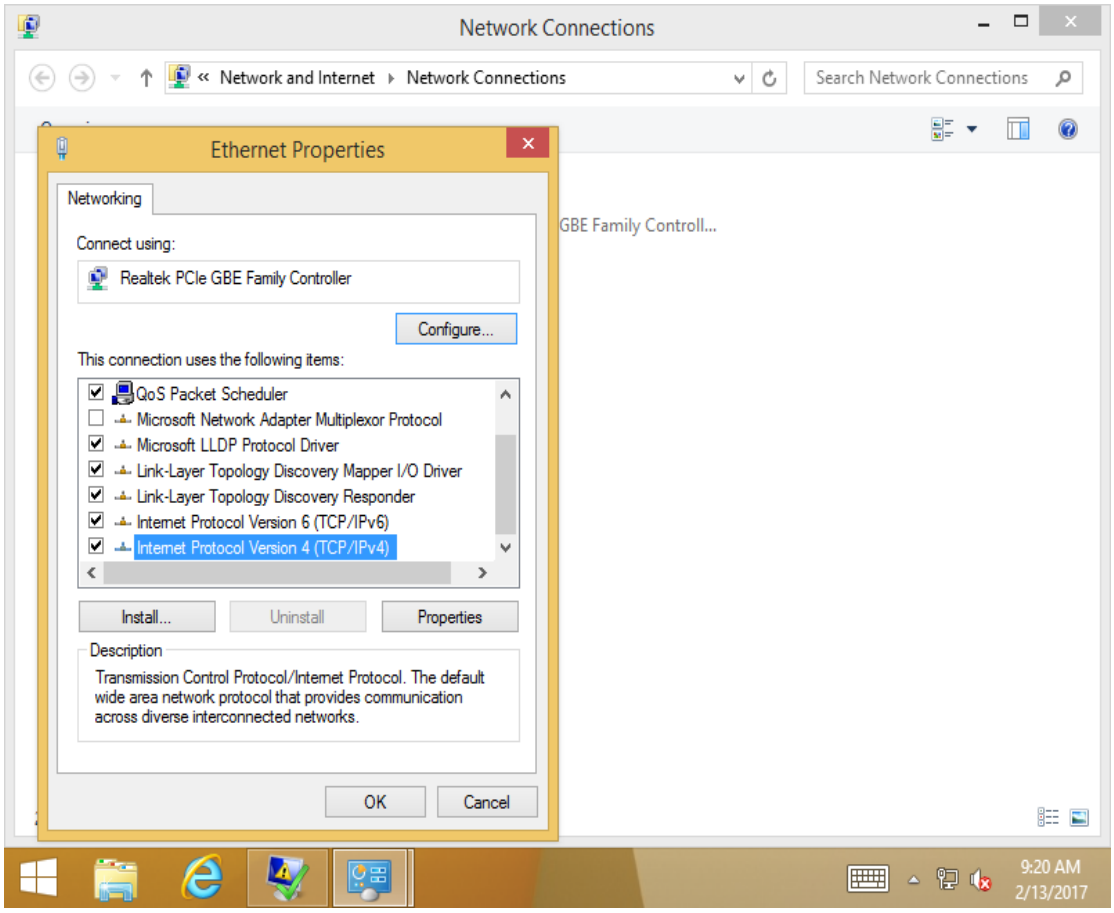


Figure 19-12

6. Apply the following settings for **HTKs 1, 2** and **3:**

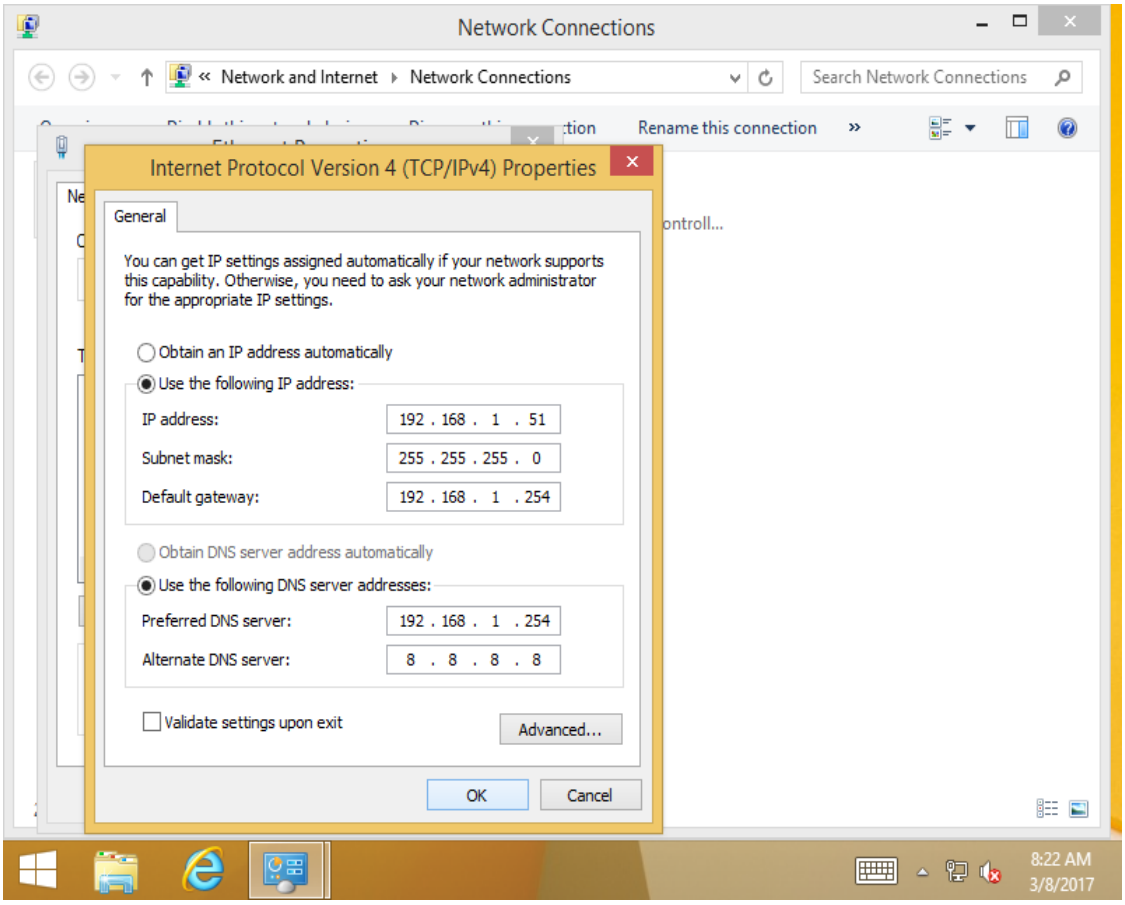


Figure 19-13 – HTK Lane 1 Settings

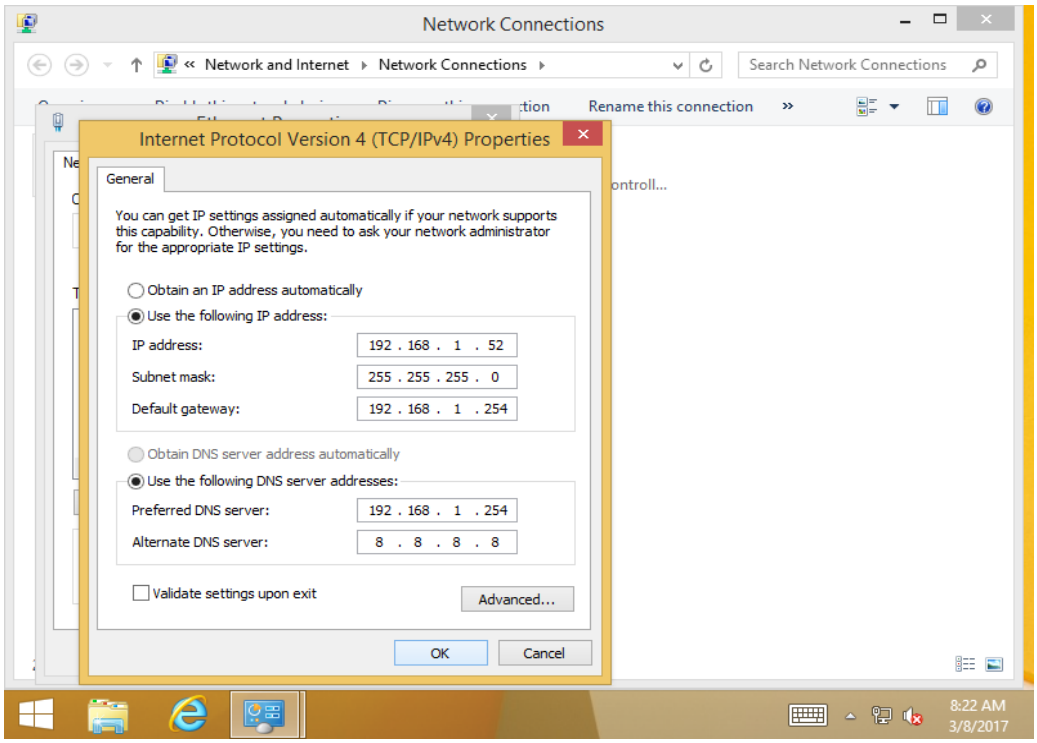


Figure 19-14 – HTK Lane 2 Settings

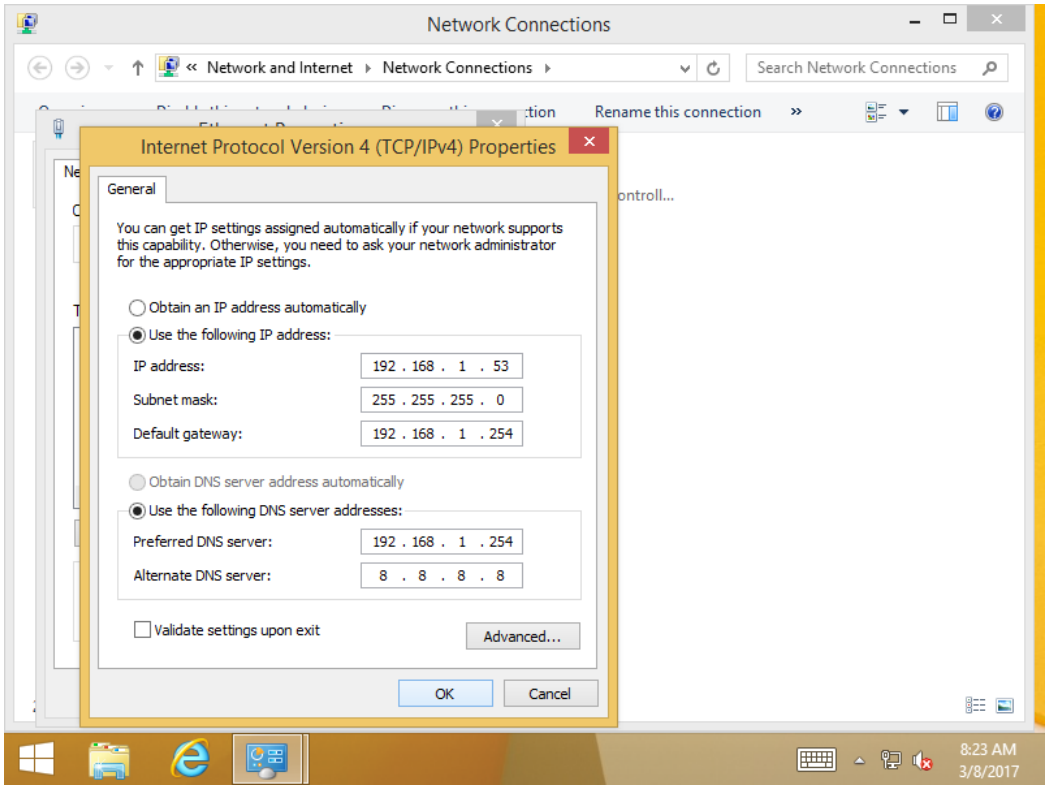
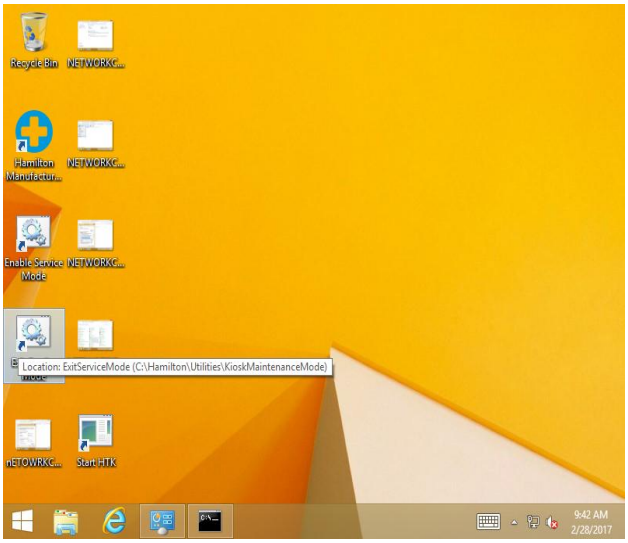
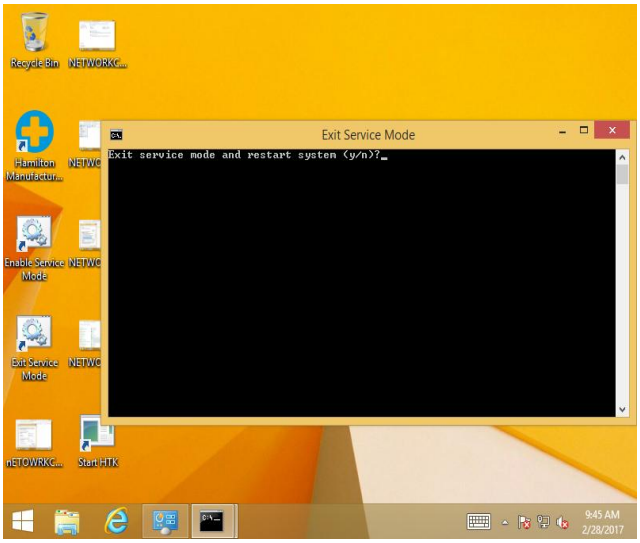


Figure 19-15 – HTK Lane 3 Settings

7. After applying Network change settings press OK as prompted until you are back at Network Sharing Center. Then go back to the desktop and select Exit Service Mode. After selecting Exit Service Mode it will bring up a command prompt box and it will ask to type Y/N. Type Y and press enter. It will now take you back to the HTK OS.





8. After applying the Network Settings you will now be able to set up users to gain access remotely to apply all other HTK configurations.

To set up a User

1. From the main menu, press *Configuration*.

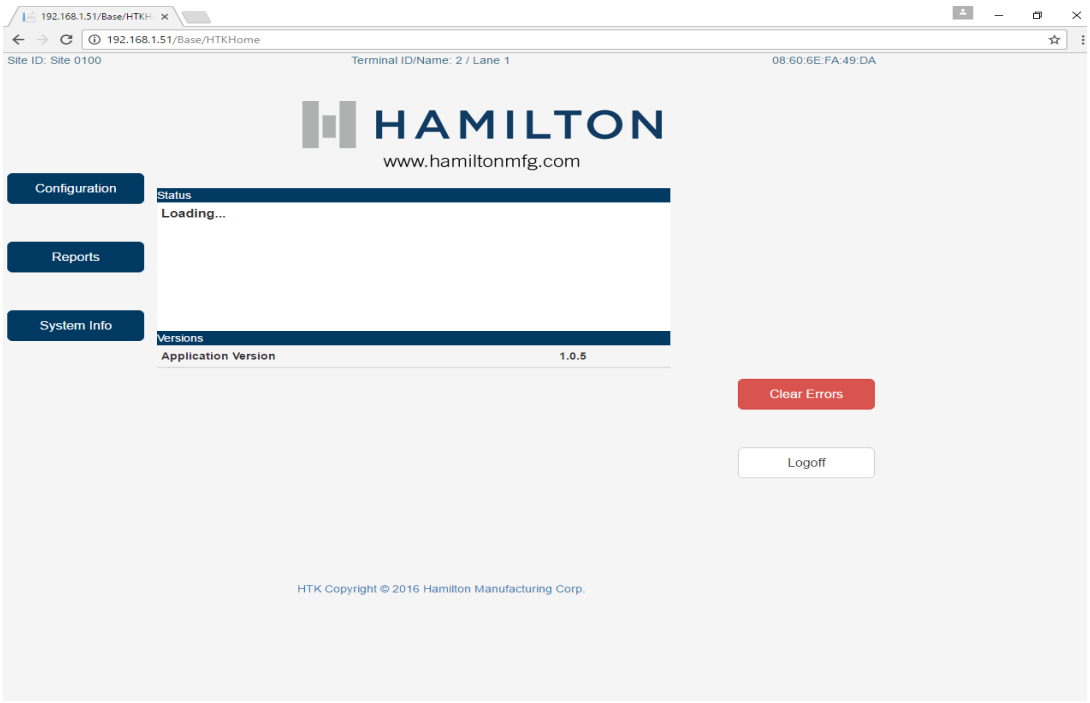


Figure 19-16

2. Press *System* and then *Next Page* to get to second *System* menu.

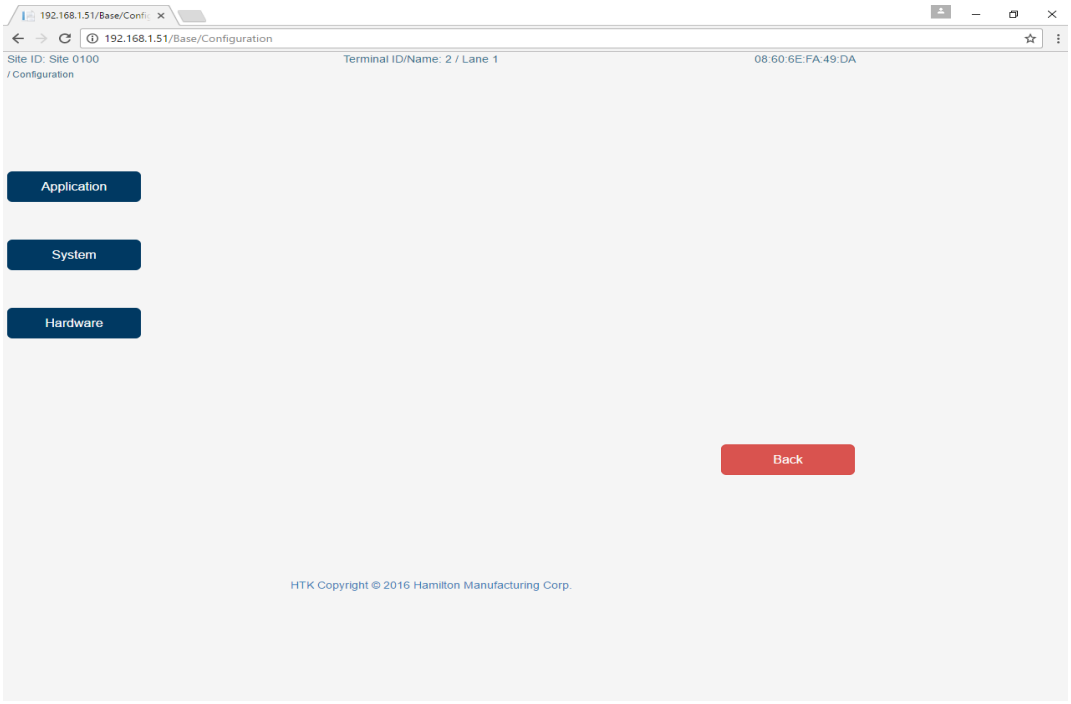


Figure 19-17

3. Press *Users*.

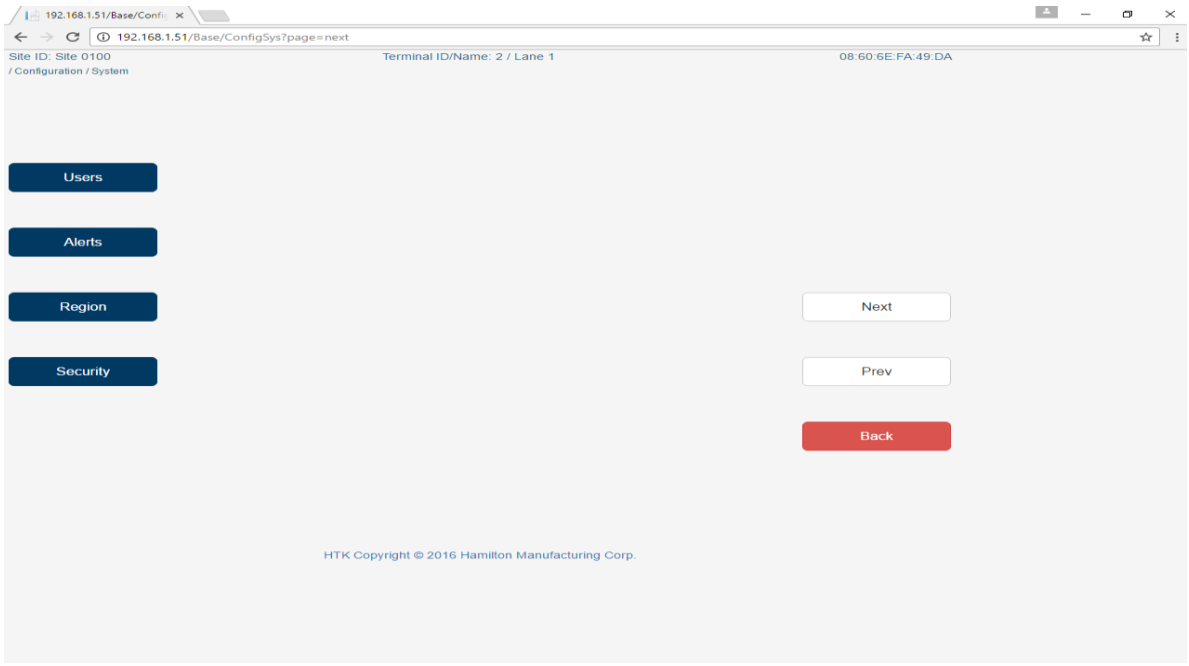


Figure 19-18

4. Press the *Add* button.
5. Check *Enable User.*
6. Enter “Auto Data” in the *Full Name* field.
7. Enter “2121” in the *User Code* field.
8. Enter “54321” in the *Local Password* field.
9. Enter “AutoData1” in the *Remote Password* field
10. Enter “support@autodatainc.com” in the *Email* field.
11. Click the *Rights* tab and check all the *Rights’* boxes.

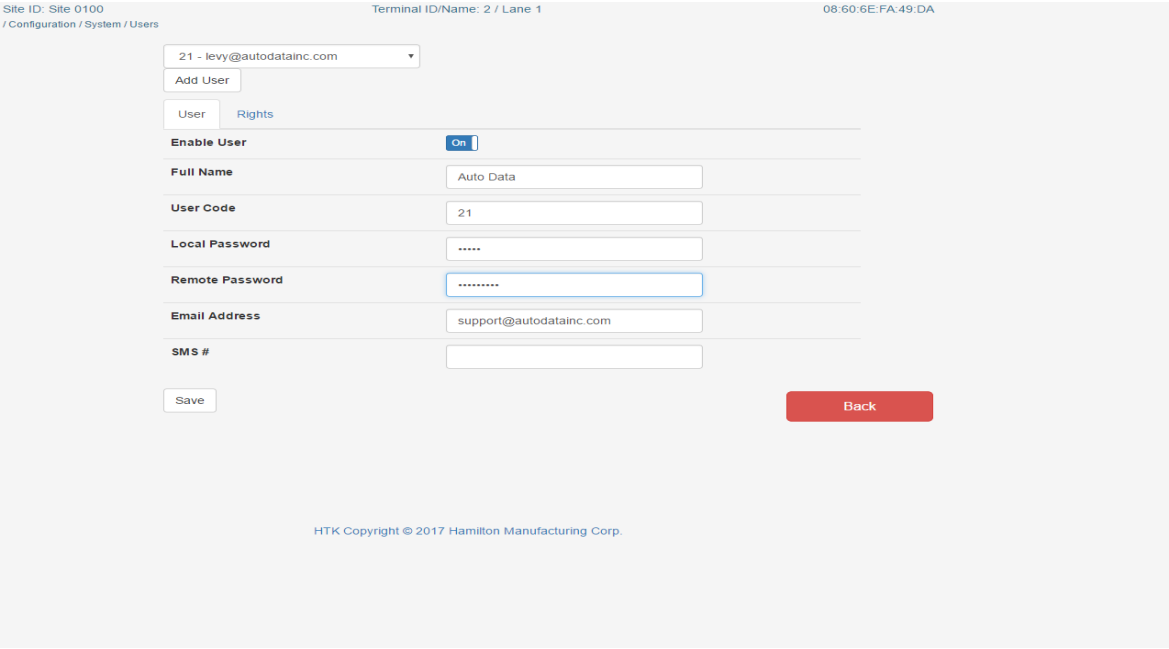


Figure 19-19

12. Press *Activate Changes* and then *Back* to exit. Once you set up a user you can access the HTK remotely by typing the IP address you entered in on each HTK in a web address bar. Use the credentials for the remote user on the web page.

. *To set up DAN/AUX*

1. Go to the main menu of the Hamilton setup screen and select *Configuration.*

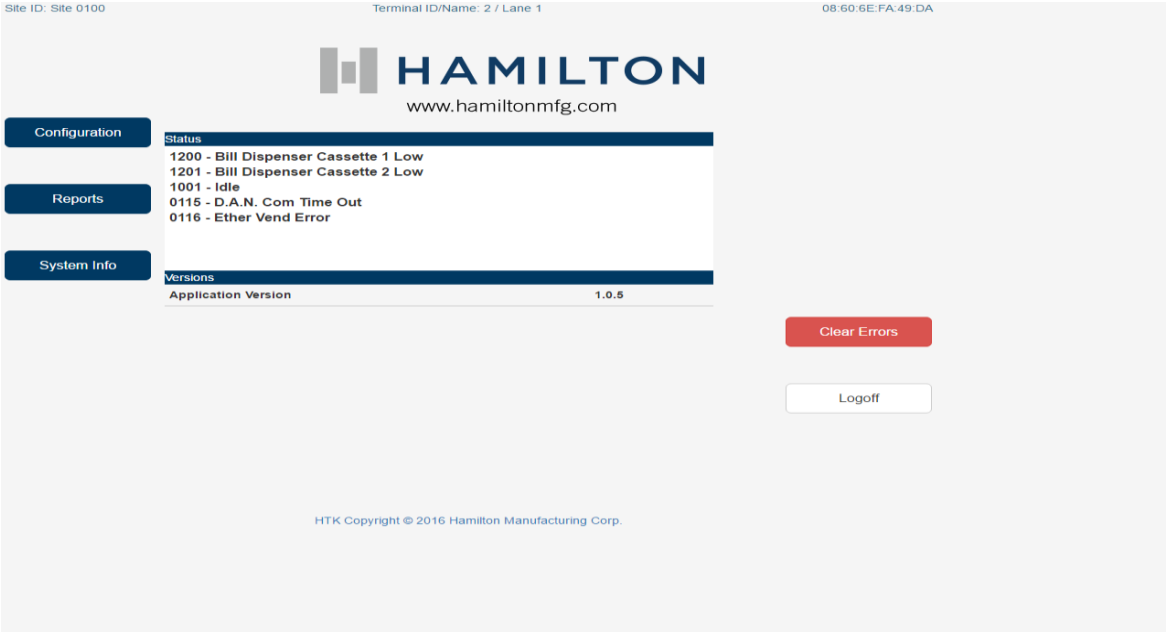


Figure 19-20

2. Select *System.*

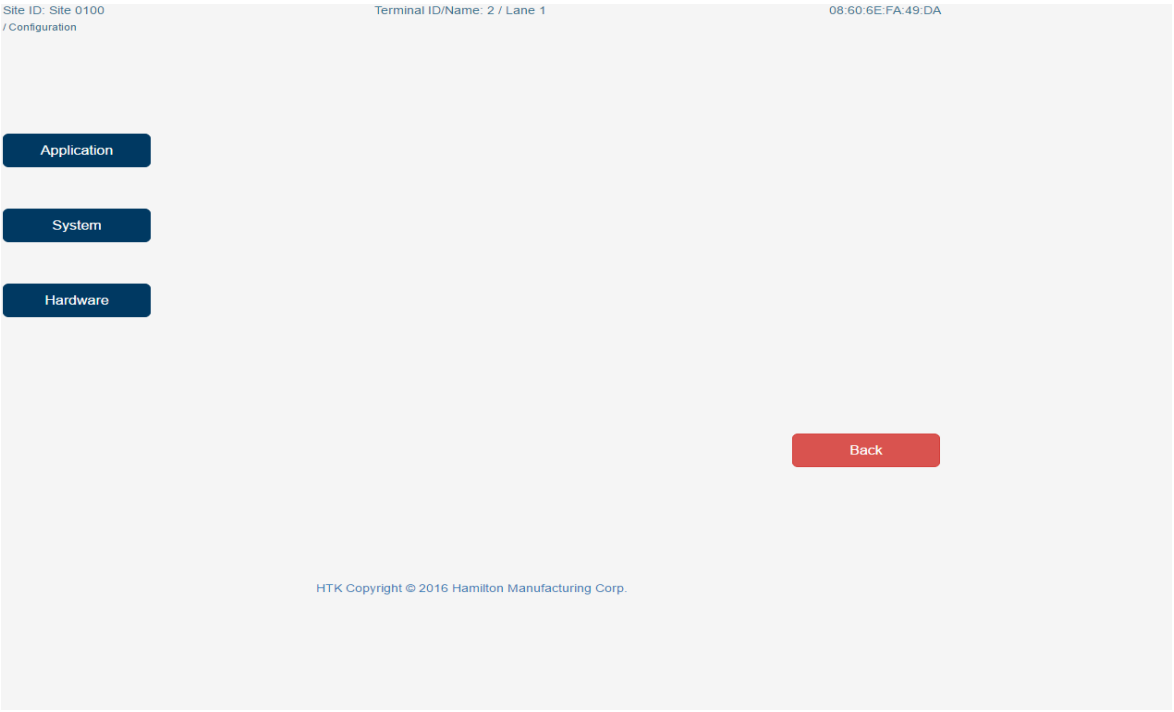


Figure 19-21

3. Select *Network.*

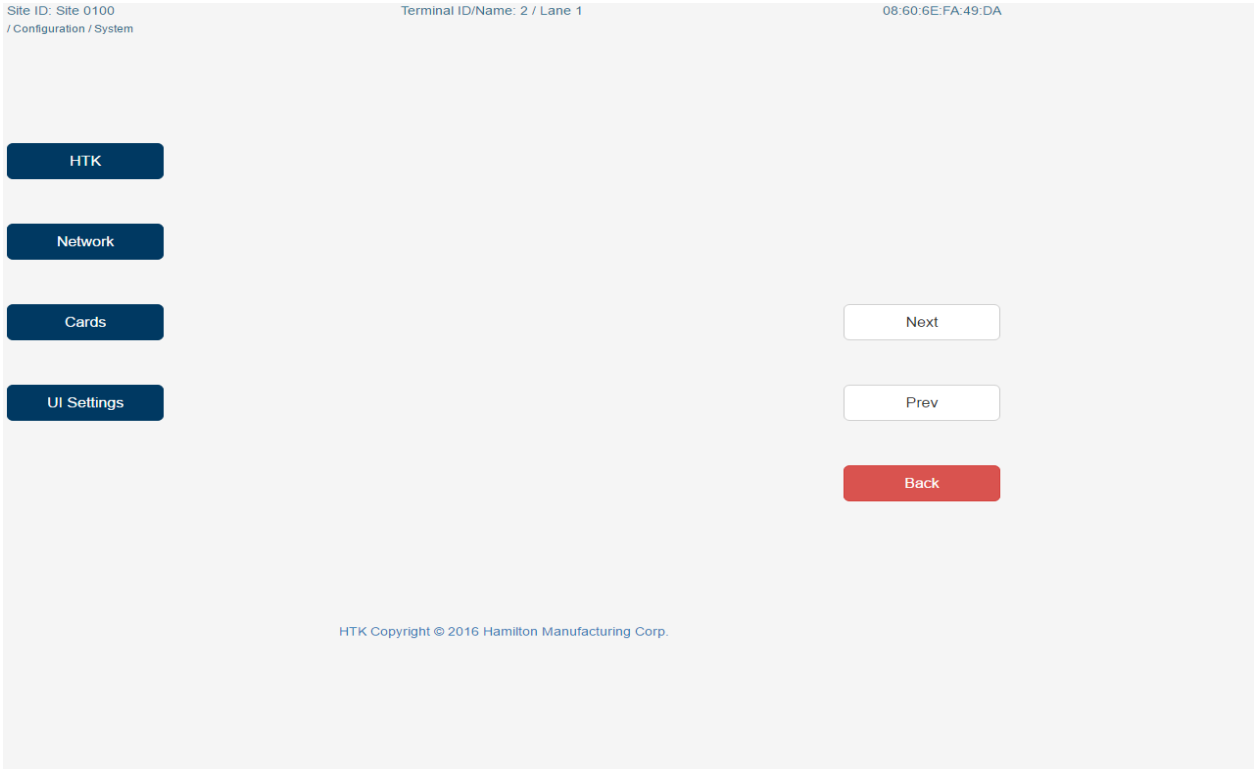


Figure 19-22

4. Select *DAN/AUX.*

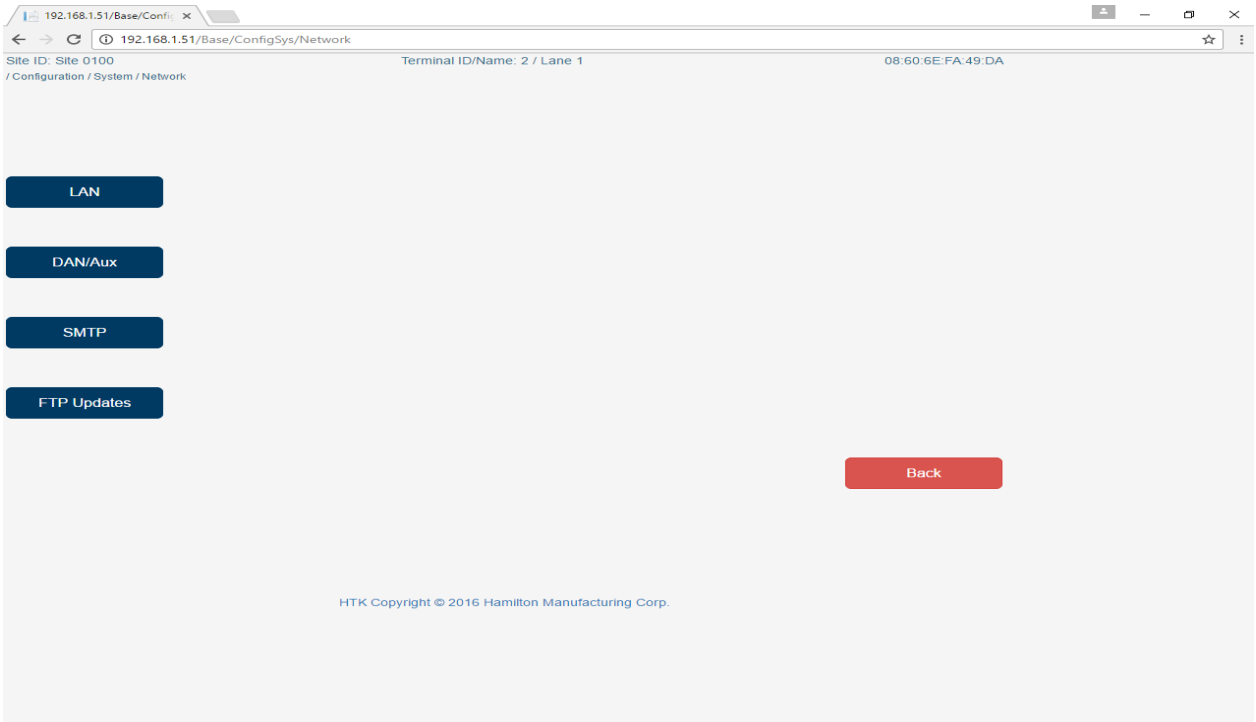


Figure 19-23

10. Apply the following settings on the *DAN/Aux* page **at each terminal**:

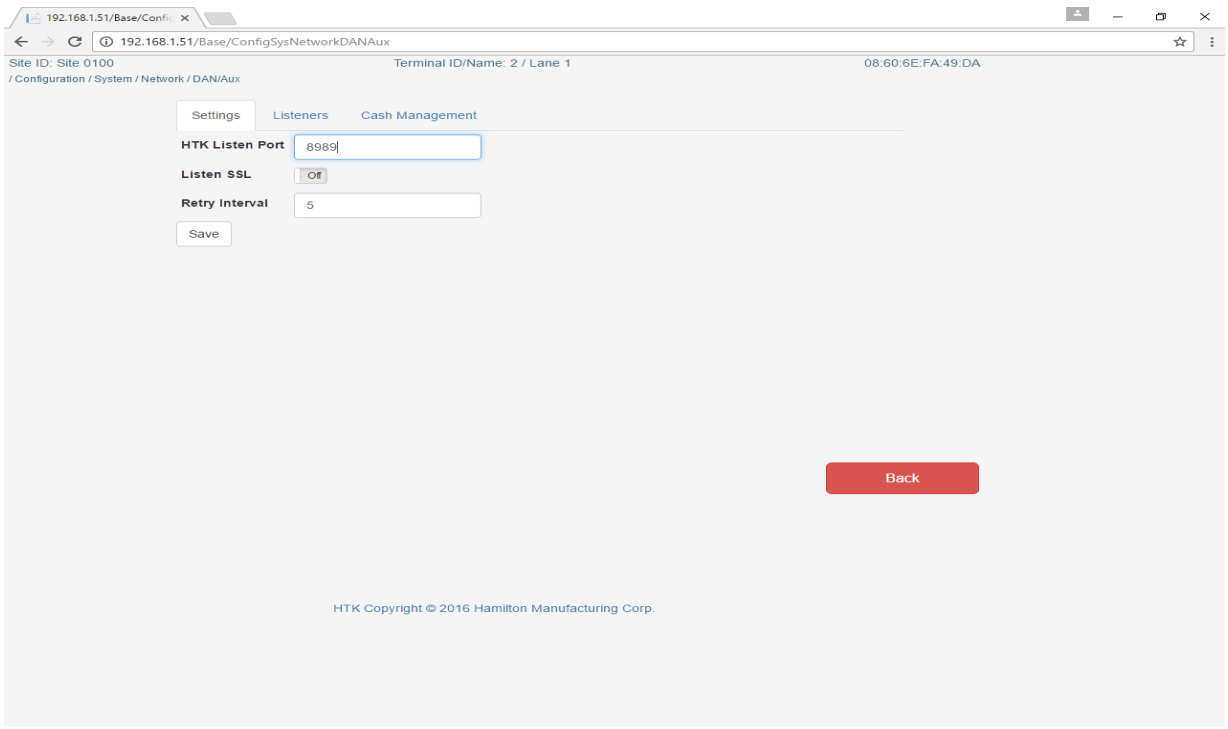


Figure 19-24

11. After making changes under *Settings,* select the tab labeled *Listeners* and apply these changes.

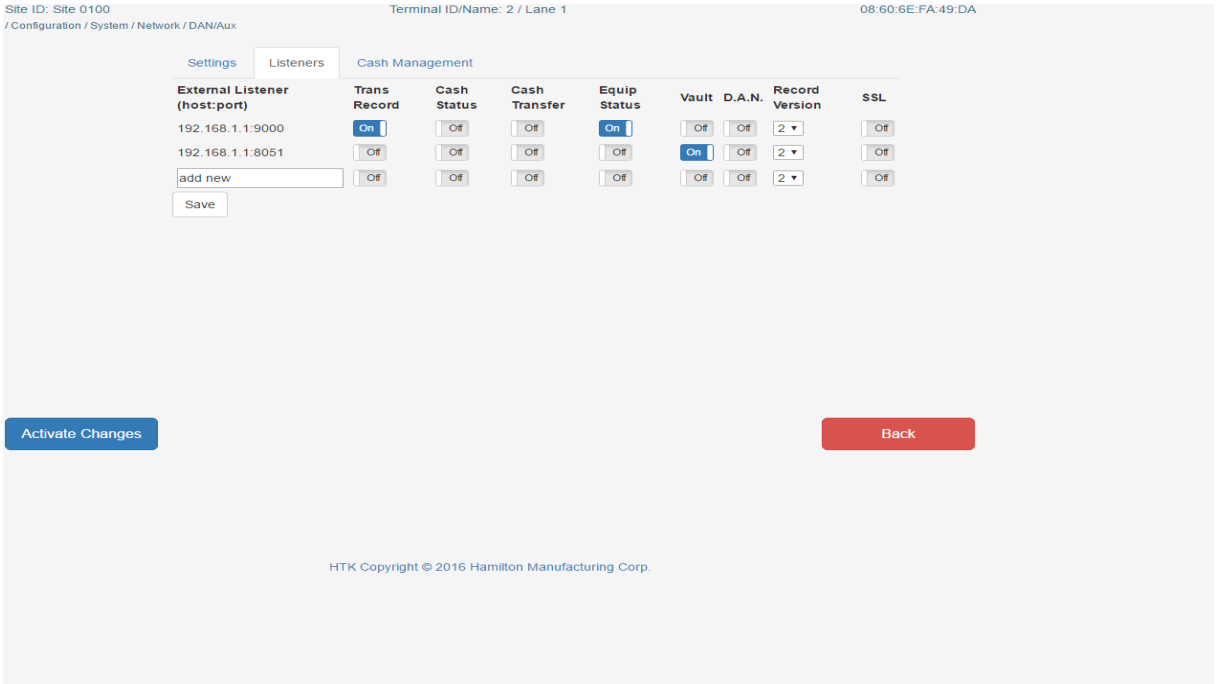


Figure 19-25

12. Press *Activate Changes*. Press *Back* to return to the main *Network* menu.
13. Press *Back* again to return to the main *System* menu.

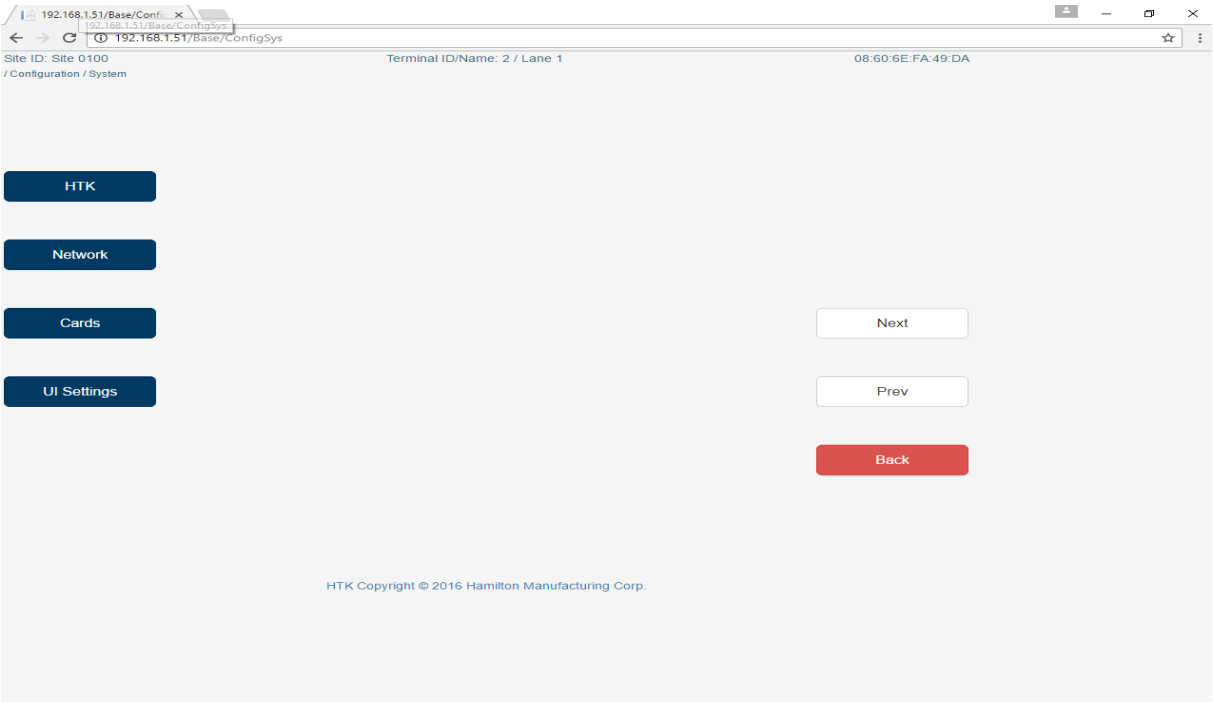


Figure 19-26

Queue Settings

1. From the main menu, press *Configuration.*

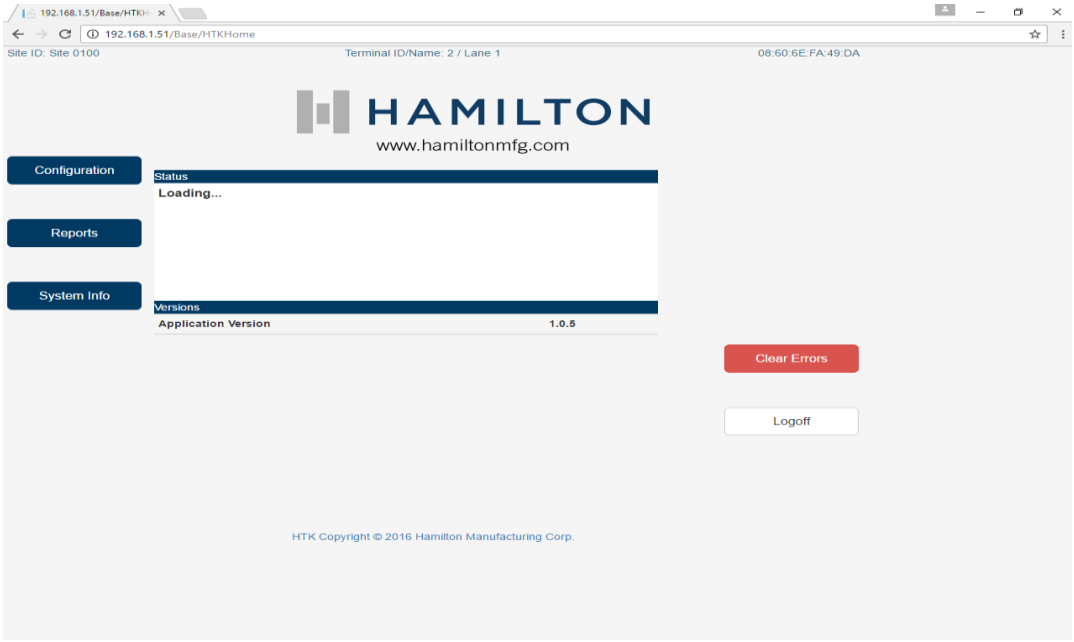


Figure 19-27

2. Press *Application.*

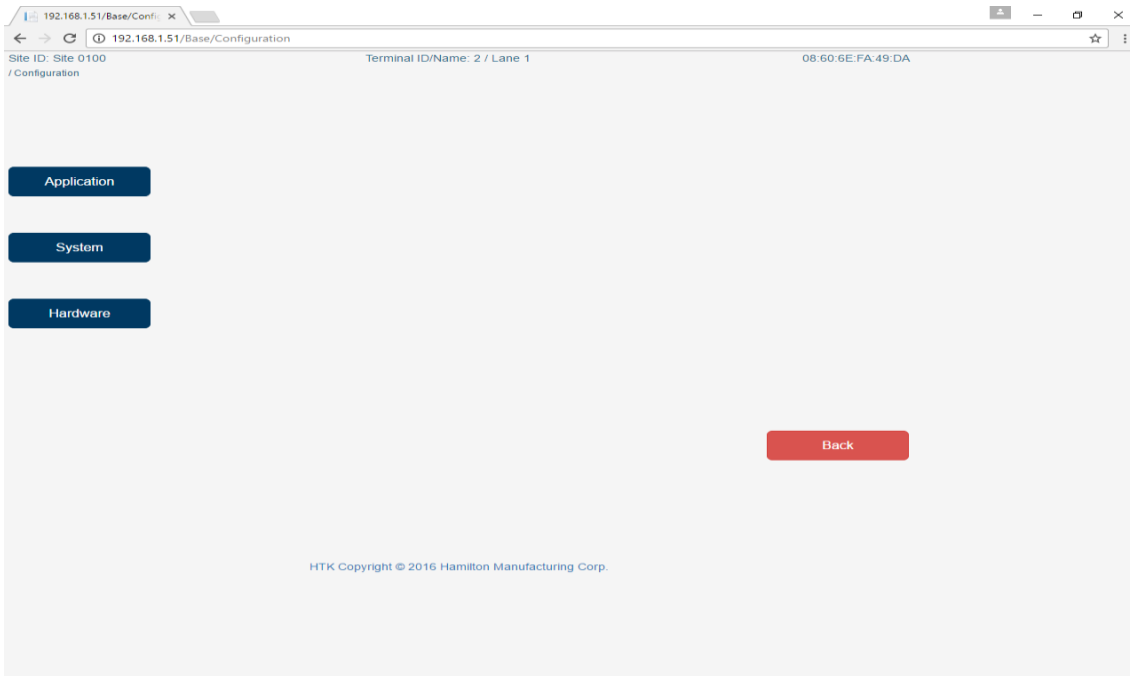


Figure 19-28

3. Press *Next Page* one time and then select *Queue.*

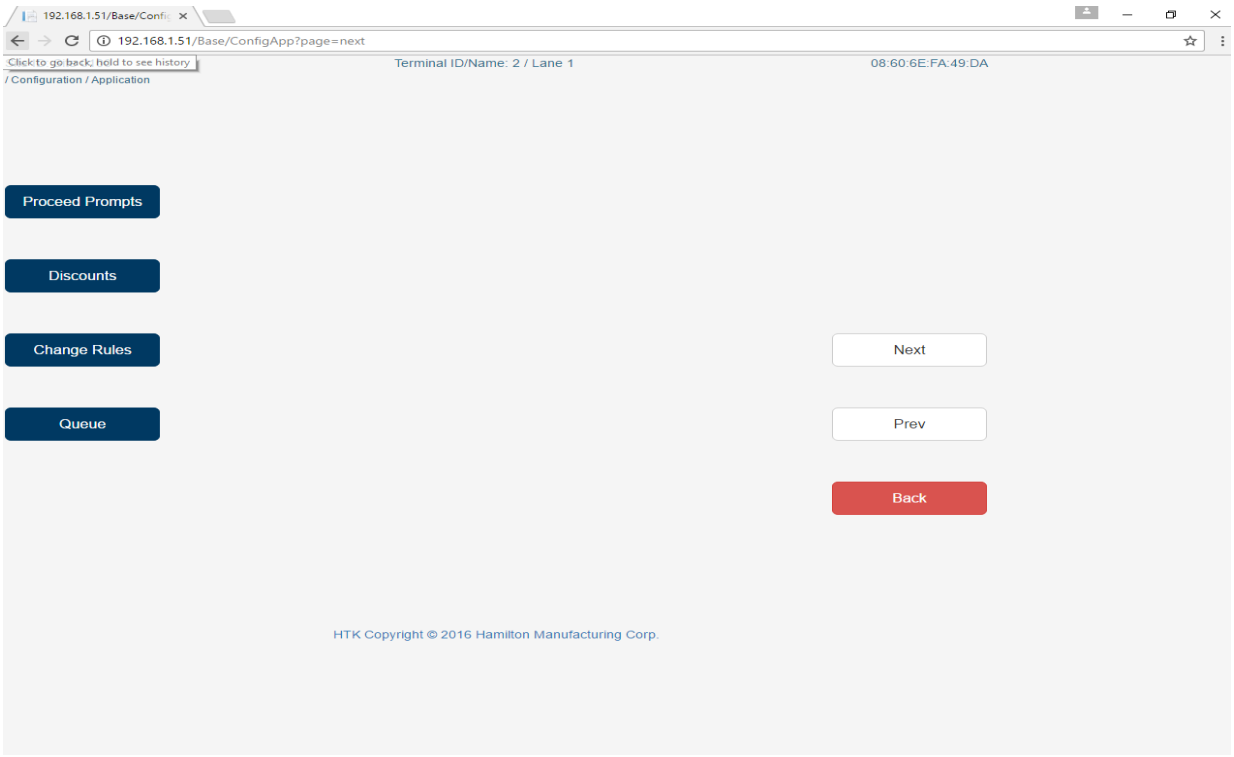


Figure 19-29

4. Make sure *Cycle Signal Operation* is set to “Not Required”. This setting signals to the HTK that it does not need to control the queue. In this case Auto Data’s controller will do this and the HTK will always accept washes.

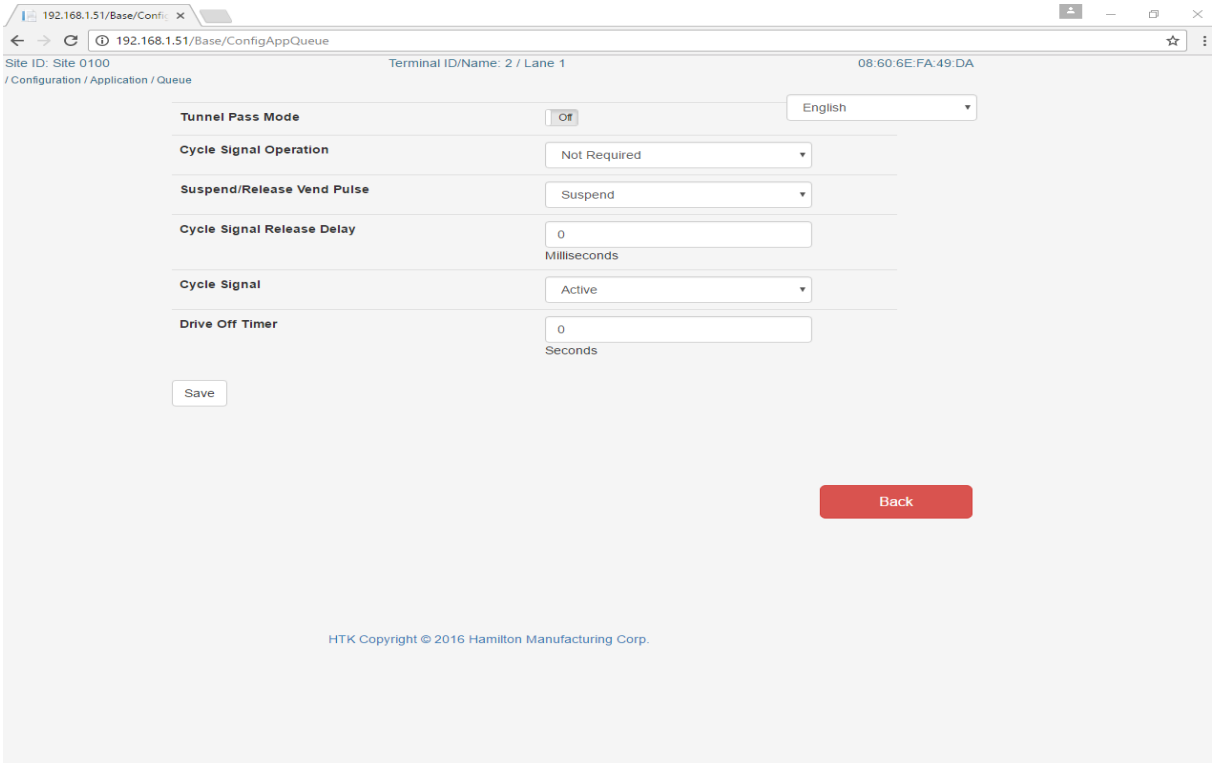


Figure 19-30

Configuring Terminal ID Settings

1. From the main menu, press *Configuration*.

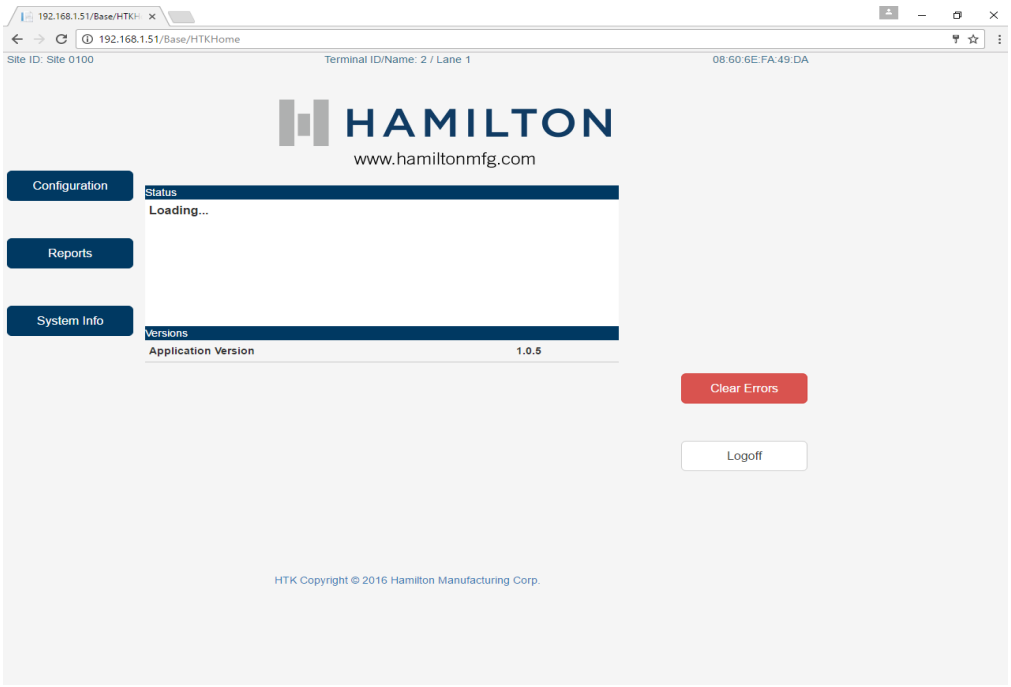


Figure 19-31

2. Click *System.*

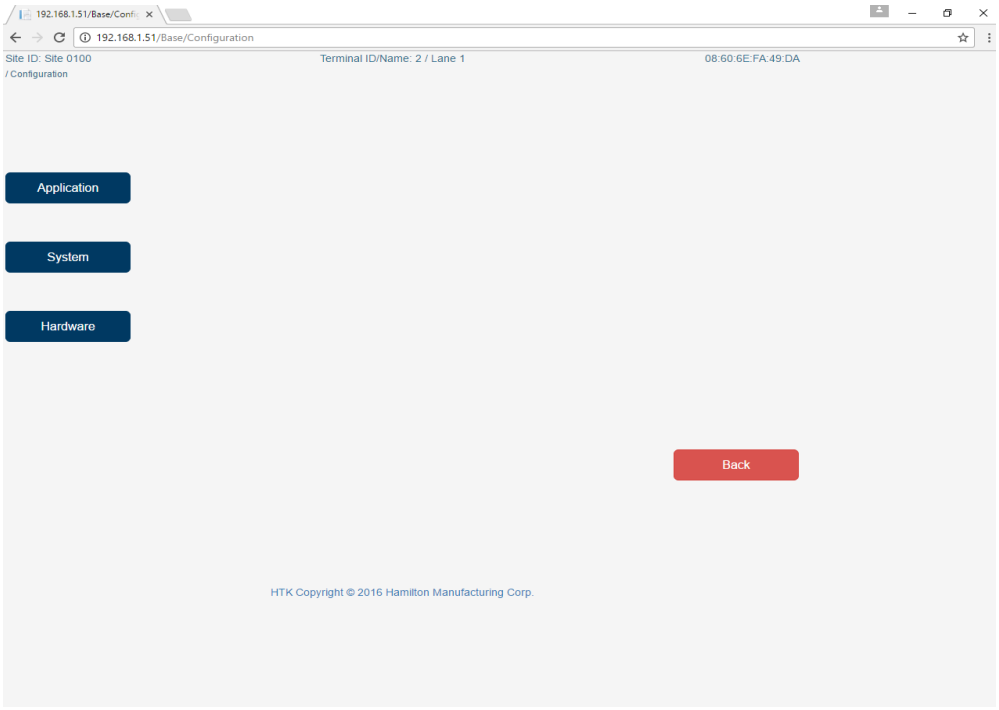


Figure 19-32

3. Click *HTK.*

***Note: The Terminal ID number should differ from the Terminal Name as shown because the Point-of-Sale regards each HTK as a separate "cash drawer", with the POS as the first. Therefore, HTK/Lane 1 is treated as "cash drawer 2" and so on.*

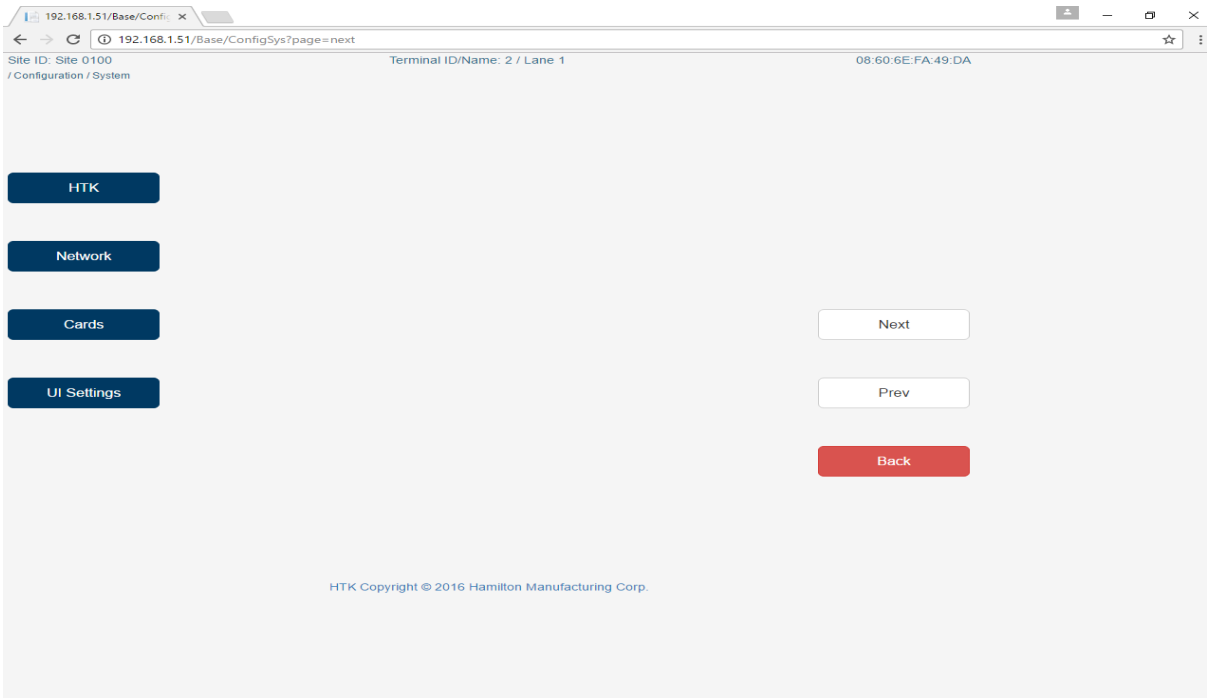


Figure 19-33

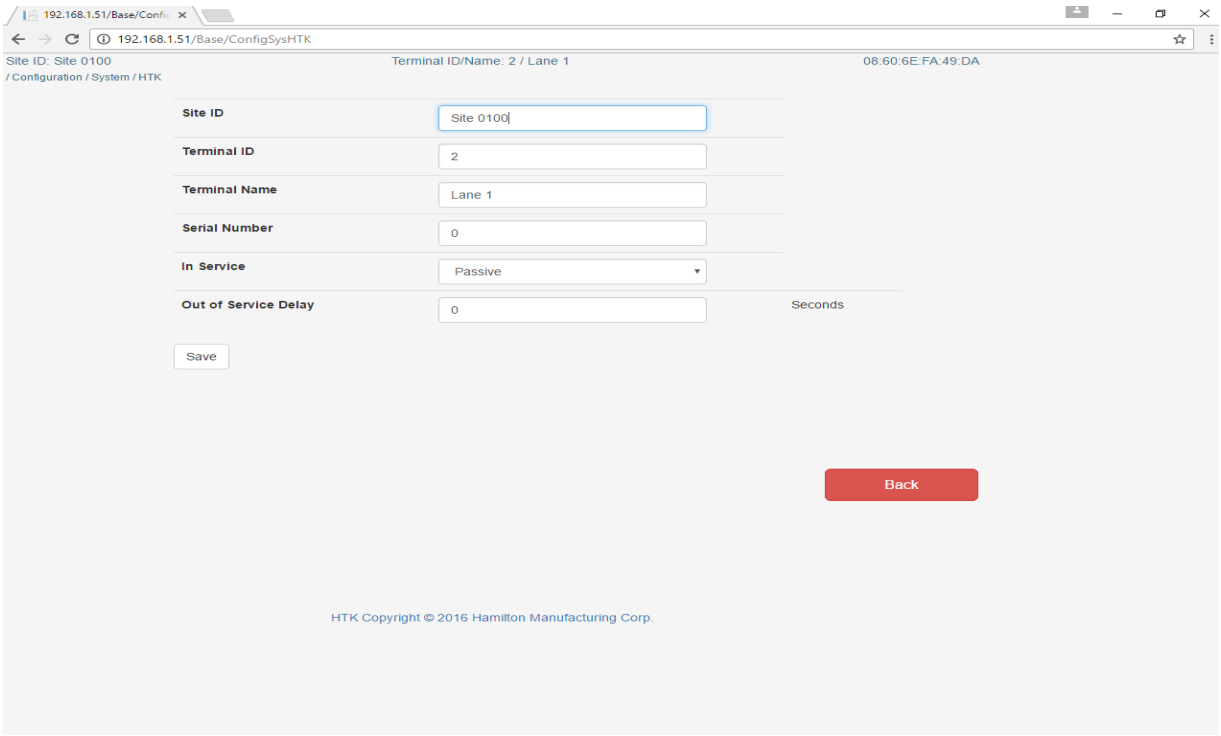


Figure 19-34 – HTK Lane 1 Settings

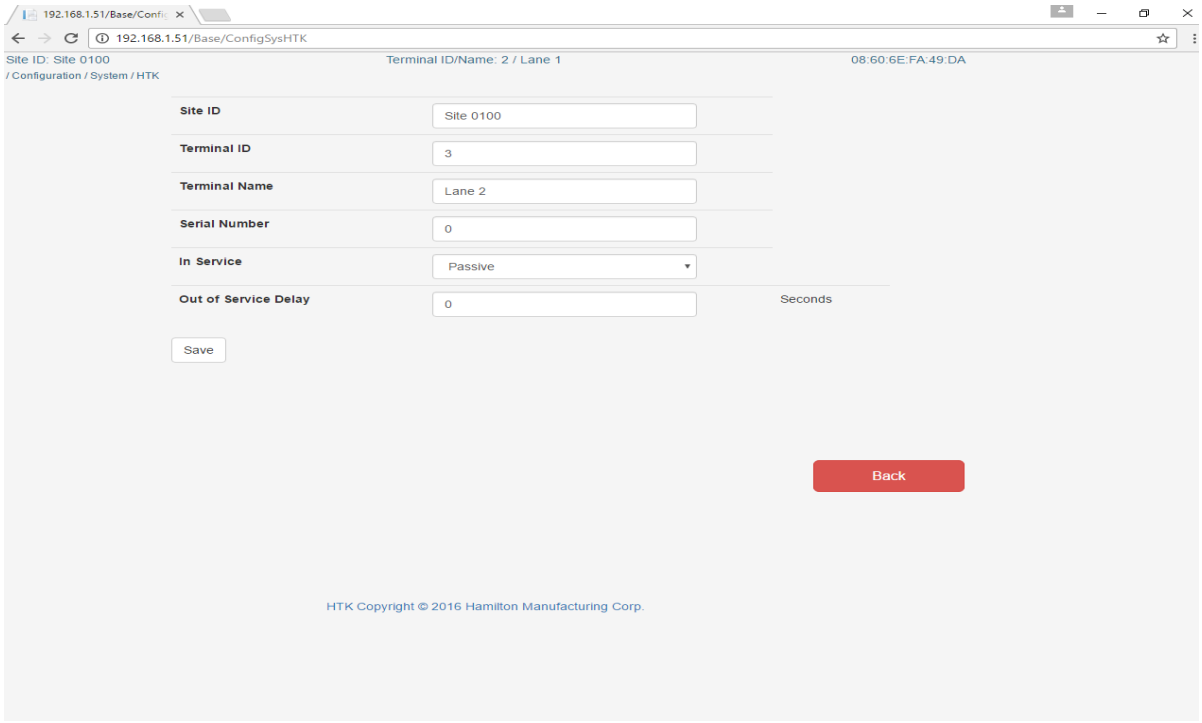


Figure 19-35 – HTK Lane 2 Settings

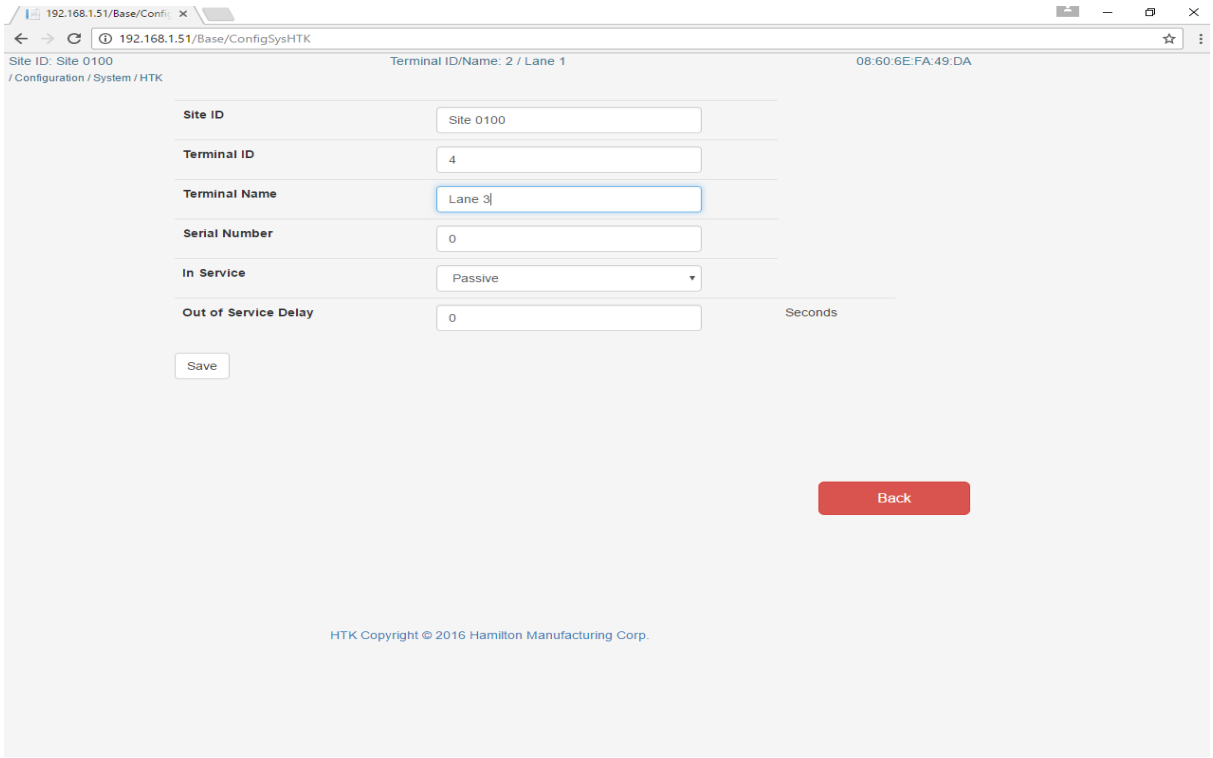


Figure 19-36 - HTK 3 Lane Settings

To enable Barcode

1. To enable printing a barcode on the wash code receipt, from the main menu, press *Configuration.*

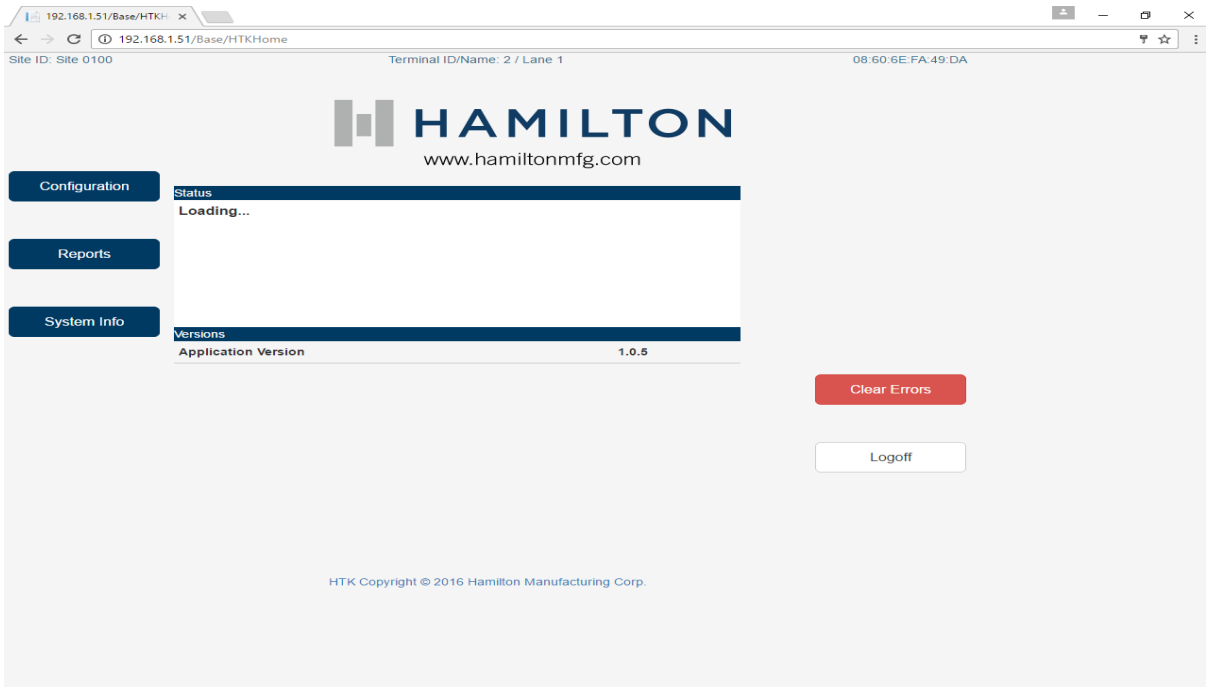


Figure 19-37

2. Press *Application*.

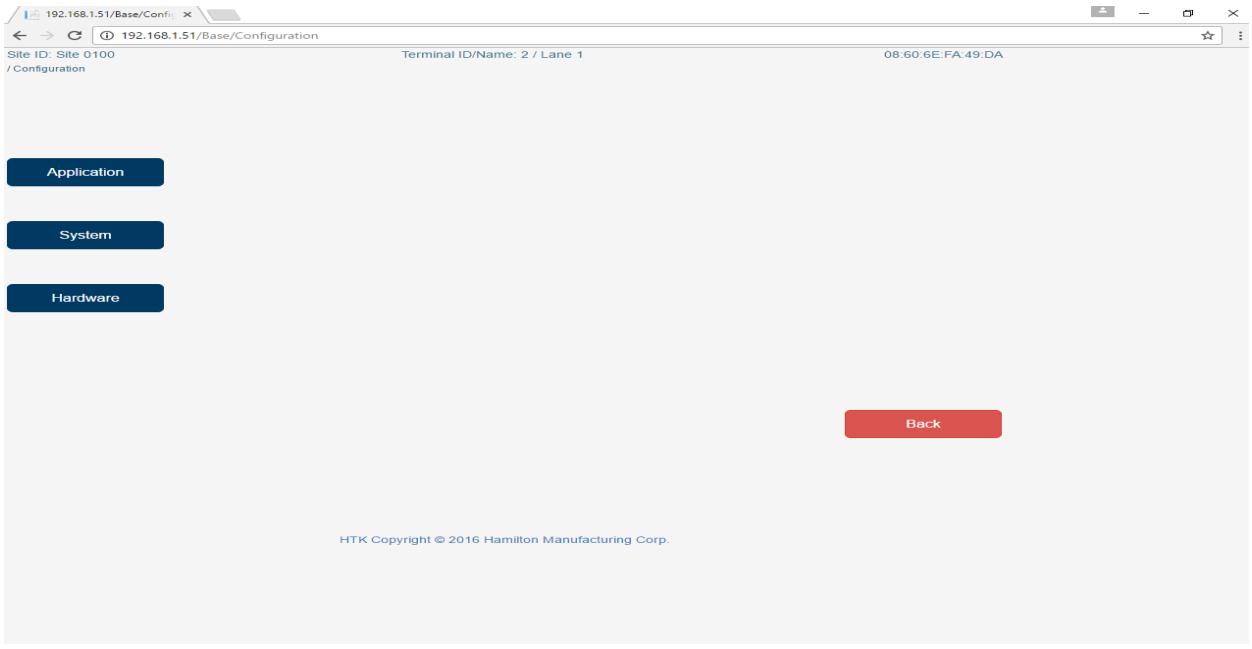


Figure 19-38

3. Press *Next Page* two times to get to the third Application menu.

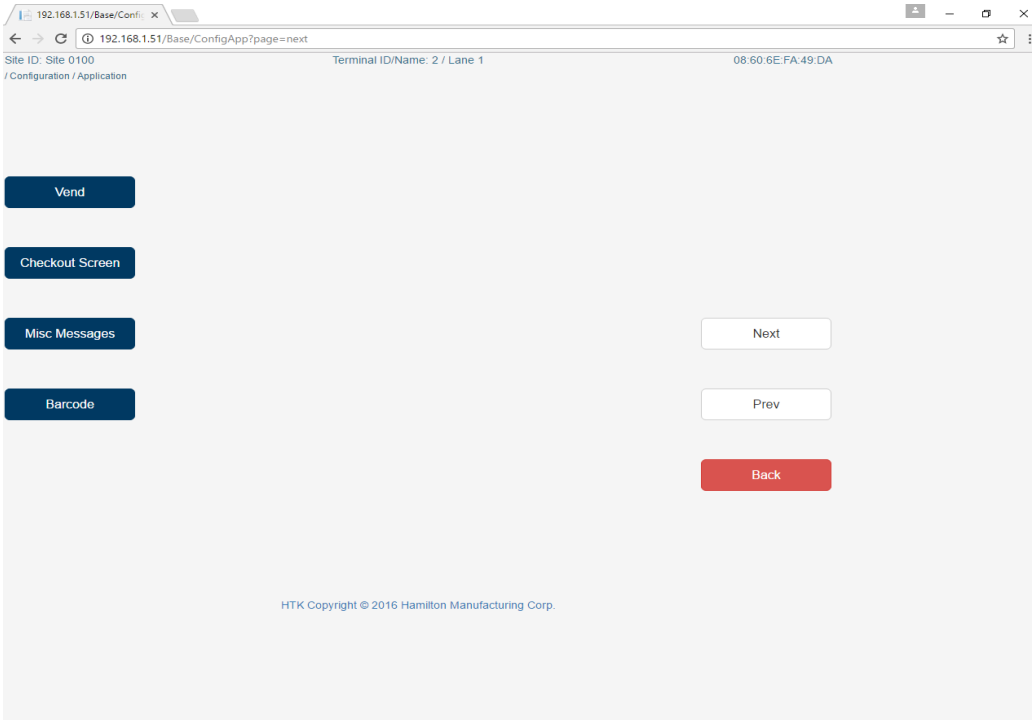


Figure 19-39

4. Press *Barcode*.
5. Enter following settings:

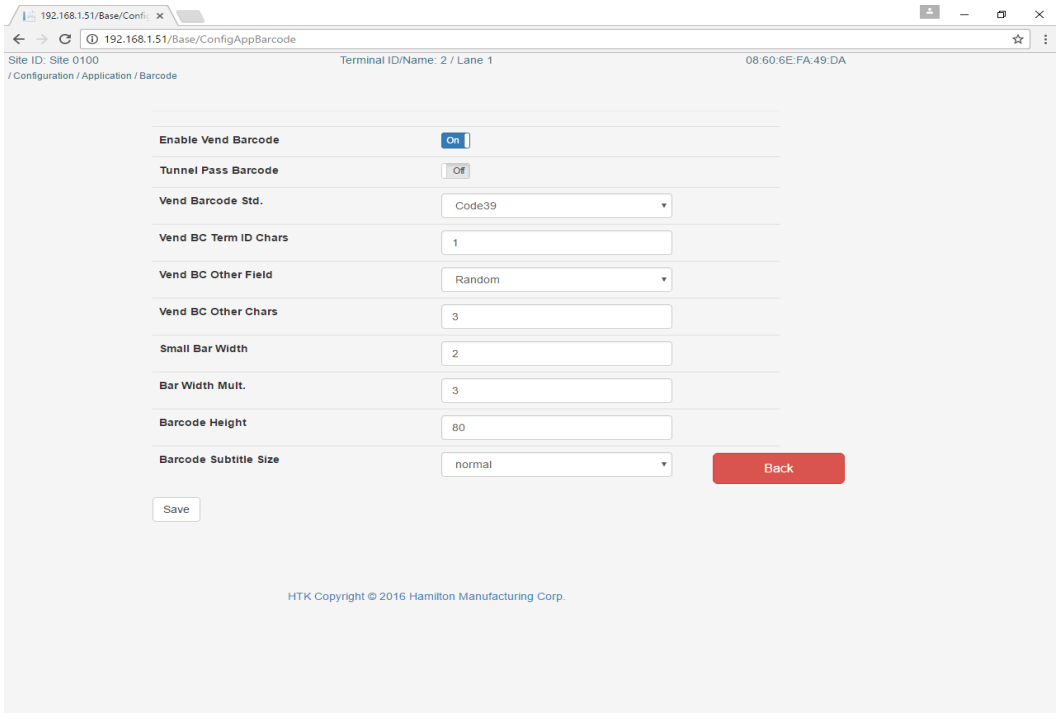


Figure 19-40

6. Click *Save.*

Appendix A

Outputs Worksheet

OUTPUTS WORKSHEET

6/17/2008 **Store # 0001** **Page 1**

OUTPUT ========== BLOCK #1 - BANK #1 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
0	100						
1	101						
2	102						
3	103						

OUTPUT ========== BLOCK #1 - BANK #2 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
4	104						
5	105						
6	106						
7	107						

OUTPUT ========== BLOCK #1 - BANK #3 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
8	108						
9	109						
10	110						
11	111						

OUTPUT ========== BLOCK #1 - BANK #4 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
12	112						
13	113						
14	114						
15	115						

- - - Continued on Next Page - - -

OUTPUTS WORKSHEET

OUTPUT ========== BLOCK #2 - BANK #1 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
16	100						
17	101						
18	102						
19	103						

OUTPUT ========== BLOCK #2 - BANK #2 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
20	104						
21	105						
22	106						
23	107						

OUTPUT ========== BLOCK #2 - BANK #3 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
24	108						
25	109						
26	110						
27	111						

OUTPUT ========== BLOCK #2 - BANK #4 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
28	112						
29	113						
30	114						
31	115						

- - - Continued on Next Page - - -

OUTPUTS WORKSHEET

OUTPUT ========== BLOCK #3 - BANK #1 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
32	100						
33	101						
34	102						
35	103						

OUTPUT ========== BLOCK #3 - BANK #2 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
36	104						
37	105						
38	106						
39	107						

OUTPUT ========== BLOCK #3 - BANK #3 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
40	108						
41	109						
42	110						
43	111						

OUTPUT ========== BLOCK #3 - BANK #4 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
44	112						
45	113						
46	114						
47	115						

- - - Continued on Next Page - - -

OUTPUTS WORKSHEET

OUTPUT ========== BLOCK #4 - BANK #1 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
48	100						
49	101						
50	102						
51	103						

OUTPUT ========== BLOCK #4 - BANK #2 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
52	104						
53	105						
54	106						
55	107						

OUTPUT ========== BLOCK #4 - BANK #3 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
56	108						
57	109						
58	110						
59	111						

OUTPUT ========== BLOCK #4 - BANK #4 ==========

#	Wire	Description	Type	Eye	On	Off	Ahead
60	112						
61	113						
62	114						
63	115						