

NOWTrak® System
IntelliCap™ TagWriter System
Installation and Operation Manual

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1. NOWTrak® System IntelliCap™ TagWriter System Overview

The NOWTrak® System IntelliCap™ TagWriter System has 3 key components: hardware, the IntelliCap Closure, and Software.

- Hardware, consisting of the RFID Reader Circuit Board, cables, and the IntelliCheck™ PCV Wand, provides the physical connection that allows data to be programmed to the IntelliCap Closure.
- The IntelliCap Closure houses the RFID Tag, which is the piece that receives and stores the data.
- NOWTrak TagWriter Software provides the interface that enables the user to program data to the IntelliCap Closure.

This System can be tailored by the user, through customization of the software and hardware configurations, to meet the needs of the user's application environment.

1.1. NOWTrak System IntelliCap TagWriter System Components

Hardware

1.1.1. Dedicated Computer

The computer requirements to operate the TagWriter System are listed in Section 2.

The computer requires the installation of a NOWTrak RFID Reader Circuit Board to work with the NOWTrak TagWriter System.

1.1.2. NOWTrak Reader Circuit Board



The NOWTrak Reader Circuit Board is installed on the user's dedicated computer. This Board occupies an open peripheral component (PCI) slot in the PC's central processing unit. It performs the actual writing of the information to the RFID tag located in the IntelliCap Closure.

1.1.3.NOWTrak System IntelliCheck™ PCV Wand



The IntelliCheck PCV Wand is the instrument that reads data from and writes data to the RFID tag. The IntelliCheck PCV Wand includes a NOWTrak RFID Antenna and an LED ring assembly. It is connected to the RFID Reader Circuit Board within the computer.

IntelliCap Closure

1.1.4.NOWTrak System IntelliCap Closure



The IntelliCap Closure is a closure with an RFID tag embedded in it that is used on NOWPak® containers.

Software

1.1.5.NOWTrak TagWriter Software

The NOWTrak TagWriter Software is installed on a user-supplied computer. The Software is utilized to write material information regarding the contents of each NOWPak container.

In this publication and on the software disk supplied, the NOWTrak TagWriter Software may also be referred to as NOWTrakCSP (Chemical Supplier Program).

2. Installation

2.1. Computer Requirements

The NOWTrak TagWriter Software application operates on a user-supplied computer. For the best performance and reliability, the computer hardware should be of recent manufacture and meet the minimum specifications below:

- Processor: Intel® Pentium III, 500Mhz or better
- RAM: 512MB
- Video: SVGA 1024x768
- HDD: 10GB
- CDROM: 8X (For software installation)
- Open PCI Slot: One full-height PCI slot, half length or larger (for RFID Reader Circuit Board)
- O/S: Microsoft® Windows® XP (preferred) or 2000 Professional
- Peripherals: Keyboard, monitor and mouse required for manual operation, recommended for automated operation

2.2. Installation Sequence

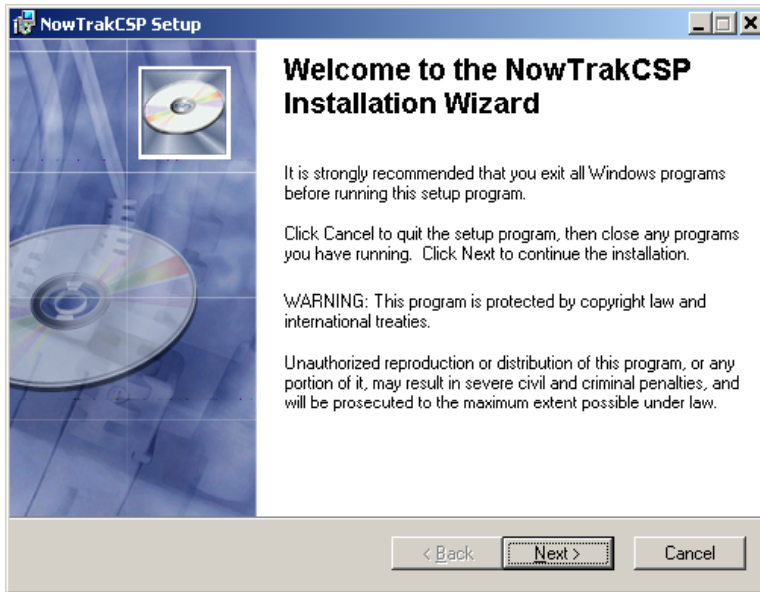
1. Install the NOWTrakCSP software.
2. Install the NOWTrak RFID Reader Circuit Board into the computer.
3. Install the RFID Reader Circuit Board driver.
4. Perform the First Time Software Setup.
5. Connect the IntelliCheck PCV Wand to the NOWTrak RFID Reader Circuit Board.

The software disk contains the drivers for the RFID Reader Circuit Board. These drivers are installed automatically by the Microsoft installer program following the installation of the Board.

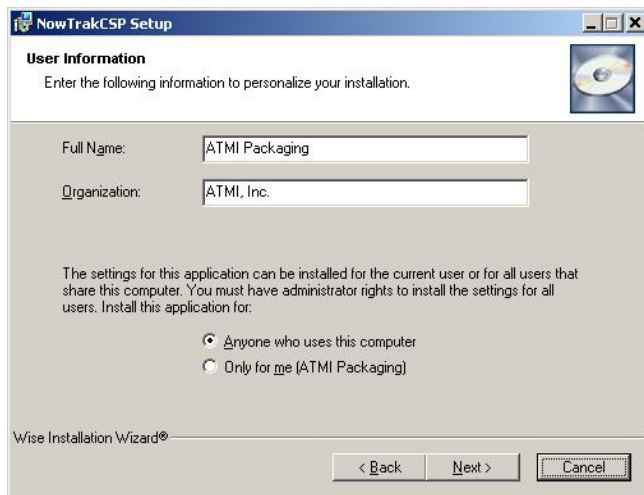
2.3. NOWTrak TagWriter Software Installation

CAUTION: NOWTrakCSP must be installed by a user with computer administrative privileges.

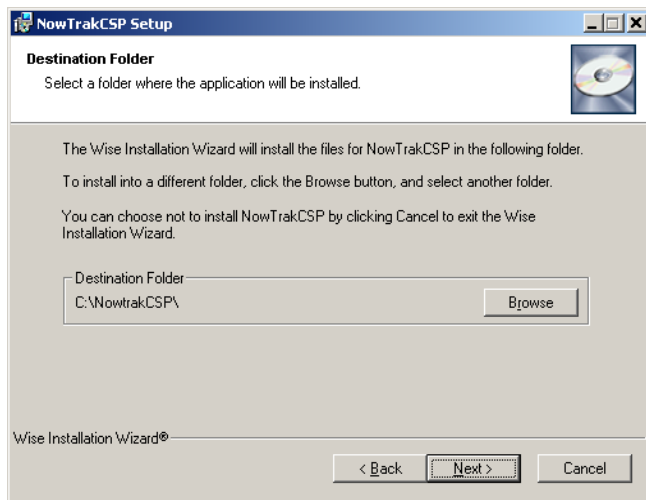
1. Load the NOWTrakCSP CD into the CD-ROM drive.
2. Using Windows Explorer, locate the drive containing the NOWTrakCSP CD.
3. Double-click on the NOWTrakCSP CD to reveal its contents.
4. Double-click on the NOWTrakCSP.msi to be installed. The following graphic will be shown:



5. Click on "Next" to continue.
6. The wizard will now prompt you for User Information.
7. Type in the appropriate name in the space for "Full Name."
8. Type in your organization's name in the space for "Organization."
9. Select "Anyone who uses this computer."

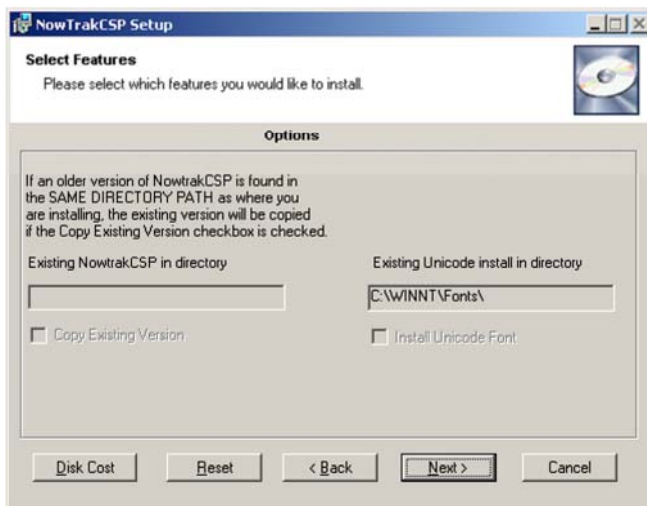


10. Click on "Next" to continue.
11. The wizard will now prompt you to confirm the Destination Folder. The folder "C:\NowtrakCSP\" will be in the "Destination Folder" box. This is the correct folder.



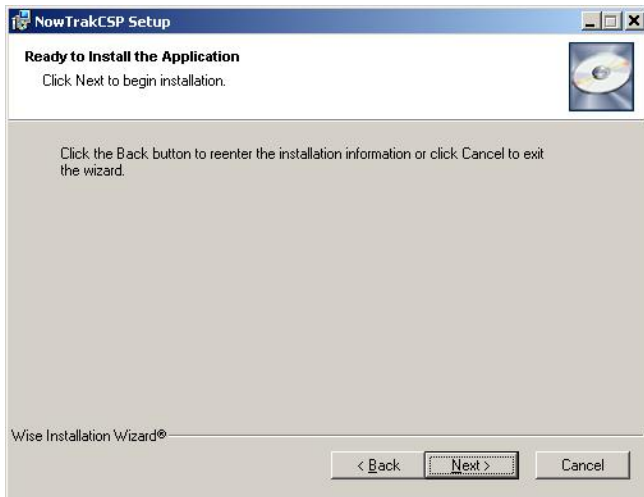
12. Click on “Next” to confirm and continue.

13. The wizard will now display the Unicode install that is in the directory. For ease of use and maintenance, ATMI recommends that you not make any changes in this screen.



14. Click on “Next” to continue.

15. The wizard is now ready to install the application.



16. Click on “Next” to continue.

17. The wizard will now inform you that NOWTrakCSP has been successfully installed.



18. Click on “Finish” to complete the installation and close the wizard.

2.4. NOWTrak RFID Reader Circuit Board Installation

CAUTION: A qualified PC technician should install the NOWTrak RFID Reader Circuit Board. Observe electrostatic discharge (ESD) procedures during Board installation.

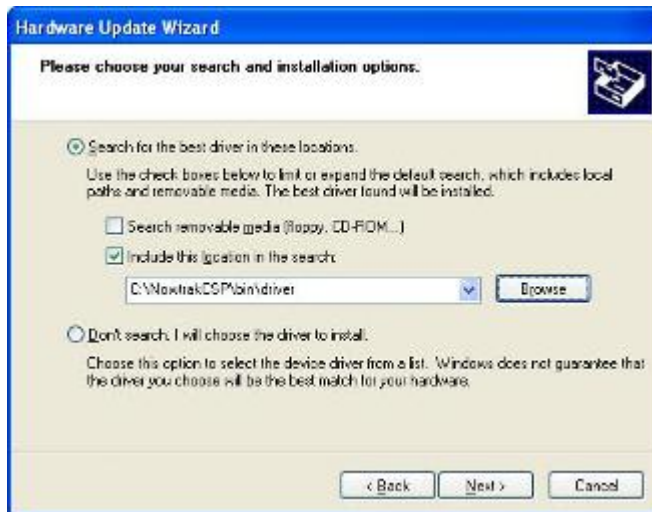
1. Shut down the computer completely.
2. Disconnect the power cord from its electrical outlet.
3. Open the computer case (chassis) to expose an available PCI Slot.
4. Install the NOWTrak RFID Reader Circuit Board.
5. Secure the card using the chassis retaining screw or clamp.
6. Close the chassis.
7. Reconnect the power cord to its electrical outlet.
8. Restart the computer.

2.5. NOWTrak RFID Reader Circuit Board Driver Installation

1. Upon restart, Windows will detect the new board and launch the “Found New Hardware Wizard”(see following graphic).



2. Click on “Next” to continue.
3. The wizard will prompt you regarding the source of the driver. Check “Include this location in the search.”
4. Browse to “C:\NowtrakCSP\bin\driver.”



5. Click on “Next” to continue.
6. The screen will now display “Custom (OEM) IOP480 Board.” Disregard the digital signature warning.



7. Click on “Next” to continue.
8. The wizard will now warn you that the software (driver) you are installing has not passed Windows Logo testing. Disregard this warning.



9. Click on "Continue Anyway."

10. The wizard will now inform you that the installation is completing.



11. Click on "Finish" to complete the installation and close the wizard.

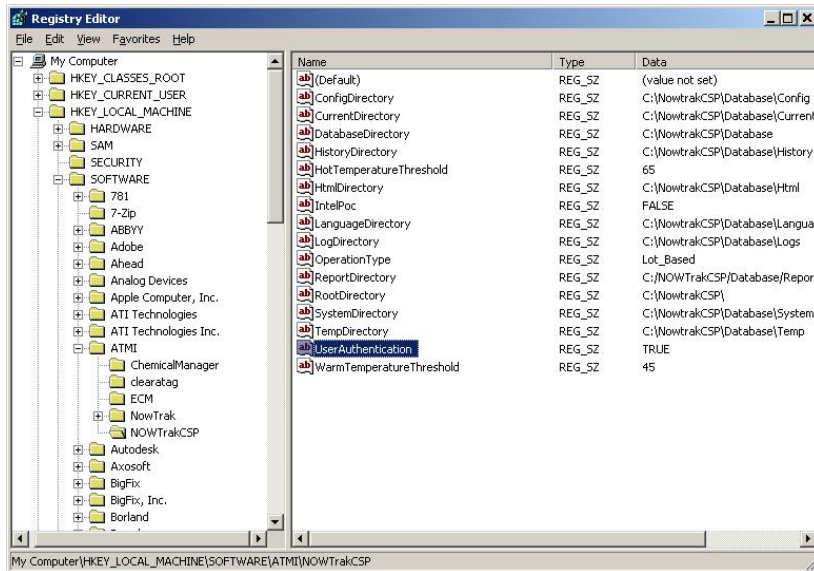
12. The NOWTrak RFID Reader Circuit Board is now operational.

2.6. First Time Software Setup

CAUTION: NOWTrakCSP must be set up by a user with computer administrative privileges.

2.6.1 User Authentication

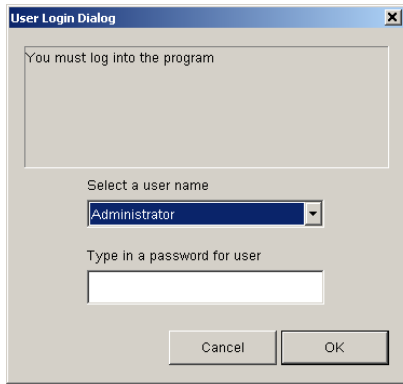
1. Click on “start” on the PC taskbar.
2. Click on “Run” on the User Menu.
3. In the space provided, type “regedit.”
4. Click on “OK” to open the Registry Editor.
5. Depending on which programs are open, click on the plus signs (+) until “NOWTrakCSP” is revealed under ATMI (see graphic below).



6. If “UserAuthentication” does not register “TRUE” in the Data column, double-click on it.
7. Type “TRUE” in the space provided. (This setting is required in manual operation environments.)
8. Click on “OK.”
9. If “UserAuthentication” already registers “TRUE,” no changes are necessary.

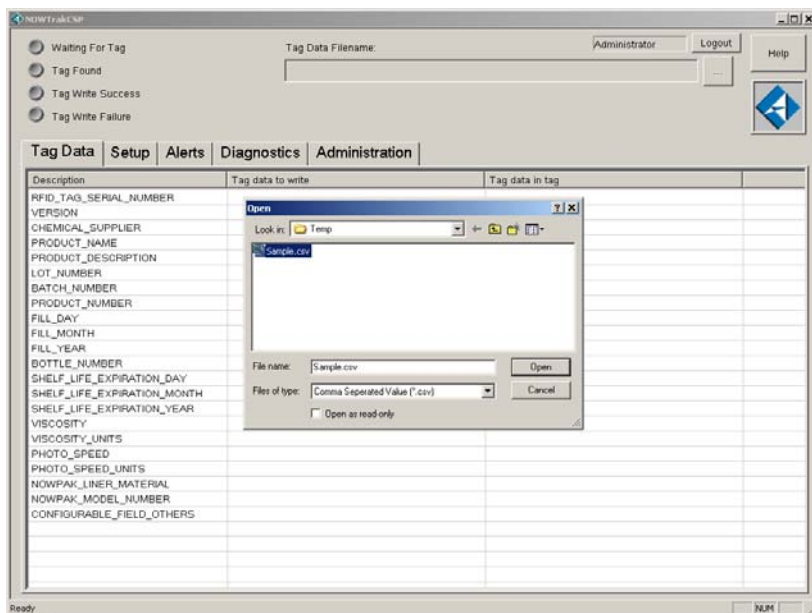
CAUTION: Do not make ANY other changes to the Registry Editor.

10. Close the Registry Editor.
11. Open the NOWTrak TagWriter Software (C:\NOWTrakCSP\bin\NOWTrakCSP.exe).
12. Login by selecting the “Administrator” user name with no password.



13. Click on “OK.”

14. Following Log-in, the graphic below (which is the opening screen of the software) will appear.

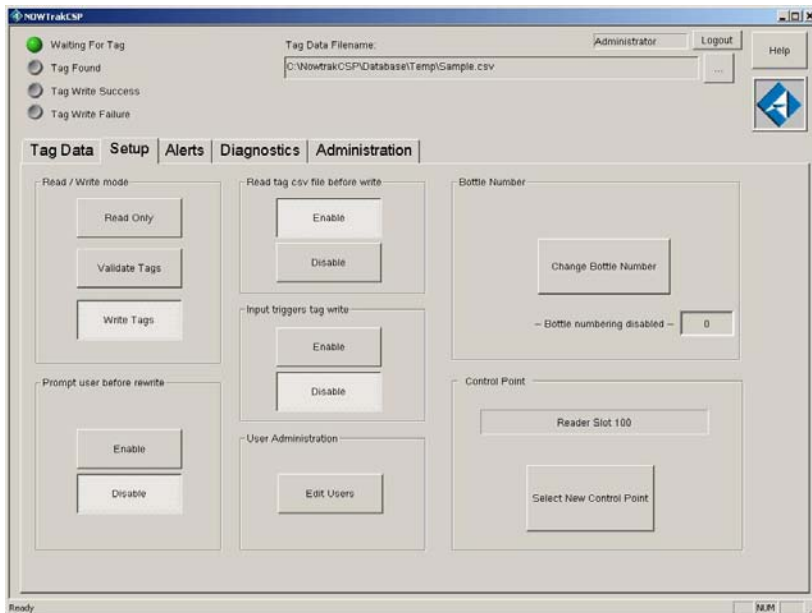


2.6.2 Setting up the NOWTrack csv software

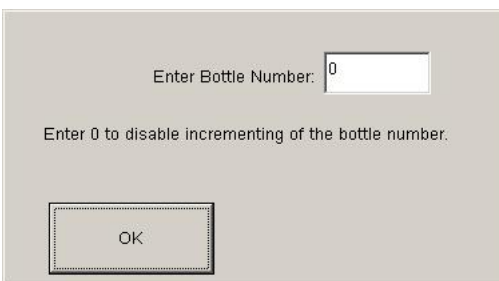
1. When prompted by the “Open” box, click on the “C:\NOWTrakcsv\Database\temp” file.
2. Click on “Open.”
3. The “Open” box will go away, leaving the NOWTrackCSP box on your desktop.

Note: See the Appendix for more detailed functional descriptions of all of the tabs on the NOWTrakCSP program.

4. Click on the “Setup” tab.
5. The following graphic will appear.



6. Set "Read/Write mode" to "Write Tags."
7. Set "Read tag csv file before write" to "Disable."
8. Set "Prompt user before rewrite" to "Disable."
9. Set "Input trigger tag write" to "Disable."
10. Click on "Change Bottle Number."
11. Enter "0" in the "Enter Bottle Number" space. This disables incremental bottle numbering.



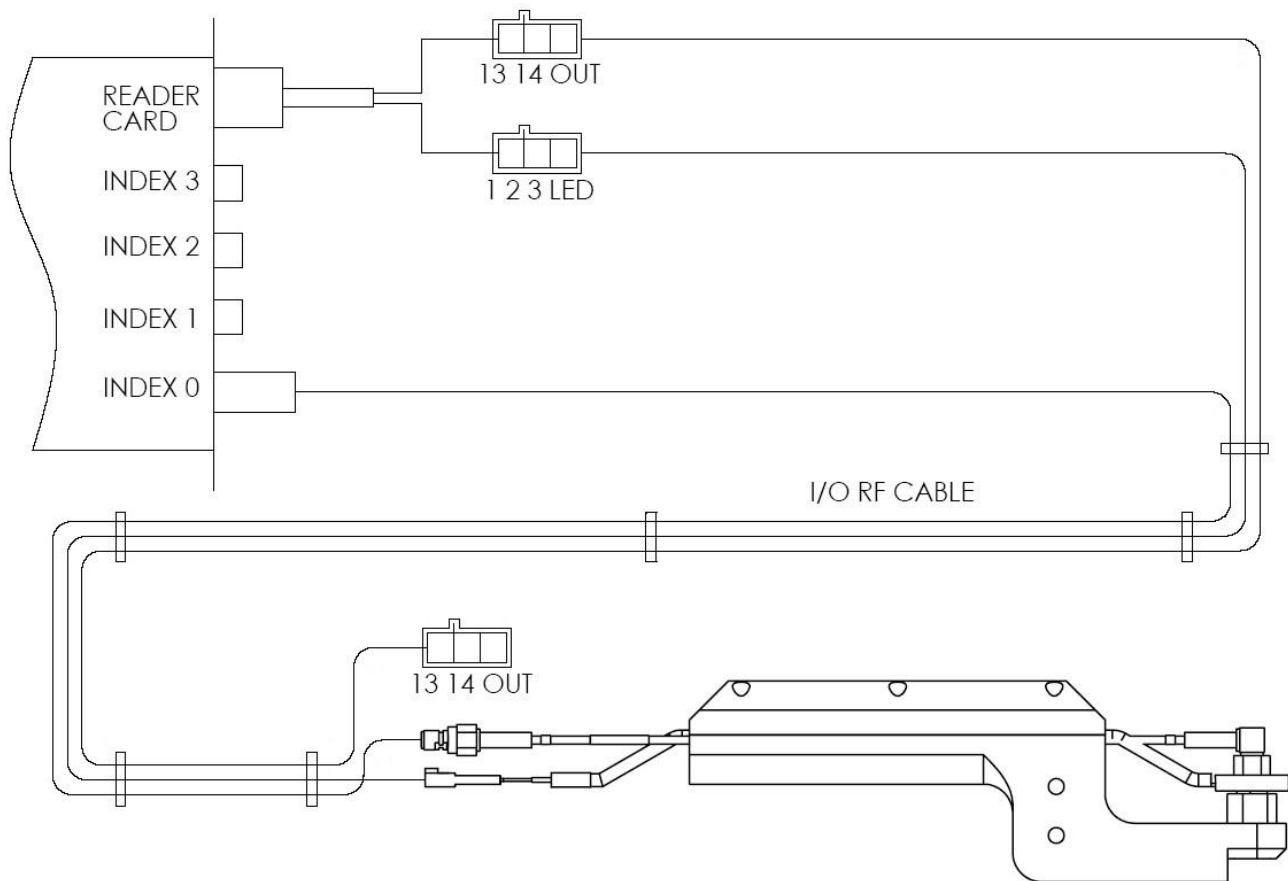
12. Click on "OK."
13. Confirm that "Control Point" displays the slot number in which the NOWTrak RFID Reader Circuit Board is installed.
14. If no slot number is displayed, verify that the Board was installed correctly (see Section 2.4).

First Time Software Setup is now complete. See Section 3 for information on customizing NOWTrakCSP to your specific application. (This must take place following the connection of the IntelliCheck PCV Wand, but prior to actual operation of the NOWTrak TagWriter System.)

Note: Settings only need to be defined once. These initial settings will automatically be saved and remain the same each time NOWTrakCSP is opened.

2.7. IntelliCheck PCV Wand Connection to the NOWTrak RFID Reader Circuit Board

1. Connect the RFID and RF cables as shown in the following diagram.
2. Tighten the retaining screws on the RFID Reader Circuit Board cable (60-pin connector).



Note: The Reader Card (RFID Reader Circuit Board) is not actually labeled as indicated in this graphic. The index numbers are there for illustration purposes only.

3. Customizing NOWTrak TagWriter Applications

This section provides instructions on creating and editing users and creating templates in NOWTrakCSP that are specific to the installation environment.

The creation of users and templates addressed in this section must be completed in order for the NOWTrak System IntelliCap TagWriter System to be fully functional.

3.1. Creating/Editing Users

In order to move beyond First Time Software Setup to actual use of the NOWTrak TagWriter System, you must create users in the System.

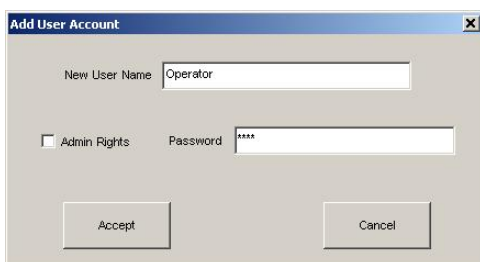
Once created, users may be edited easily.

3.1.1. Creating Users

1. Open NOWTrakCSP.
2. Select the "Setup" tab.
3. Under "User Administration," click on "Edit Users."



4. When prompted, select "Create User Account."



5. Type in the name of the user and set a password for that user.
6. Check the “Admin Rights” box if this user has administrative rights.

Note: Administrative rights are required for the user to make configuration changes in the “Setup” tab.

7. Click on “Accept.”
8. Click on “OK.”
9. You will now return to the “Setup” tab.

3.1.2. Editing Users

1. Open NOWTrakCSP.
2. Select the “Setup” tab.
3. Under “User Administration,” click on “Edit Users.”



4. When prompted, click on “Edit User Account.”



5. Select the user that is to be edited from the pull down menu.
6. Change the password to the new password for the user.
7. Click on “Accept.”
8. Click on “OK.”
9. You will now return to the “Setup” tab.

3.2. Creating Templates in the NOWTrak TagWriter Software

The NOWTrak TagWriter Software uses templates in the form of text information contained in a comma separated value (csv) formatted file. The templates are used to enter the data that will be written to the RFID tag in the IntelliCap Closure.

3.2.1. Creating a new template

1. Browse NOWTrakCSP to locate the sample template file named "Sample.csv."
2. Right-click on the file name.
3. Scroll down to "Open with" and select "NotePad."
4. Fill in the necessary attributes (see the following lists and details).
5. Delete any unused attribute names or extra lines.
6. Click on "Save As" to save the file.
7. Type in a new file name in the space provided.
8. Select "NOWTrakCSP.csv" as the file type.
9. Click on "Save."

Note: If an attribute name in the csv file does not match any of the defined lists of names, the line in the csv file containing that name will be ignored by NOWTrakCSP.

WARNING: When a template file is loaded into NOWTrakCSP, it is checked for formatting errors that might prevent the correct functioning of the system. The user will be prompted to correct any errors. Typographical errors will not be detected, so exercise caution in entering attributes.

3.2.2. Editing an existing template

1. Browse NOWTrakCSP to locate the template csv file that requires editing.
2. Right-click on the file name.
3. Scroll down to "Open with" and select "NotePad."
4. Change the required attributes.
5. Re-save the file in NOWTrakCSP (not in NotePad).

3.2.3 List of displayed attributes found in the template (csv file) file

- CHEMICAL_SUPPLIER
- PRODUCT_NAME
- PRODUCT_DESCRIPTION
- PRODUCT_NUMBER
- LOT_NUMBER
- BATCH_NUMBER
- FILL_DAY
- FILL_MONTH
- FILL_YEAR
- SHELF_LIFE_EXPIRATION_DAY
- SHELF_LIFE_EXPIRATION_MONTH
- SHELF_LIFE_EXPIRATION_YEAR
- VISCOSITY
- VISCOSITY_UNITS
- PHOTO_SPEED
- PHOTO_SPEED_UNITS
- NOWPAK_LINER_MATERIAL
- NOWPAK_MODEL_NUMBER
- CONFIGURABLE_FIELD_OTHERS

3.2.4. List of other displayed attributes found in the TagWriter Software

- RFID_TAG_SERIAL_NUMBER
- BOTTLE_NUMBER

Note: These fields are automatically completed by the software program.

3.3. Attribute-Specific Instructions

3.3.1. Product identification attributes

Below are the maximum character field lengths for the product identification attributes.

1. The CHEMICAL_SUPPLIER field is 20 characters long.
2. The PRODUCT_NAME field is 20 characters long.
3. The PRODUCT_DESCRIPTION field is 40 characters long.
4. The PRODUCT_NUMBER field is 16 characters long.

WARNING: NOWTrakCSP is case sensitive. As a result, small changes in ANY field can have an adverse effect on system operation and may cause failure of the system at the end user. For example, “ABC Chemicals” and “abc Chemicals” are interpreted as two different names by NOWTrakCSP.

3.3.2. Lot and batch number attributes

Below are the maximum character field lengths for the lot and batch number attributes.

1. The LOT_NUMBER field is 16 characters long.
2. The BATCH_NUMBER field is 16 characters long.

The LOT_NUMBER field is used as an index in the program for tracking bottles in inventory. This program is typically managed by the position of “Chemical Manager” or a similar title.

Note: ATMI strongly recommends that the chemical supplier write a value in the LOT_NUMBER field.

- If there is no value in the LOT_NUMBER field, but there is a value in the BATCH_NUMBER field, the program will automatically copy the BATCH_NUMBER field value into the LOT_NUMBER field.
- The original data will be retained in the BATCH_NUMBER field, but it will also now be used in the LOT_NUMBER field for indexing/tracking purposes.

3.3.3. Fill date attributes

The parameters for entering fill date values into the template file are listed below.

1. The FILL_DAY field is 2 characters long; example: 04.
2. The FILL_MONTH field is also 2 characters long; example: 11.
3. The FILL_YEAR field is 4 characters long; example: 2007.

3.3.4. Shelf life expiration attributes

The parameters for entering expiration date values into the template file are listed below.

1. The SHELF_LIFE_EXPIRATION_DAY field is 2 characters long; example: 04.
2. The SHELF_LIFE_EXPIRATION_MONTH field is also 2 characters long; example: 11.
3. The SHELF_LIFE_EXPIRATION_YEAR field is 4 characters long; example: 2007.

Note: If the shelf life attribute fields are blank, the program will automatically enter the expiration date as 1 year from the date the tag is written.

Note: If the SHELF_LIFE_EXPIRATION_MONTH and SHELF_LIFE_EXPIRATION_YEAR are defined but the SHELF_LIFE_EXPIRATION_DAY is blank, the last day of the expiring month will be forced into the SHELF_LIFE_EXPIRATION_DAY field.

3.3.5. Reserved attributes

The following fields are reserved (read only) and will be ignored when reading the csv file.

1. The RFID_TAG_SERIAL_NUMBER is the unique ID of the RFID tag.
2. The RFID_TAG_SERIAL_RESERVED is the unique ID of the RFID tag.
3. The VERSION is written by ATMI.

3.3.6. Automatic attribute

This is the field labeled BOTTLE_NUMBER.

The following conditions apply to this field.

1. If the bottle number in the “Setup” tab is set to zero (0), this field is ignored.
2. If the bottle number in the “Setup” tab is set to a whole number value higher than zero (0), that number will be written to the first cap processed and then increased by one for writing onto each successive cap. This is referred to as “enabling incrementing of the bottle number.”
3. If the BOTTLE_NUMBER attribute name and value are specified in the template file, the specified number will be written to the RFID tag. This is typically used in a semiautomatic- operation environment and will not be covered in detail in this document.

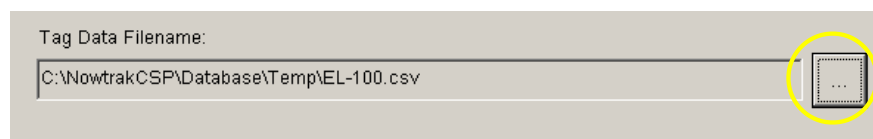
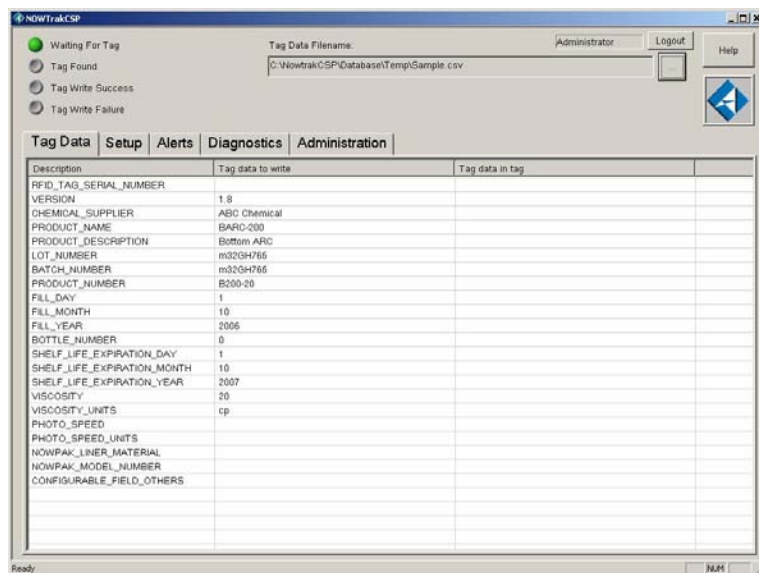
Note: With the exceptions of “reserved” and “automatic” attributes, if fields for the attributes listed are left blank or formatted incorrectly, or if they contain too many characters, an error message will occur. The user will be prompted to make corrections.

4. Operation

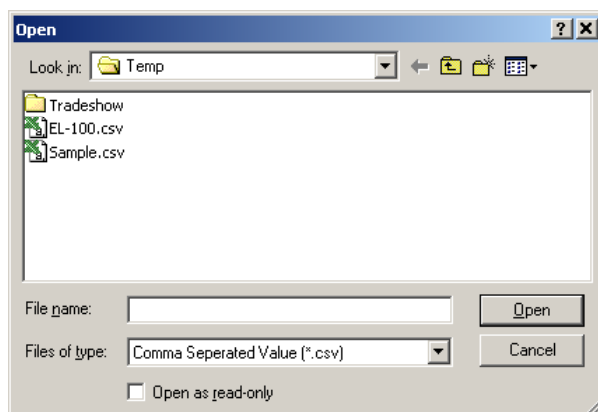
4.1. Tag Writing Mode

Utilize the Tag Writing Mode when transferring information from the template file to the RFID tag located in the IntelliCap Closure.

1. Open NOWTrakCSP.
2. Select the “Tag Data” tab (default).



3. Click on the [...] button to open the chemical data csv file list. This button is in the upper, right-hand area of the Tag Data tab.



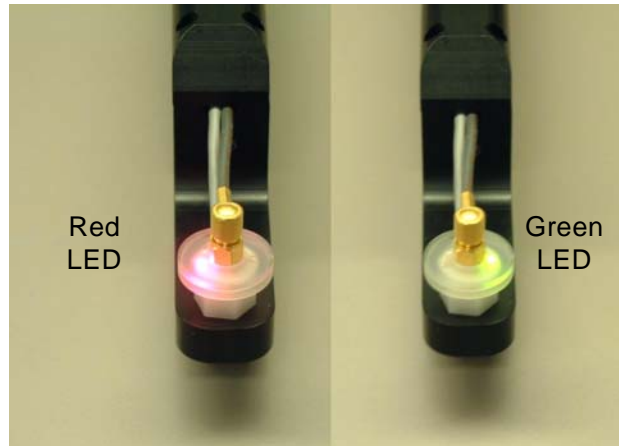
4. Select the desired chemical data csv file.
5. Click on "Open."
6. Once the file is open, select the "Setup" tab.
7. Click on "Change Bottle Number" in the "Bottle Number" box.
8. Enter the number 1 (one) in the space provided to enable incremental bottle numbering.
9. Return to the "Tag Data" tab.
10. Place the bottom of the IntelliCheck PCV Wand over the target on the IntelliCap Closure (sometimes referred to as the "RFID tag").

- The target may be black or white.
- The Wand must be centered over the target with a gap of 2mm or less.

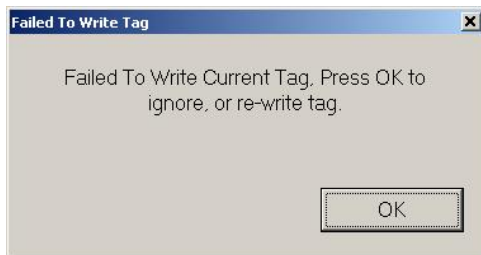
Note: If the gap between the Wand and the target is greater than 2mm, the operation will fail.



11. The Information contained in the “Tag data to write” column of the Tag Data tab will now be automatically transferred to the RFID tag located under the IntelliCap Closure target.
12. Verify that the IntelliCheck PCV Wand is functioning properly by observing the LEDs located in the white ring on the front of the Wand.

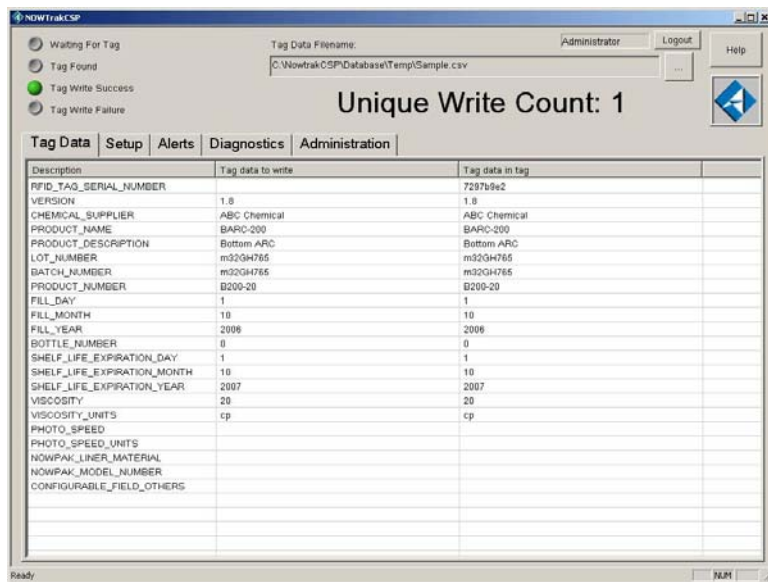


- The **blinking green** LED indicates a tag has been detected.
- The **steady green** LED indicates the tag writing was successful.
- The **blinking red** LED indicates a bad (non-writeable) RFID tag. (Retain cap for failure analysis.)
- The **steady red** LED indicates a write failure. An error message will be displayed on the screen.



13. If this error message is received, try repositioning the Wand to write again.
14. If this attempt is successful, the error message will clear automatically.
15. If you wish to ignore the error message, click on “OK.”
16. Verify that the tag data has been successfully transferred to the IntelliCap RFID tag.

- The information written to the RFID tag will automatically appear in the “Tag data in tag” column.
- On a successful write, the “Tag data to write” and the “Tag data in tag” will match (see below).
- The “Tag data in tag” information will **only** be displayed while the Wand is in place over the target.



4.2. Read-only Mode

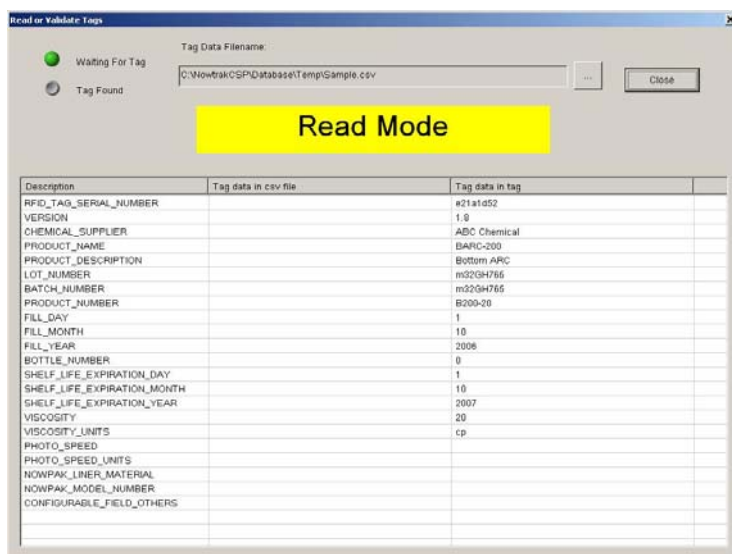
The Read-only mode displays the IntelliCap Closure data on the computer screen. This mode will not write data to the IntelliCap Closure.

4.2.1. Setup

1. Open NOWTrakCSP.
2. Select the "Tag Data" tab (default).
3. Click on the [...] button to open the chemical data csv file list. This button is in the upper, right-hand area of the Tag Data tab.
4. Select the desired chemical data csv file.
5. Click on "Open."

Note: Even if you will not be writing to the tags, you must complete these steps. See 4.1, steps 1–5 for the applicable graphics.

6. Once the file is open, select the "Setup" tab.
7. Select "Read Only" in the "Read/Write mode" box.
8. The window below will pop up, showing that you are in Read-only Mode.



Note: While setting up Read-only Mode, both the **red** and the **green** LEDs on the Wand will **flash**. This is not an error, but an indication that the system is in Read-only Mode.

4.2.2. Operation

1. Place the IntelliCheck PCV Wand over the target on the RFID tag as if writing.
 2. Observe the tag data that is displayed on the “Read Mode” screen. (No data will be written.)
- At this point during read-only operation, the **green** LED will remain **steady**, and the **red** LED will **quit flashing**.

4.3. Validate Mode

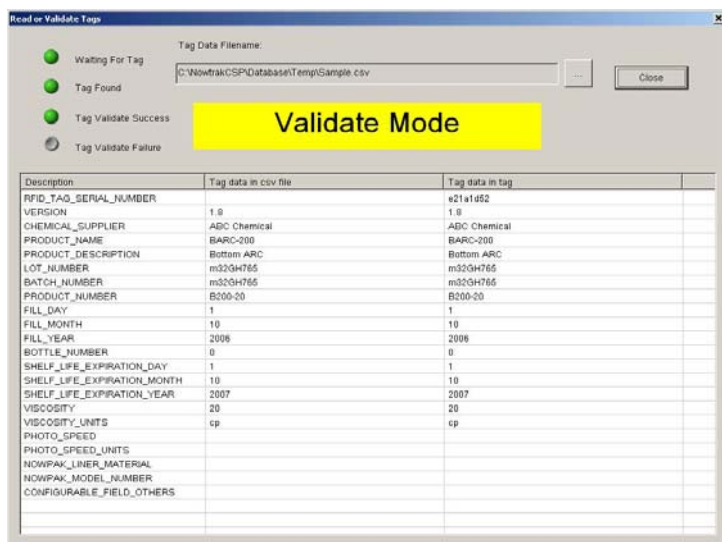
The Validate Mode compares the Template file to the data in the IntelliCap closure, and then displays any variances in data attributes on the computer screen.

4.3.1. Setup

1. Open NOWTrakCSP.
2. Select the “Tag Data” tab (default).
3. Click on the [...] button to open the chemical data csv file list. This button is in the upper, right-hand area of the Tag Data tab.
4. Select the desired chemical data csv file.
5. Click on “Open.”

Note: Even if you will not be writing to the tags, you must complete these steps. See 4.1, steps 1–5 for the applicable graphics.

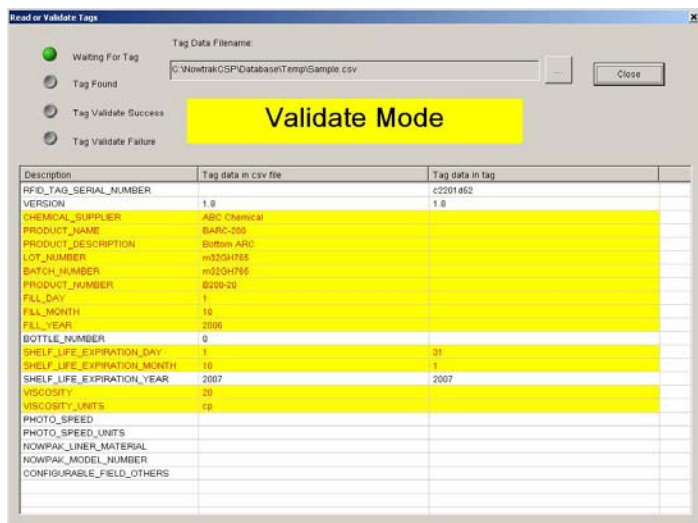
6. Once the file is open, select the “Setup” tab.
7. Select “Validate Tags” in the “Read/Write mode” box.
8. The window below will pop up, showing that you are in Validate Mode.



- Again, the **green** and **red** LEDs will **flash**, indicating that you are in Validate Mode.

4.3.2. Operation

1. Place the IntelliCheck PCV Wand over the target on the RFID tag as if writing.
 2. Observe the tag data that is displayed on the “Validate Mode” screen.
- If the tag data matches the csv file, the **green** LED will light.
 - If the tag data does NOT match the csv file, the **red** LED will light, and the screen will show failing attributes in yellow (see following graphic).



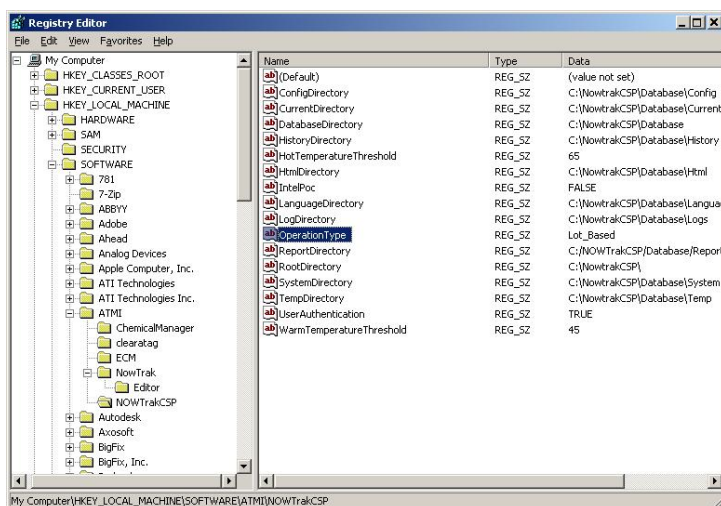
4.4. Lot_Based Mode

The Lot_based mode tracks users and provides summary reports at the end of a lot.

4.4.1. Setup

Note: Setting up Lot-based Mode should only be done by a qualified technician, as it involves working in the Registry Editor.

1. Click on “start” on the PC taskbar.
2. Click on “Run” on the User Menu.
3. In the space provided, type “regedit.”
4. Click on “OK” to open the Registry Editor.
5. Depending on which programs are open, click on the plus signs (+) until “NOWTrakCSP” is revealed under ATMI (see graphic below).



6. If “Operation Type” does not register “Lot_Based” in the Data column, double-click on it.
7. Type “Lot_Based” in the space provided.
8. Click on “OK.”
9. If “Operation Type” already registers “Lot_Based,” no changes are necessary.

CAUTION: Do not make ANY other changes to the Registry Editor.

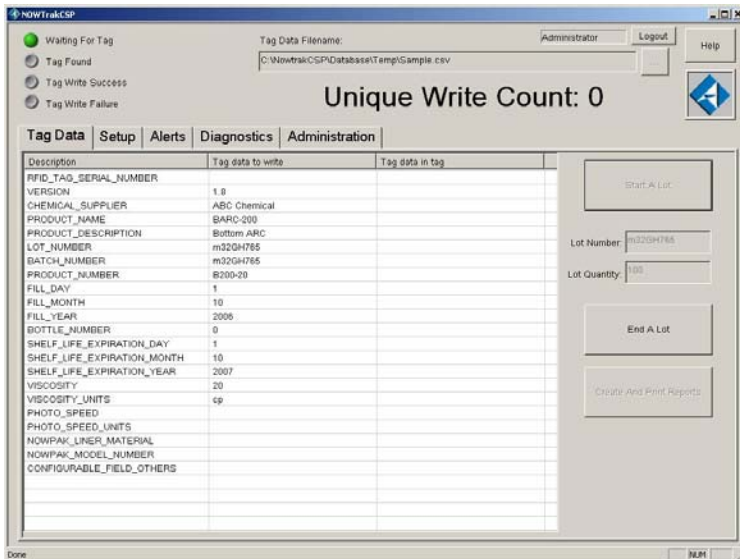
10. Close the Registry Editor.
11. Open NOWTrakCSP.
12. Select the “Tag Data” tab (default).
13. Click on the [...] button to open the chemical data csv file list. This button is in the upper, right-hand area of the Tag Data tab.
14. Select the desired chemical data csv file.
15. Click on “Open.”
16. Once the file is open, select the “Setup” tab.

17. Select “Write Tags” in the “Read/Write mode” box.
18. Return to the “Tag Data” tab.

4.4.2. Operation

1. Place the IntelliCheck PCV Wand over the target on the IntelliCap Closure.
2. Note the RFID tag data, which will be displayed in the “Tag Data” box (see graphic below).

- If the tag is written successfully, the **green** LED will light.
 - If the tag is not written successfully the **red** LED will light.
 - The Lot Number displayed in the “Tag Data” box will default to the Lot Number in the csv file.
3. Enter the quantity of caps to be written in the “Lot Quantity” field.
 4. Press the “Start A Lot” button to begin writing a new lot.
- The screen will now look like the image below.
 - A “Unique Write Count” will begin to count the quantity of unique serial-number caps written for the current lot.



5. Write all of the caps for the lot.
6. Press the “End A Lot” button when all caps have been written.
7. You will be asked if you want to end this lot.



8. Click on “Yes.”

Note: If the quantity written does not equal the quantity originally entered in Step 3 (above), an error message will be displayed

4.4.3. Creating and Printing Reports

Note: This function is only available if “Lot_Based” is indicated for “Operation Type” in the Registry Editor. (See Section 4.4.1.)

1. When the lot has ended, press the “Create And Print Reports” button on the “Tag Data” tab.
2. You will see a “Lot Summary” displayed (see graphic below).

Create and Print Reports

Unique ID Lot Quantity: 100
 Total Tag Writes:
 Lot Number: m32GH765
 Date & Time: 10:52AM 21/May/2007

Lot Summary

Attribute Name	Attribute Value
VERSION	1.8
CHEMICAL_SUPPLIER	ABC Chemical
PRODUCT_NAME	BARC-200
PRODUCT_DESCRIPTION	Bottom ARC
LOT_NUMBER	m32GH765
BATCH_NUMBER	m32GH765
PRODUCT_NUMBER	B200-20
FILL_DAY	1
FILL_MONTH	10
FILL_YEAR	2006

Print Done

3. If you wish to print the Summary, press the "Print" button.
 4. If you do not wish to print the Summary, press the "Done" button.
- All reports will be stored automatically at C:\NowtrakCSP\Database\Reports.
 - The file name will be the Lot Number, followed by the time and date of the run, with the extension ".html" **Example: m32GH765-1222PM21May2007.html**
 - These files are accessible at any time via Windows Explorer. Even if you do not print a report at the end of a run, it remains stored in the database for review or printing at a later date.

5. Troubleshooting and Repair

5.1. Computer Issues

5.1.1. RFID Reader Circuit Board Failure

The RFID Reader Circuit Board uses internal software to make it function. If the Board hangs (locks up), this internal software is the most likely cause. A hang occurs when the system operates normally for a while then stops recognizing tags and/or will not respond to diagnostic commands.

There are several steps that can be taken to restore normal operation.

1. The first step is to reboot the computer system. This will reset the Board and its software.
2. If the problem continues, reload the IOP480 driver from the NOWTrakCSP CD. (See Section 2.5.)
3. If the problem is still present, reload the NOWTrakCSP Software. (See Section 2.3.)
4. If these approaches do not fix the problem, you may need to replace the RFID Reader Circuit Board. (See instructions below.)
5. Contact ATMI for a replacement unit if no spare is on hand.

5.1.2. Replacing a NOWTrak RFID Reader Circuit Board

CAUTION: A qualified PC technician should replace the NOWTrak RFID Reader Circuit Board. Observe electrostatic discharge (ESD) procedures during Board replacement.

1. Shut down the computer completely.
2. Disconnect the power cord from its electrical outlet.
3. Ensure that the cables attached to the Board are labeled (for ease of re-connection).
4. Disconnect the cables from the Board.
5. Open the computer case (chassis) to expose the RFID Reader Circuit Board.
6. Remove the retaining screw holding the Board in the computer.
7. Remove the defective Board.
8. Install the replacement Board.
9. Secure the Board by replacing the chassis retaining screw.
10. Close the chassis.
11. Reconnect the cables to the computer.
12. Reconnect the power cord to its electrical outlet.
13. Restart the computer.

5.1.3. Computer Hardware

- Consult the computer manufacturer's documentation for troubleshooting and repair guidance if the dedicated computer malfunctions.
- If the computer running NOWTrakCSP is equipped with a RAID (Redundant Array of Inexpensive Disks) hard drive, consult the RAID Controller documentation for diagnostic and recovery options.

5.2. NOWTrak System Hardware and Cable Issues

5.2.1. NOWTrak System IntelliCap Closure Failure

If an IntelliCap Closure cannot be read from or written to, it may have a faulty RFID tag.

1. Place another IntelliCap Closure under the IntelliCheck Wand.
2. If the system reads from or writes to the new tag, then the original IntelliCap Closure is faulty.
3. Set aside the faulty IntelliCap Closure and return to ATMI for analysis.
4. Replace the faulty IntelliCap Closure on the container.

5.2.2. NOWTrak System IntelliCheck PCV Wand Failure

The IntelliCheck Wand has three components: the Antenna, the LED ring, and the RFID and RF cable assemblies. If you suspect a malfunction in any of these parts, troubleshoot using the following instructions.

Antenna Failure

The possible sources of an apparent Antenna failure are the RFID tag in the IntelliCap Closure, the RF cable, the Antenna itself, and the RFID Reader Circuit Board.

1. Rule out a faulty RFID tag by placing a known good tag under the Antenna.
2. Swap the RF cable with a known good cable.
3. Swap the Antenna with a known good Antenna.
4. Replace the RFID Reader Circuit Board. (See Section 5.1.1.)

If these approaches do not resolve the problem, more comprehensive troubleshooting than that addressed in this document may be necessary. Contact ATMI Technical Support for recommendations.

LED Failure

NOWTrakCSP has a diagnostics function that provides quick confirmation of an LED failure.

1. Open NOWTrakCSP.
2. Click on the “Diagnostics” tab.
3. Check the “Outputs” box to validate the LED output signal.
4. If “Diagnostics” indicate that an LED is not working, see Cable Failure (below) for further instructions.

Cable Failure

A cable problem can be symptomatic of several possible points of failure: the I/O device, the RF cable, the RFID Reader Circuit Board Cable, and the RFID Reader Circuit Board.

1. Open NOWTrackCSP.
2. Click on the “Diagnostics” tab to verify that the system is working correctly.
3. Start testing at each device to rule out individual cables.
4. If the majority of I/O processes registers normal functioning, troubleshoot the device and the RF cables.
5. If the majority of I/O processes fails, troubleshoot the RFID Reader Circuit Board and the RFID Reader Circuit Board Cable.
6. If a cable problem is still indicated, perform a full continuity check of the suspect cable.
7. If no cable failure is found, replace the RFID Reader Circuit Board. (See Section 5.1.1.)

5.3. NOWTrak TagWriter Software Issues

Maintaining a constant environment is critical to the reliable performance of the software. If the software suddenly begins to malfunction, a change in the environment is usually the cause.

5.3.1. Basic Software Troubleshooting

1. Look for and document all recent changes. These can include changes to databases, hardware, and the network environment. Other possibilities are recent hardware failure, a new release of the software having been installed recently, deletion of files, and the installation of new, unrelated applications on the computer.
2. Make the problem repeatable and predictable. The result of this step is that every time you perform action ‘X,’ the software exhibits behavior ‘Y’.

The information gathered about system changes, when combined with a repeatable problem, will help the software developers solve the problem quickly.

5.3.2. NOWTrakCSP Application Hangs

As with all software applications, there is a small chance that a NOWTrakCSP application will hang. A hang is indicated by the program failing to respond to user input within a reasonable period of time. An application hang requires a program shutdown and restart.

1. To shut down a NOWTrakCSP application, open “Windows Task Manager.” (Right-click on the Task Bar and select “Task Manager,” **or** simultaneously press the “ctrl-alt-delete” buttons.)
2. Click on the “Applications” tab.
3. Select NOWTrak CSP.
4. Click on “End Task.”
5. If the program does not respond, a dialogue box may come up asking you to either cancel or continue attempting to close the program. Click on “End Task” again.
6. Once NOWTrakCSP has shut down successfully, restart the application. (If you have set up a shortcut, you may restart by double clicking on the “NOWTrakCSP” icon on the desktop.)

If the application hangs again, it is probable that there are other problems in the NOWTrakCSP environment.

- Hardware analysis may be necessary.
- Restoration of an earlier version of the database may be required, if the database has changed.

5.3.3. Corrupt Database or csv File

A corrupt database or csv file can cause the abnormal operation of NOWTrakCSP. It may cause the application to hang or crash.

- If NOWTrakCSP applications begin to display abnormal function just following a database modification, the database should be the primary suspect as the cause of the problem.
- If regular backups have been performed, the system can readily be restored to a previous period in time.

Note: ATMI **strongly** recommends performing regular backups to the system.

5.4. NOWTrak System Technical Support

Members of our staff are available to assist you with questions or problems. You can contact ATMI via the following methods:

- Telephone: 952.942.0855
- Fax: 952.942.8474
- Web: www.atmi.com
- email: pkgcustomerservice@atmi.com
- Shipping Address:
10851 Louisiana Avenue South
Minneapolis, MN 55438-2656 USA

Japan:

- Telephone: 03.6826.4812
- Fax: 03.5765.2489
- email: atmi-j-cs@atim.com
- Shipping Address:
3-7-18 Mita, Minato-ku,
Tokyo 108-0073 JAPAN

6. Appendix

6.1. Software Tab Functions

6.1.1. Tag Data Tab

The Tag Data tab shows both the data to be written to the RFID tag and the data that was read from the IntelliCheck PCV Wand after the writing operation.

- Differences that will be visible from one tag write to the next are the RFID_TAG_SERIAL_NUMBER and the BOTTLE_NUMBER.
- All other fields are constant.

The following is an example of the user interface with the Tag Data tab selected and a tag being read:

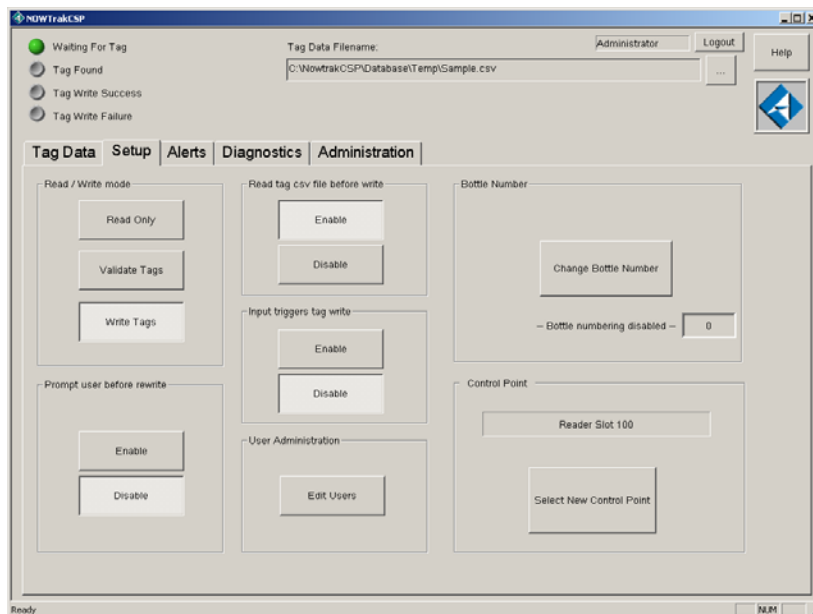
Description	Tag data to write	Tag data in tag
RFID_TAG_SERIAL_NUMBER		943773d1
VERSION	1.8	1.8
CHEMICAL_SUPPLIER	ABC Chemical	ABC Chemical
PRODUCT_NAME	BARC-200	BARC-200
PRODUCT_DESCRIPTION	Bottom ARC	Bottom ARC
LOT_NUMBER	m32QH765	m32QH765
BATCH_NUMBER	m32QH765	m32QH765
PRODUCT_NUMBER	B200-20	B200-20
FILL_DAY	1	1
FILL_MONTH	10	10
FILL_YEAR	2006	2006
BOTTLE_NUMBER	0	0
SHELF_LIFE_EXPIRATION_DAY	1	1
SHELF_LIFE_EXPIRATION_MONTH	10	10
SHELF_LIFE_EXPIRATION_YEAR	2007	2007
VISCOSITY	20	20
VISCOSITY_UNITS	cp	cp
PHOTO_SPEED		
PHOTO_SPEED_UNITS		
NOWPAK_LINER_MATERIAL		
NOWPAK_MODEL_NUMBER		
CONFIGURABLE_FIELD_OTHERS		

6.1.2. Setup Tab

The Setup tab allows the various functions of NOWTrakCSP to be modified.

- When a button in this tab is selected, the new selection is saved to the ConfigDatabases.xml file. This means that NOWTrakCSP will maintain the selected behavior on subsequent runs (unless another change is made).
- The only exception to this is the **Read Only and Validate Tags** button. This selection is not saved.
- This tab also shows the current bottle number to be written.

See the following graphic for possible setting selections in the Setup tab.



Setup tab selections

1. Read / Write mode

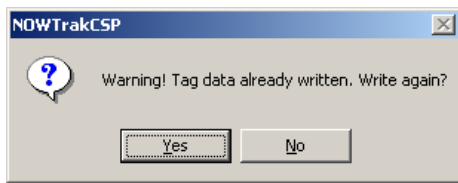
- Used to turn the TagWriter application into a tag *reader* application.
- As stated earlier, this feature resets to *write* tags every time the application is restarted.
- Can also be used to validate RFID tags.

2. Read tag csv file before write

- In manual operations, the correct setting is “Disable.”
- Is typically used with the option “Input triggers tag write,” so that the csv file is updated before the tag writing occurs.
- Set to “Enable” in automated line situations to write unique data to each tag.

3. Prompt user before rewrite

- Allows the user to prevent the accidental rewriting of an RFID tag.
- The system detects this condition by looking at the CHEMICAL_SUPPLIER, PRODUCT_NAME, PRODUCT_DESCRIPTION, and PRODUCT_NUMBER. If any of these fields have data in them, a rewrite condition is detected.
- The user can choose whether to write the tag again when prompted by the graphic below.
- This setting is not valid on the “Lot_Based” mode.



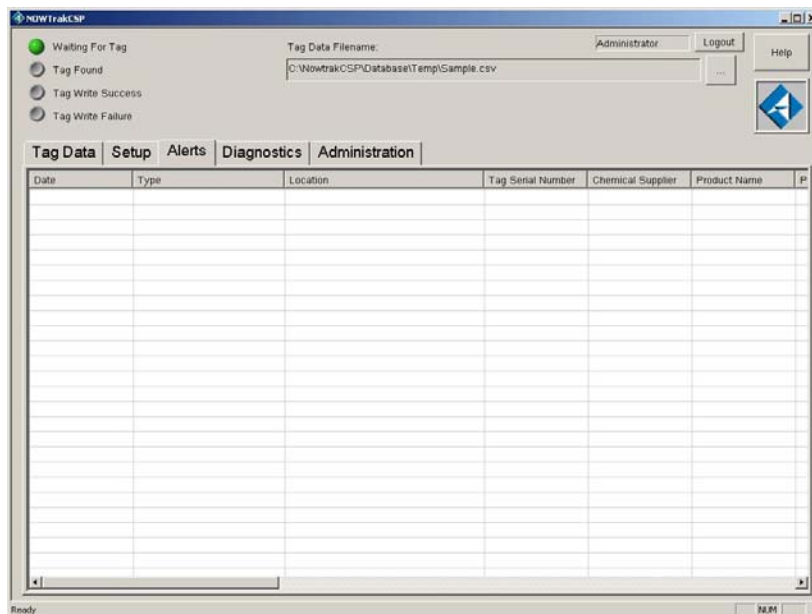
4. *Input triggers tag write*

- In manual operations, the correct setting is “Disable.”
- Used when the NOWTrak TagWriter System is applied in an automated line.
- Writing of the tag data is delayed until an input signals the system that a tag is ready to be written.

6.1.3. Alerts Tab

- In this version of NOWTrakCSP, only errors are displayed in the Alerts Tab.
- Complete tag-writing history is captured in a csv file labeled HistoricalDatabases.csv.
- Only errors are captured in the HistoricalDatabases.xml file (note suffix difference).

The graphic below displays some of the error data that is provided by the Alerts Tab.

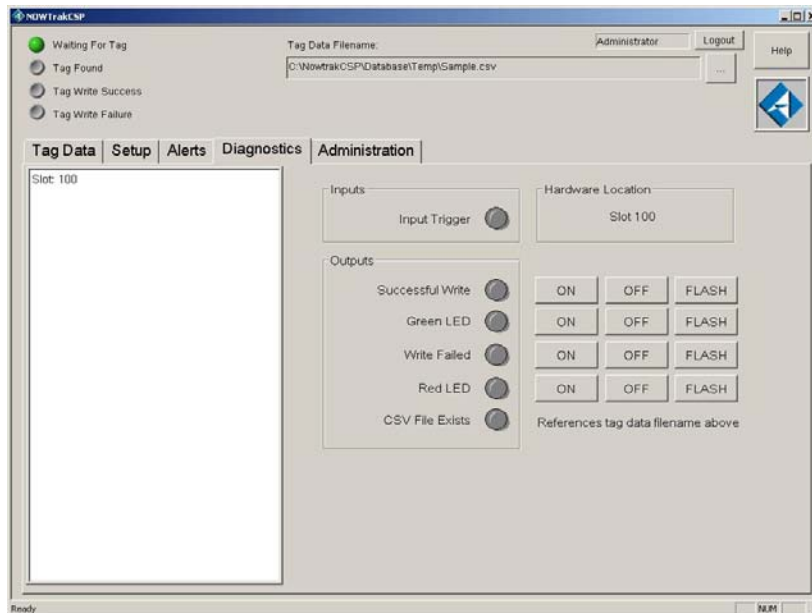


6.1.4. Diagnostics Tab

The Diagnostics Tab provides the ability to control the outputs and read the inputs of the NOWTrak System IntelliCap TagWriter System, primarily in an automated setting.

In manual application environments, the utility of the Diagnostic Tab covers LED functions and the location of the RFID Reader Circuit Board.

The following graphic provides an example of the Diagnostics Tab.



Diagnostic Tab Displays

1. Inputs

- Used with automated systems only.
- Listed as “Input Trigger” on the dialog above, this triggers the writing of the tag.

2. Outputs

There are 5 total Outputs that are displayed by NOWTrakCSP.

- “Green LED” and “Red LED” verify functioning of the LED ring.
- Used with automated systems only, “Successful Write” is turned on when the tag write succeeds.
- Also used with automated systems only, “Write Failed” is turned on when the tag write fails.
- Also used with automated systems only, “CSV File Exists” references the tag data filename listed above.

3. Hardware Location

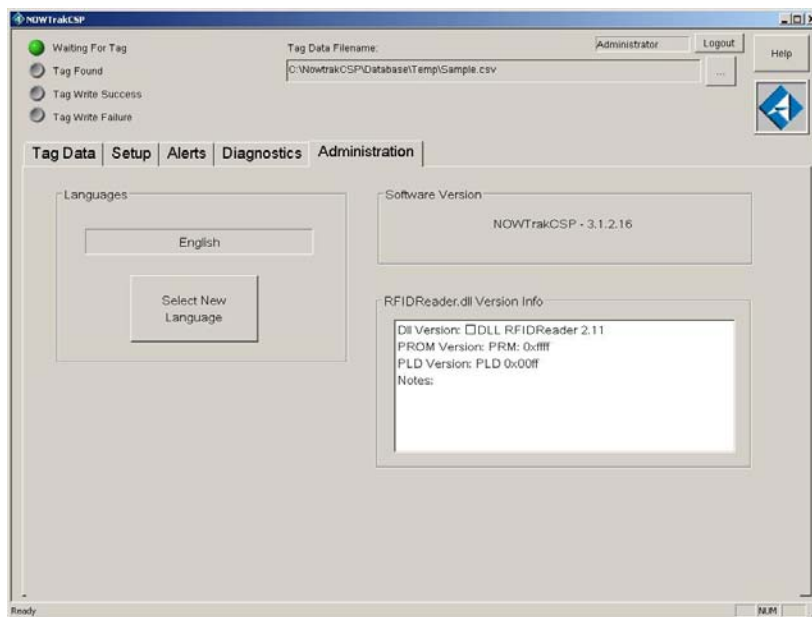
- The example above shows the location of the one RFID Reader Circuit Board at PCI Slot 100.
- Slot numbering is controlled by the computer hardware and usually starts at some number greater than 30.

6.1.5. Administration Tab

The purpose of the Administration Tab is to provide information about the various versions of products in use.

- The current language is displayed, with the option to select a new language.
- The current version of NOWTrakCSP is displayed.
- A list of the versions of the RFID Reader Circuit Boards, drivers, and dynamic link libraries (dlls) is shown.

A typical Administration Tab is shown in the following graphic.



6.2. Key Files and Folders

These are files and folder related to the use of the NOWTrak System IntelliCheck TagWriter System. Use this list as a handy reference for places to store and locate data in the NOWTrakCSP application.

File and Path	Description
C:\NOWTrakCSP\bin\NOWTrakCSP.exe	TagWriter executable file
C:\NOWTrakCSP\Database\Config\ConfigDatabases.xml	Stores software configuration data
C:\NOWTrakCSP\Database\History\HistoricalDatabases.xml and HistoricalDatabases.csv	Stores historical information
C:\NowtrakCSP\Database\Language\[Language folder]	Stores translation tables for various languages
C:\NowtrakCSP\Database\System	Stores NOWTrak common files
C:\NOWTrakCSP\Database\TEMP	Default directory for storing the csv files. The csv files can also be stored in other locations
C:\NOWTrakCSP\Database\Reports	Stores lot summary reports