Avid Identification Systems, Inc.

Avid Reader Wedge™ GUI User Guide

– Version 2.12 –

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Terminology

.NET™ Framework	Software framework provided by Microsoft®.
COM	Prefix to the name of a serial communication port.
DB9	The type of serial port connector that an Avid reader uses.
GUI	Graphical user interface.
Power Tracker™	A series of Avid readers that is compatible with the Avid Reader Wedge™ software.
Reader Wedge™	The Avid Reader Wedge™ software.
Serial port	The computer's physical connector to which the Avid Reader cable is connected.

1 Overview

The Avid Reader Wedge™ software provides an effective method for data collection by automatically transferring tags read by the Avid Reader into common Windows® applications such as Excel™, Word™, databases, and Internet browsers.

The Avid Reader Wedge™ recognizes all tag standards supported by the Power Tracker™ reader series. The Reader Wedge™ works by translating reader tags and formatting key sequences into keyboard inputs. When the reader reads a tag, this software captures the tag information over the connected serial port and automatically 'types' the data on the Windows® system. The formatted tag will be sent to the keyboard cursor position when the reader successfully reads a tag.

The user can use the Reader Wedge™'s 'Setup' tab to configure the communications port settings, 'Output Format' tab to set output formats, and 'Status' to monitor the reader status within the Windows® environment.

The procedures to setup and use the Reader Wedge™ can be found in this document. First time users are recommended to read Section 5 Usage to gain a perspective on the features that the Reader Wedge™ provides.

2 System Requirements

| Hardware	Requirements
CPU	Intel® i3 or faster PC compatible computer
Port	One serial communications port
OS	Windows® 7 or newer with .NET™ Framework 4.6.2
Disk	5 MB to 70 MB of free space

Table 2.1 System Requirements

The Avid Reader Wedge™ requires an Avid Reader properly connected to your computer to function. Reader Wedge™ compatible readers connect to your computer's serial port, or to a USB to serial port adapter. On your computer, a serial port is named as COM followed by a number; for example, COM1 and COM2. Each serial port can connect one Avid Reader with your computer, and the serial port must be properly configured. If the configurations are not correct, the Avid Reader Wedge™ will not recognize your scanned tags.

Some computers have several devices connected to communication ports. If this is the case, you may need the assistance of the system administrator for your computer to set the proper configuration.

2.1   Connected Avid Readers

Reader Wedge™ compatible Avid readers connect to your computer with a serial cable. If your Avid reader does not come with this cable, then you may need to acquire a serial cable or your reader may not be supported by Reader Wedge™. The serial cable uses a 'DB9' connector that looks like the following diagram:
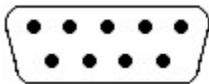
If your computer does not have a serial port, then you will need to obtain a serial port adapter for your the computer. Avid support can assist you in selecting a proper adapter to use with Avid readers.

Once you have identified a serial port available for Avid readers, follow the two steps below to secure the serial port cable:

1. Connect your Avid reader hardware to an available serial communications port on the computer.
2. Secure the serial cable with the screws on the connector cable.

If your computer has more than one 'DB9' serial port connector, they will usually be labeled COM1 or COM2. Make a note of which communication port was used to connect the Avid

reader. This port number will need to be set in the Avid Reader Wedge™ software. For more information on serial port setup, see Setup Tab.

3 Software Installation

This section provides step-by-step instructions for installing and uninstalling the Avid Reader Wedge™ on Microsoft Windows® 10. The graphics will look different on a different operation system, but the procedures are similar. Note that the instructions provided in this section require administrator access to your computer. If you do not have administrator access, then please contact your computer's administrator for assistance.

3.1   Installing Avid Reader Wedge™

The Avid Reader Wedge™ software can be installed without a reader connected to the computer. The following is a step-by-step guide for installing the Avid Reader Wedge™ software in Windows®:

1. Check that the required resources defined in System Requirements are available.
2. Open the disk or folder containing the installation files. Figure 3.1 shows an example of an opened Avid Reader Wedge™ installation folder.
3. Run the 'setup.exe' program shown in Figure 3.1.
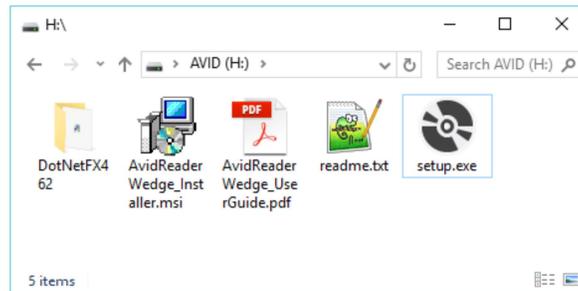
Figure 3.1: Avid Reader Wedge™ Installation Folder

4. A dialog similar to the one shown in Figure 3.2 will appear to obtain your permission for 'AvidReaderWedge_Install.exe' to make changes to your computer. Choose 'Yes' to proceed.
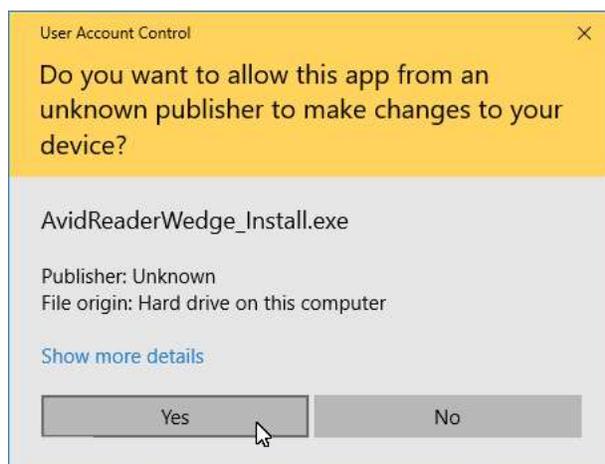

Figure 3.2: Avid Reader Wedge™ User Access Control
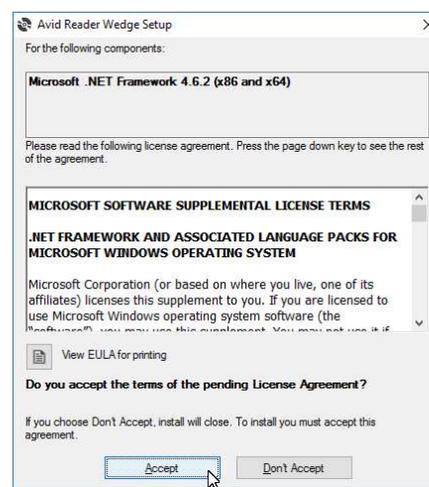
Figure 3.3: Microsoft® .NET™ Framework Installation

5. If needed, the setup program will automatically bring up the Microsoft® .NET™ Framework installation dialog shown in Figure 3.3. This library is required by the

Reader Wedge™ and is provided for free by Microsoft®. Please review the license agreement. Installation can only continue with .NET™ installed.

6. After .NET™ is successfully installed, Windows® may request for a restart with a dialog similar to Figure 3.4. If you have other applications opened, save your work first. After your work is saved, choose 'Yes' to restart your computer. ***** Do not remove the media containing the Reader Wedge™ installation files from your computer. Keep the USB storage or CD in your computer. The installation will continue from the USB or CD after your computer restarts. *****
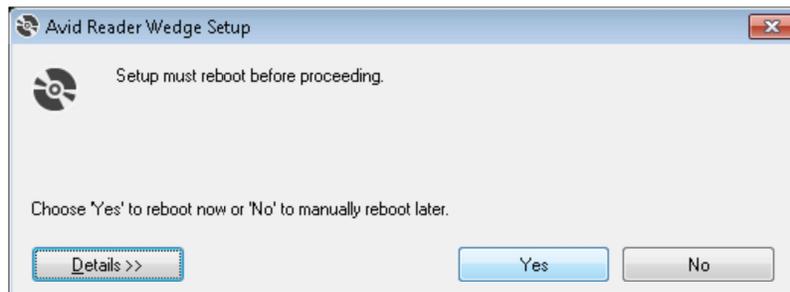
Figure 3.4: Avid Reader Wedge .NET™ Setup Restart

7. If your computer was restarted, login to your Windows® installation account again.

8. With .NET™ installed, the Avid Reader Wedge™ Setup Wizard will begin with the welcome message shown in Figure 3.5. Pressing the 'Next' key will bring up the folder selection menu shown in Figure 3.6.

9. The folder selection menu allows the user to choose the locations for the Reader Wedge™ executable and program shortcuts. By default, the executable is installed in 'C:\Program Files (x86)\Avid Identification Systems, Inc\Avid Reader Wedge' and the shortcuts are only created for the current user. Select the options appropriate to your system and press 'Next' to continue.
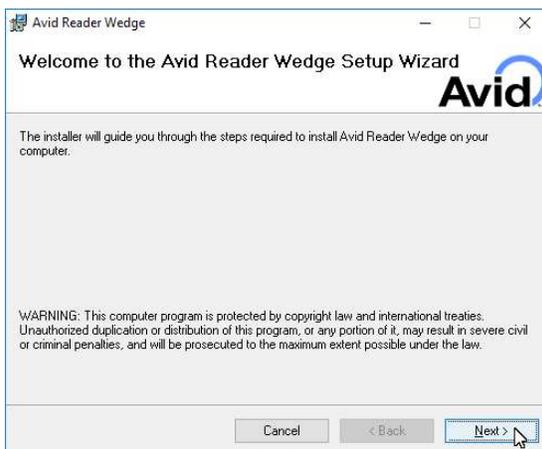
Figure 3.5: Reader Wedge™ Installer Welcome Message   *Figure 3.6: Reader Wedge™ Installation Destination*
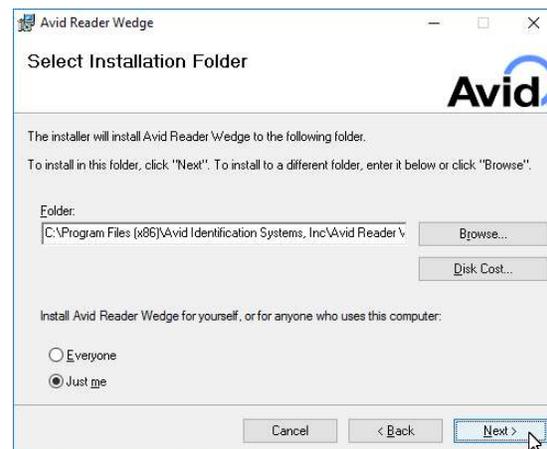
10. The installer will show the confirmation page shown in Figure 3.7 before starting the installation. Choosing 'Next' will start the installation, which should complete within seconds. Once the installation is completed, the confirmation page shown in Figure 3.8 will appear. The Avid Reader Wedge™ is successfully installed at this point. You may press 'Close' to close the installation program and start using Avid Reader Wedge™. Instructions for finding the Reader Wedge™ program icon and launching the application can be found in Section 4.1.
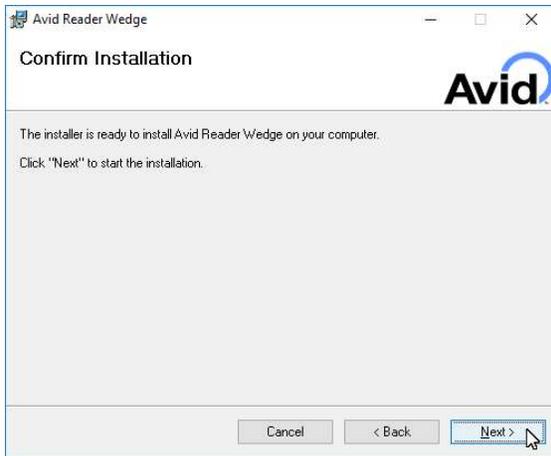
Figure 3.7: Reader Wedge™ Installation Start
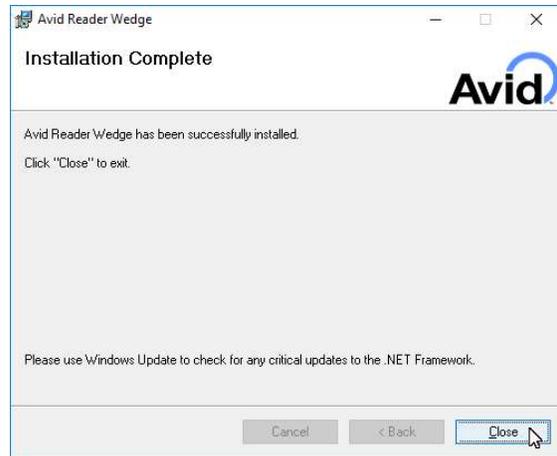
Figure 3.8: Reader Wedge™ Installation Complete

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3.2 Uninstalling Avid Reader Wedge™

The Avid Reader Wedge™ software can be conveniently removed by using the Windows® Apps manager. The following is a step-by-step guide showing how to uninstall the Avid Reader Wedge™ software from Windows®:

1. Go into the Windows Settings menu by selecting the gear icon in the Windows® menu shown in Figure 3.9.
2. Click on the System icon shown in Figure 3.10 to enter the Windows Settings page.
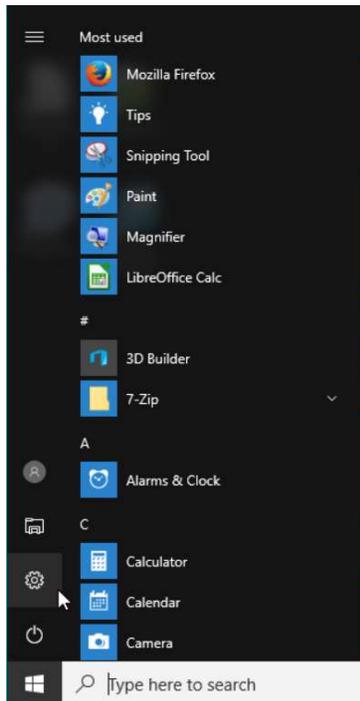
Figure 3.10: Windows Settings

Figure 3.9: Windows® Menu

3. In Windows Settings, select the 'Apps & features' group shown in Figure 3.11 and find Avid Reader Wedge™ in the list on the right.
4. Select the Avid Reader Wedge™ item and press 'Uninstall'. Press 'Uninstall' again when the message in Figure 3.11 appears.
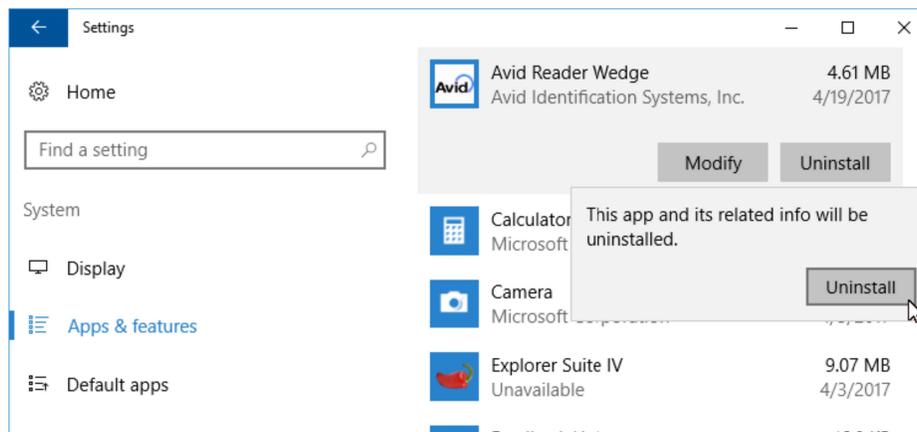
Figure 3.11: Reader Wedge™ Uninstallation

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5. Windows® will then request to make changes with a message similar to the one shown in Figure 3.12. Allow it by choosing 'Yes' and the Avid Reader Wedge™ will be uninstalled from your machine.
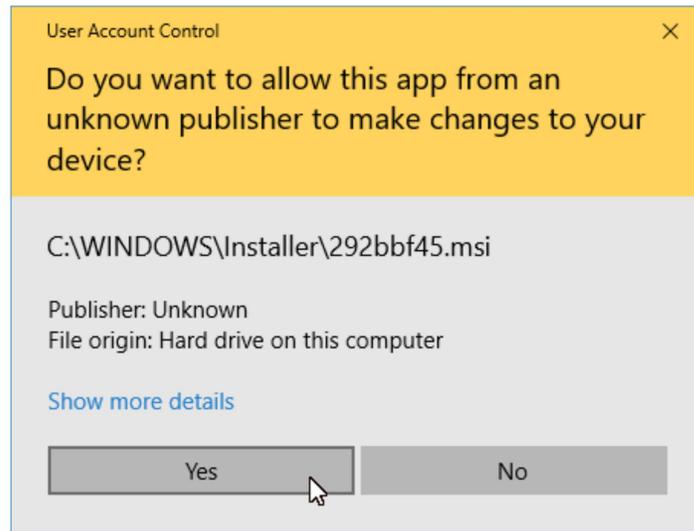
Figure 3.12: Uninstallation Confirmation

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4 Using the Reader Wedge™ Software

The Avid Reader Wedge™ software captures the tags read by an Avid reader and transfers them to your target application. The Reader Wedge™ will continue to capture the reader's output as long as its status is 'Active', as shown in Figure 4.1.
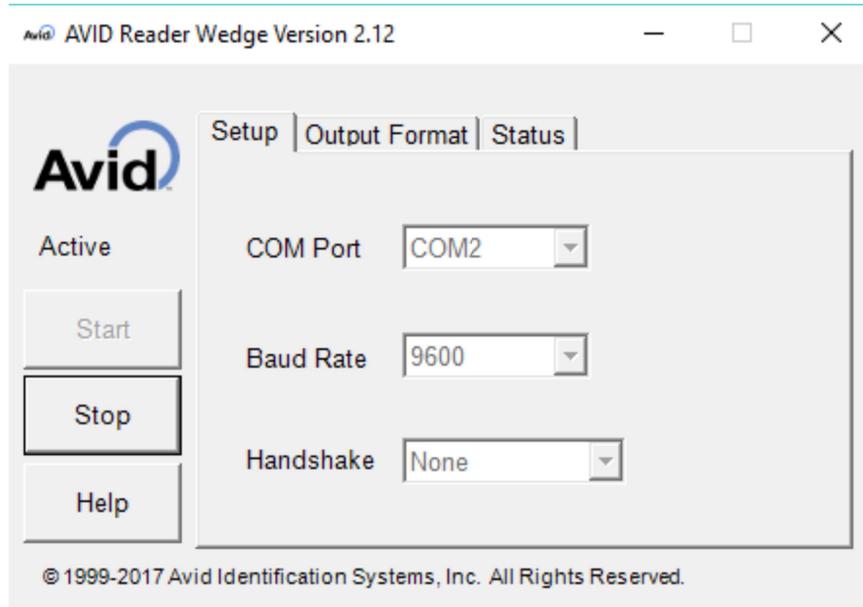
Figure 4.1: Active Avid Reader Wedge™

Before going 'Active', the Reader Wedge™ needs to be launched and setup. The Reader Wedge™ provides three tabs for configuration and control: Setup, Output Format, and Status. This section provides instructions for launching the Reader Wedge™ and using the features in each of these tabs.

4.1   Launching the Software

The first step to using the Reader Wedge™ after installation is to launch it. The Reader Wedge™ software can be launched from two locations. The first program launch location is the Avid Reader Wedge™ icon on the Windows® desktop shown in Figure 4.2. On most Windows® system, double clicking a desktop icon will launch the application.

Figure 4.2: Avid Reader Wedge Desktop Icon

The second program launch location is in Windows® menu's Avid ID program group shown in Figure 4.3. To launch the Reader Wedge™ using this method, use the following procedures:

1. Press Windows® menu button on the lower-left corner of your Windows® desktop to open the Windows® menu.

2. Navigate to the 'Avid ID' program group by scrolling through the program selection.

3. Once the 'Avid ID' program group is located, select it.

4. When the 'Avid ID' program group is selected, the 'Avid Reader Wedge' program icon will appear. Selecting the 'Avid Reader Wedge' icon will launch the Reader Wedge™ software. The Setup Tab shown in Figure 4.4 will appear when the software is launched.
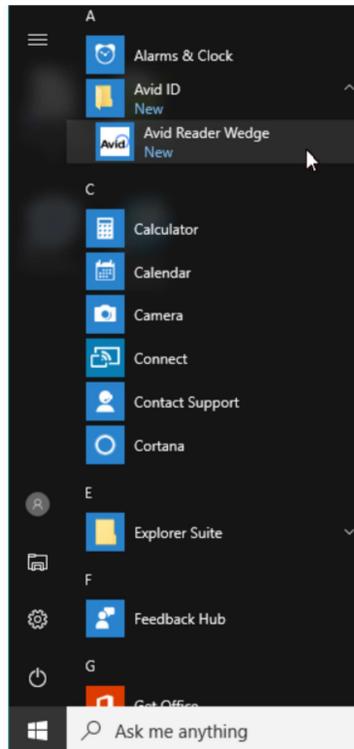
Figure 4.3: Avid ID Program Group

4.2   Setup Tab

The Setup Tab is the first tab to appear when the Avid Reader Wedge™ software is launched. The user can configure the serial port settings for the currently connected reader in this tab. Figure 4.4 shows the Setup Tab with the default serial port settings.
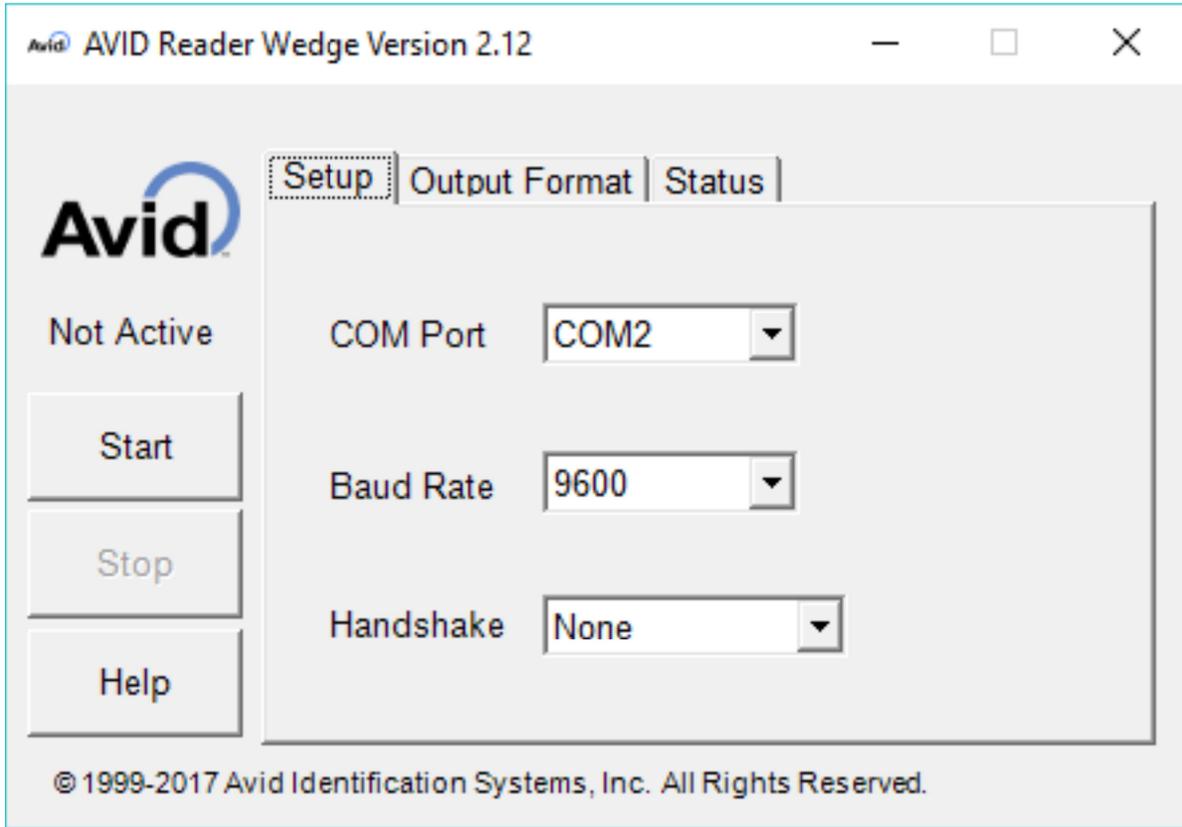
Figure 4.4: Setup Tab Default Configuration

While the default settings will work on many computers and readers, you may need to modify the settings for different computer and reader combinations. Please refer to your Avid reader documentations for the correct Baud Rate. The serial port settings will only need to be set once after installation and Avid Reader Wedge™ will remember the correct setting for subsequent usages. Table 4.1 provides a detailed description for the buttons and settings available on the Setup Tab.

The settings in the Setup Tab can only be changed when the Reader Wedge™ is 'Not Active'. Once the Reader Wedge™ is started, the settings in the Setup Tab will be grayed out and cannot be changed. To make changes to the serial port settings, the Reader Wedge™ needs to be changed back to being 'Not Active' by clicking the 'Stop' button.

Button	Description
Start	The Start button is only enabled when a valid COM port (serial port) has been selected. When the Start button is clicked, the Avid Reader Wedge™ software opens the serial port and begins looking for data from the Avid Reader. At the same time, the controls on the Setup Tab are disabled so the setting cannot be changed. If the serial port selected in the Output Format Tab Default Configuration is already occupied by another software, the message 'Not Available' will be displayed next to the COM selection field and the 'Start' button will be disabled.
Stop	To end tag reading or change the settings, press the Stop button. When the Stop button is pressed, the Reader Wedge™ will stop listening to the reader.
COM Port	COM Port refers to the serial port at which the Avid Reader is connected. The default setting is COM2. The user needs to select the correct COM port at which the Avid Reader is connected. If the serial port selected in the Output Format Tab Default Configuration is already occupied by another software, the message 'Not Available' will be displayed next to the COM selection field and the 'Start' button will be disabled.
Baud Rate	Baud rate refers to the serial port communication speed. The default baud rate is 9600, which is correct for most Avid readers. One exception is the Power Tracker™ II, which uses 2400. Possible settings are: 2400 4800 9600 19200 Refer to the Avid Reader documentation for the correct setting for your reader.
Handshake	Handshake is a method used to control the data flow between the computer and the reader. Properly configured handshaking ensures that all the tags are properly received by the Avid Reader Wedge™. The default setting, 'None', is correct for most Avid readers. Possible settings are: None Xon/Xoff RTS RTSXonXoff

Table 4.1 Setup Tab and Serial Port Settings

4.3   Output Format Tab

The Output Format Tab shown in Figure 4.5 provides the options to insert the 'send before' and 'send after' key sequences for a new tag entry. These key sequences provide application-specific user tag formatting and entry control. In this tab, the user may also specify the initial value for an internal counter that automatically increases by one every time a new tag is received. This counter value can be a part of the key sequences. The current key sequences and counter values can be saved as the default values with the 'Save Settings' button. Table 4.2 summarizes the Output Format Tab control interface.
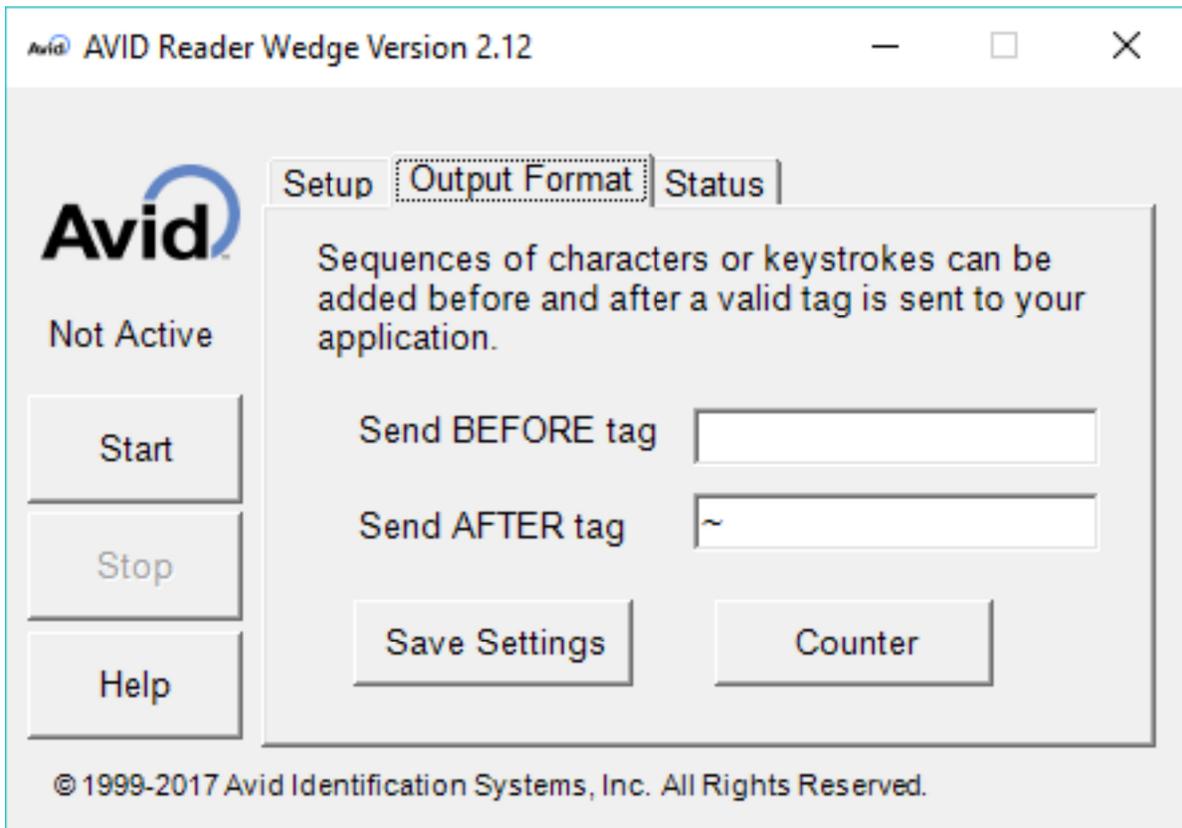
Figure 4.5: Output Format Tab Default Configuration

Item	Function
Send BEFORE tag box	Specify the key sequence to send before a new tag entry.
Send AFTER tag box	Specify the key sequence to end after a new tag entry.
Save Settings button	Save the key sequence and counter as default start-up values.
Counter button	Open up the tag counter adjustment Dialog.

Table 4.2 Reader Wedge™ Output Format Tab Controls

4.3.1   Send BEFORE and AFTER tag

Additional keys can be sent to the active Windows® application before or after the tag number. The 'Send BEFORE tag' box holds the key sequence that precedes a new tag and the 'Send AFTER tag' box holds the sequence that follows a new tag. These keys will be sent to the currently active Windows® application when a tag is successfully read.

Special keys and values can be included in the key sequences using special strings enclosed in braces, { }. Note that the braces, or curly brackets, The Avid Reader Wedge™ translates these strings into their corresponding keys and values for the target application. Table 4.3 and Table 4.4 list all the special strings.

Key	String
Backspace	{BACKSPACE}, {BS}, or {BKSP}
Break	{BREAK}
Caps Lock	{CAPSLOCK}
Delete or Del	{DELETE} or {DEL}
Down Arrow	{DOWN}
End	{END}
Enter	{ENTER} or ~
Esc	{ESC}
Help	{HELP}
Home	{HOME}
Ins or Insert	{INS} or {INSERT}
Left Arrow	{LEFT}
Num Lock	{NUMLOCK}
Page Down	{PGDN}
Page Up	{PGUP}
Right Arrow	{RIGHT}
Scroll Lock	{SCROLLLOCK}
Tab	{TAB}
Up Arrow	{UP}
F1	{F1}
F2	{F2}
F3	{F3}
F4	{F4}
F5	{F5}
F6	{F6}
F7	{F7}
F8	{F8}
F9	{F9}
F10	{F10}
F11	{F11}
F12	{F12}

Table 4.3 Special Key Strings

Function	String	Description
Timestamp	{NOW}	Display the current time.
Counter	{#}	Increment the count value by one and display the updated value. The counter will be incremented before the key sequence is applied. A maximum of one increment can occur in a key sequence. The counter will only increment by one even if multiple {#} are used in the same key sequence.
Counter repeat	{##}	Display the latest count value without changing it.

Table 4.4 Special Value Strings

Key	String
Shift	+
Ctrl	^
Alt	%

Table 4.5 Modifier Key Strings

Key sequences can be modified with SHIFT, CTRL, and ALT to represent key combinations. The characters representing the modifier keys are listed in Table 4.5. To use modifier keys, enclose the key sequence in parentheses after the modifier key character. For example, holding down SHIFT while pressing E and C is represented by:

    +(EC)

Holding down SHIFT while pressing E followed by an unmodified C is represented by:

    +EC

A more detailed example can be found in Excel™ Data Collection Example.

4.3.2 Counter Button
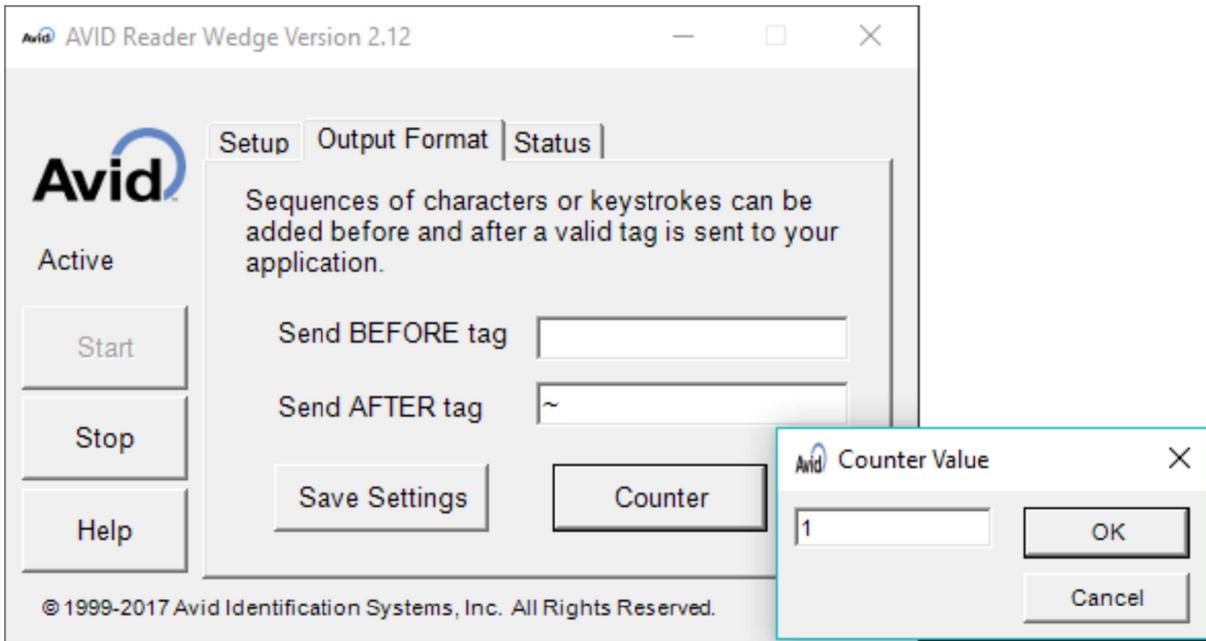
Figure 4.6: Count Value Dialog

Pressing the 'Counter' button brings up the 'Counter Value' dialog shown in Figure 4.6. The displayed counter value will be used for the next tag when {#} is used. The default value is 1, but it can be changed by entering a non-negative integer into the Counter Value box and pressing the 'OK' button.

The counter value can be displayed in the target application by using the {#} or {##} special strings in the key sequence boxes. Using the special string {#} in a key sequence increments the Counter Value by one after the current key sequence is sent to the application. The counter can be incremented by one in both 'Send BEFORE tag' and 'Send AFTER tag'. The functions of the counter special strings are described in Table 4.4.

The counter value is saved by the Reader Wedge™ software and not the reader device. If the reader device is moved to another machine, the counter value for the connected PC will be used.

The current counter value can be saved by pressing the Save Settings Button. The Reader Wedge™ software will start with the saved counter value every time it is launched. The Reader Wedge™ will discard the current counter value if it is closed without saving.

4.3.3 Save Settings Button

Pressing on the Save Settings Button will save the key sequences and the current value of the counter to the Windows® registry. The saved values will be used the next time the Avid Reader Wedge™ is started. These settings are saved separately for each Windows® user account.

4.4   Status Tab

The Status Tab consists of two text boxes. The upper text box is the Tag Display Box that displays the most recently scanned tag; the lower text box is the Raw Data Box that displays the history of the recent tags with their formatting strings. Figure 4.8 shows the Status Tab with Tag Display and Raw Data boxes.
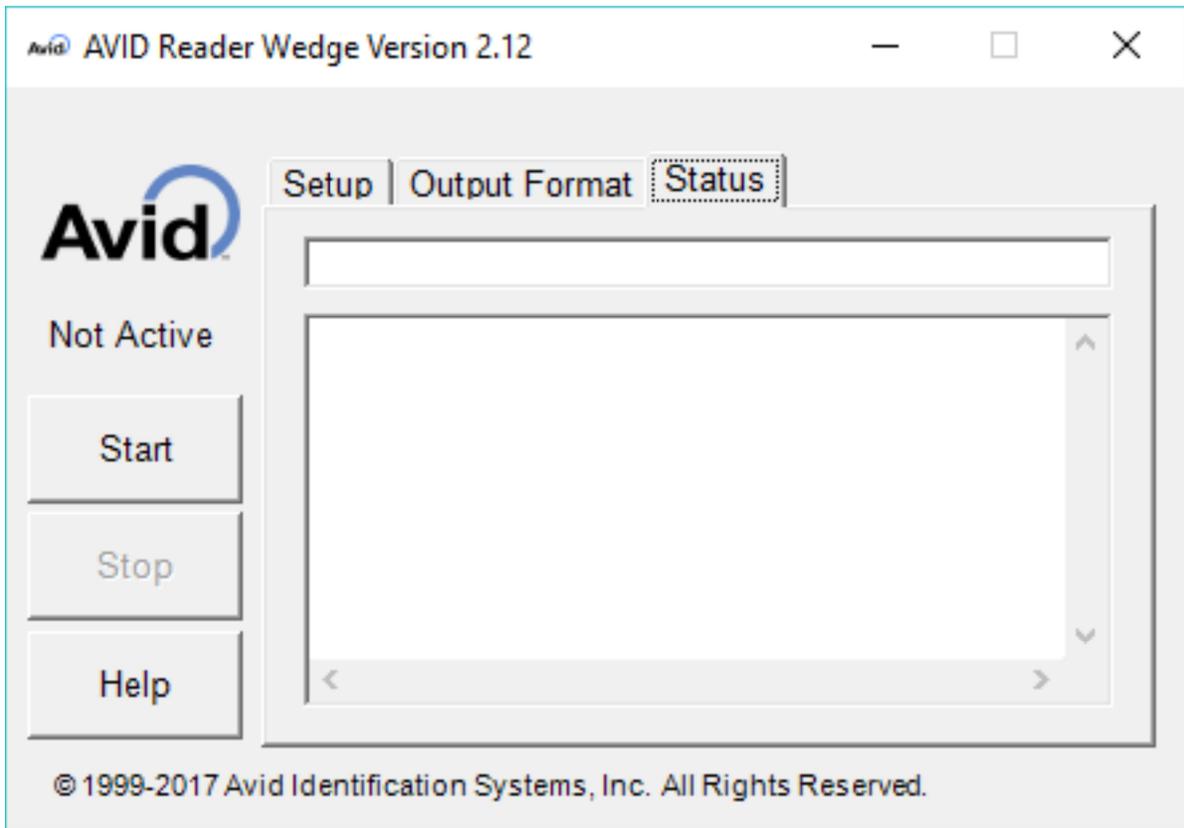
Figure 4.7: Status Tab

4.4.1 Tag Display Box

This text box displays the most recently scanned tag. The 'Send BEFORE' and 'Send AFTER' tag key strings will <u>not</u> be displayed. If the reader scanned for tags without finding any, then the content of this text box is cleared. Selecting the text with mouse and pressing the delete key on the keyboard will also clear this text box. A usage example can be found in Section 4.4.3.

4.4.2 Raw Data Box

This text box displays all character data from the reader including status messages and special strings. The raw 'Send BEFORE' and 'Send AFTER' tag character strings will also be displayed in this text box. A 'No ID Found' message will be displayed in this box when the reader scanned but did not find any tag. A usage example can be found in Section 4.4.3.

4.4.3 Status Tab Example

Figure 4.8 shows an example of the text displayed in the 'Status' tab when the Reader Wedge™ is active with the following formatting string:

        Send BEFORE tag: {#}{TAB}{NOW}{TAB}
   Send AFTER tag: {TAB}MyName~
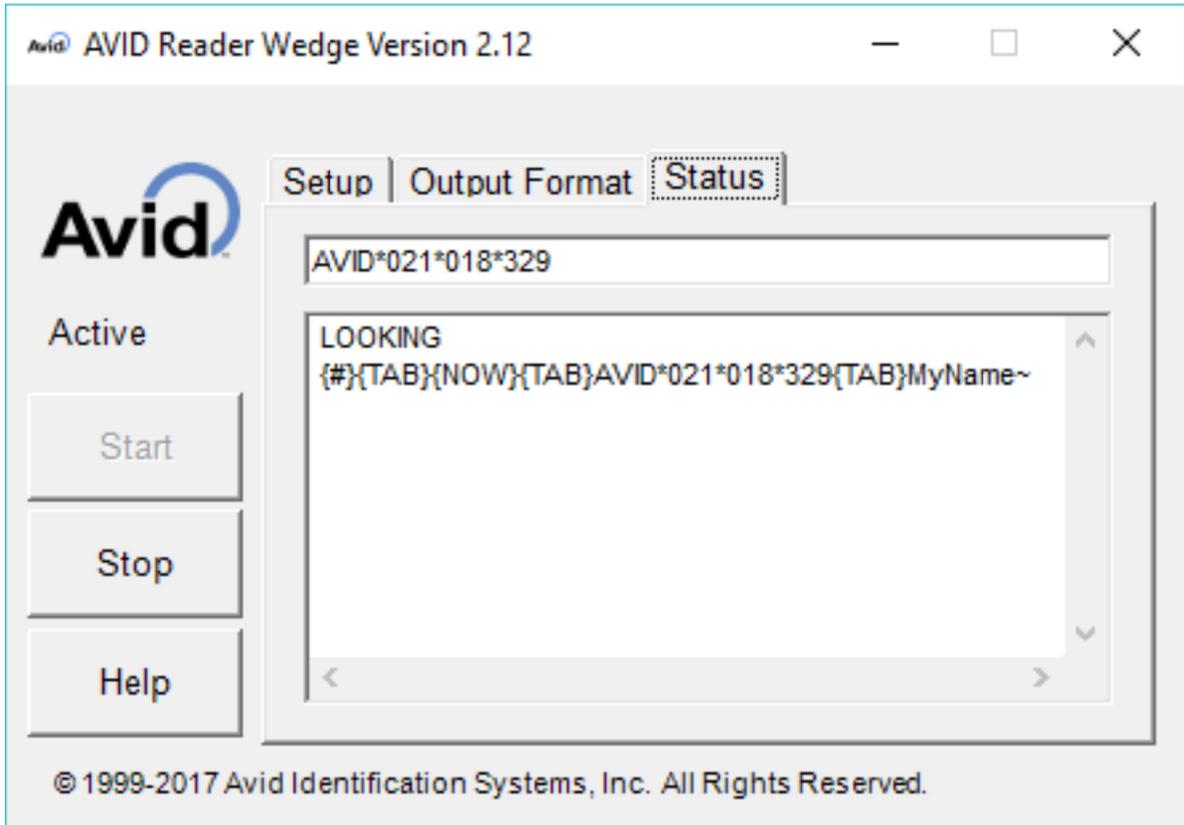
Figure 4.8: Status Tab Example

5 Usage

Using the Avid Reader Wedge™ to input data into a spreadsheet application such as Excel™ is a good way to collect tag data quickly and without errors. Although this example is based on Microsoft® Excel™, the techniques described in this example can be applied to any spreadsheet software and other Windows® based application.

The Avid Reader Wedge™ acts like a keyboard to automatically enter the formatted tag into your application. Like typing with a regular keyboard, mouse action should be avoided when the Reader Wedge™ is 'typing'. The Reader Wedge™ translates the strings in 'Send BEFORE' and 'Send AFTER' tags text fields into keyboard actions, which may be used to navigate through the data entry fields in your data collection application.

The following are typical steps for using the Avid Reader Wedge™:

1. Connect the reader to the computer. See Connected Avid Readers.
2. Start the Avid Reader Wedge™. See Using the Reader Wedge™ Software.
   - Start the Windows® application for tag data entry. This may be any Windows® application such as Excel™, Word™, a database, or a web browser.
   - Set the Send BEFORE and AFTER tag options in the Output Format Tab as appropriate for the Windows® application being used.
5. Move the keyboard cursor to the starting position to receive the formatted tag entry.
6. Begin to read tags using the Avid reader. This is done by pressing the 'Read' button on the reader device. See the documentation on your specific reader model for more information.

The Excel™ Data Collection Example below demonstrates how one may use the Reader Wedge™ for data collection.

5.1 Excel™ Data Collection Example

This example demonstrates how to set up Excel™ to build a table with the following information for each tag that is read:

> Sequence
> Time
> Tag Number
> Operator

Note that this example uses Avid tags for demonstration. Users of **ISO** or **FECAVA** tags may find Excel interpreting tag ID's as numbers. When this happens, the Excel spread sheet may truncate or round off the value. Care should be taken to format the cells to display all the digits of the tags. In the case of **FECAVA** tags, the Excel cell format should be set to display 12 decimal places. An alternative is to include a single quote character, ', at the end of the 'Send BEFORE' string. This will cause Excel to interpret the string as characters and not as numbers.

The following are the steps taken to set up an Excel spreadsheet for data collection:

I) Setting up the spreadsheet
 Start the spreadsheet program and setup a 4-column data table as shown below:

B	C	D	E
Sequence	Time	Tag Number	Operator

Each column represents one data field. In this example, we have four data fields: 'Sequence', 'Time', 'Tag Number', and 'Operator'. Note that the current active cell is in the Sequence column. This cell is the starting location of our data collection process. The starting location is very important.

II) Determine the Data Entry Key Sequence
Now that the data fields are setup, we need to design the Reader Wedge™ key sequences needed to automatically populate the fields with each tag scan. We start the key sequence design by noting down each keyboard action needed if they were to be manually entered:

1. Key in the sequence counter, '1'   *This is the sequence counter value*
2. Press the tab key   *Move to the next cell*
3. Key in the current time, '10:00'   *This is the current time*
4. Press the tab key   *Move to the next cell*
5. Key in new tag, AVID*123*456*789   *This will be the new tag*
6. Press the tab key   *Move to the next cell*
7. Key in 'Your Name'   *The operator's name*
8. Press the Enter key   *Move the active cell for the next read*

The eight steps above will complete one row of the Excel table. Note that if you are using ISO or FECAVA tags, you can include a single quote character, ', between step 4 and 5. This will force Excel to interpret the tag value as characters.

Enter the above key sequence will produce one row of Excel data entry, and the table will look like the following:

B	C	D	E
Sequence	Time	Tag Number	Operator
1	10:00	AVID*123*456*789	YourName

Note that the last step returns the active cell to the Sequence column. This is the correct location for the next tag to be read.

III) Translate the Data Entry Key Sequence into 'Send BEFORE' and 'Send AFTER' Tags

Now that we have the 8-step data entry key sequence, we can design the 'Send BEFORE' and 'Send AFTER' strings to perform automatic data entry using the strings listed in Send BEFORE and AFTER tag. Table 5.1 shows how each keyboard action can be represented by a Reader Wedge™ string. This table also indicates whether the string belongs to the 'Send BEFORE' or 'Send AFTER' text box.

Step	Keyboard Action	Reader Wedge™ String	Send Before or After Tag
1	Key in the sequence counter, '1'	{#}	Before
2	Press the tab key	{TAB}	Before
3	Key in the current time, '10:00'	{NOW}	Before
4	Press the tab key	{TAB}	Before
5	Key in AVID*123*456*789		
6	Press the tab key	{TAB}	After
7	Key in 'Your Name'	Your Name	After
8	Press the Enter key	~	After

Table 5.1 Translating Keyboard Action into Reader Wedge™ String

Note that the tag value is keyed at Step 5 and, therefore, no Reader Wedge™ string is needed for this step. Every step before Step 5, *i.e.* Steps 1 to 4, will be represented by 'Send BEFORE' strings, and everything after Step 5, *i.e.* Steps 6 to 8, will be represented by 'Send AFTER' keys.

IV) Enter the Reader Wedge™ Strings in The Output Format Tab

Once the Reader Wedge™ strings are determined, they can be keyed into the Output Format Tab. Each string representing a keyboard step should follow each other in sequence with no space separating them. If these strings are going to be used again for the next data collection, use the Save Settings Button to save the 'Send BEFORE' and 'Send AFTER' tag strings; otherwise, the Reader Wedge™ strings will only be used for this session. Figure 5.1 illustrates the Reader Wedge™ strings entry.
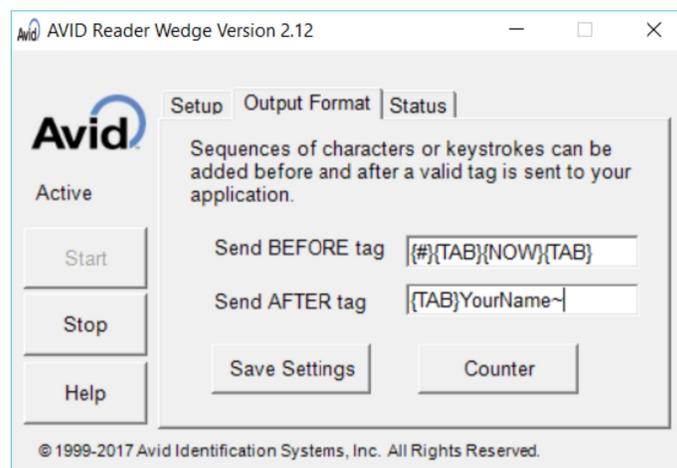

Figure 5.1: Excel™ Example Output Format

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<u>V) Start Reader Data Collection</u>

When the Output Format Tab is setup, you may now press the 'Start' button to start collecting data into Excel. Make sure that the active cell is in the Sequence column and start reading with your connected Avid reader. If the Counter Value is set to 34 before the data collection, then the data table will look like the following after reading the 'AVID*021*018*329' tag three times:

B	C	D	E
Sequence	Time	Tag Number	Operator
1	10:00	AVID*123*456*789	YourName
34	13/06/01 12:46	AVID*021*018*329	YourName
35	13/06/01 12:46	AVID*021*018*329	YourName
36	13/06/01 12:46	AVID*021*018*329	YourName

Note that the time format includes the date and has no seconds. These values and formats are determined by the 'Time & Language' setting of your computer. The time and date format can be changed in Excel. For example, changing the 'Time' column cells to display only time will result in the following data table:

B	C	D	E
Sequence	Time	Tag Number	Operator
1	10:00	AVID*123*456*789	YourName
34	12:46:12	AVID*021*018*329	YourName
35	12:46:15	AVID*021*018*329	YourName
36	12:46:16	AVID*021*018*329	YourName

6 Contact

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