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Introduction

The Track-Pac kit is a drop in data collection / traceability system including a preconfigured PlantWatch application and a packaged set of hardware components.

The solution is positioned as a turnkey system with simple to configure PlantWatch software. The software is designed to allow end users and integrators to fulfill the OEM requirements for traceability with a system that can easily be modified/extended to co-exist within their existing manufacturing environment.

PW has been designed to meet the strictest of customer requirements.

The kit will allow high volume hardware distributors an inexpensive and full featured alternative for bundled track and trace solution.

PlantWatch Software

PlantWatch is a software package that allows the user to Monitor and Control almost any manufacturing process. It connects to and communicates with the most commonly found plant floor devices.

• Serial Devices	• TCP/IP Devices	• I/O Devices
• Text Files	• SQL Databases	• OPC For PLC's

PlantWatch is so simple to use, training can be complete in one day! The simple to use Solution Builder provides ease of use click based configuration.

PW provides the tools necessary to keep your most important processes running. Built-in diagnostic capabilities to look inside of PW configuration at runtime to determine issues related to the process modeling and system issues.

Packaged Hardware

Windows computer

To host PlantWatch Software, connected tothe plant network

Laser Marker - Class IV Fiber

Used to mark a unique serial number onto the part.

Handheld scanner

Qty 2 (at Lead-Off & Pack stations)
Serial USB to scan in label on part box to determine part type in process.

Fixed Mount Reader

To send the scanned laser marked UID serial number and part type to PlantWatch as the part enters theInspection Station.

Client Computer

Portable Track-Pac client computer resides at the Inspection Station for operators to enter defect and inspection status, Pass / Fail.

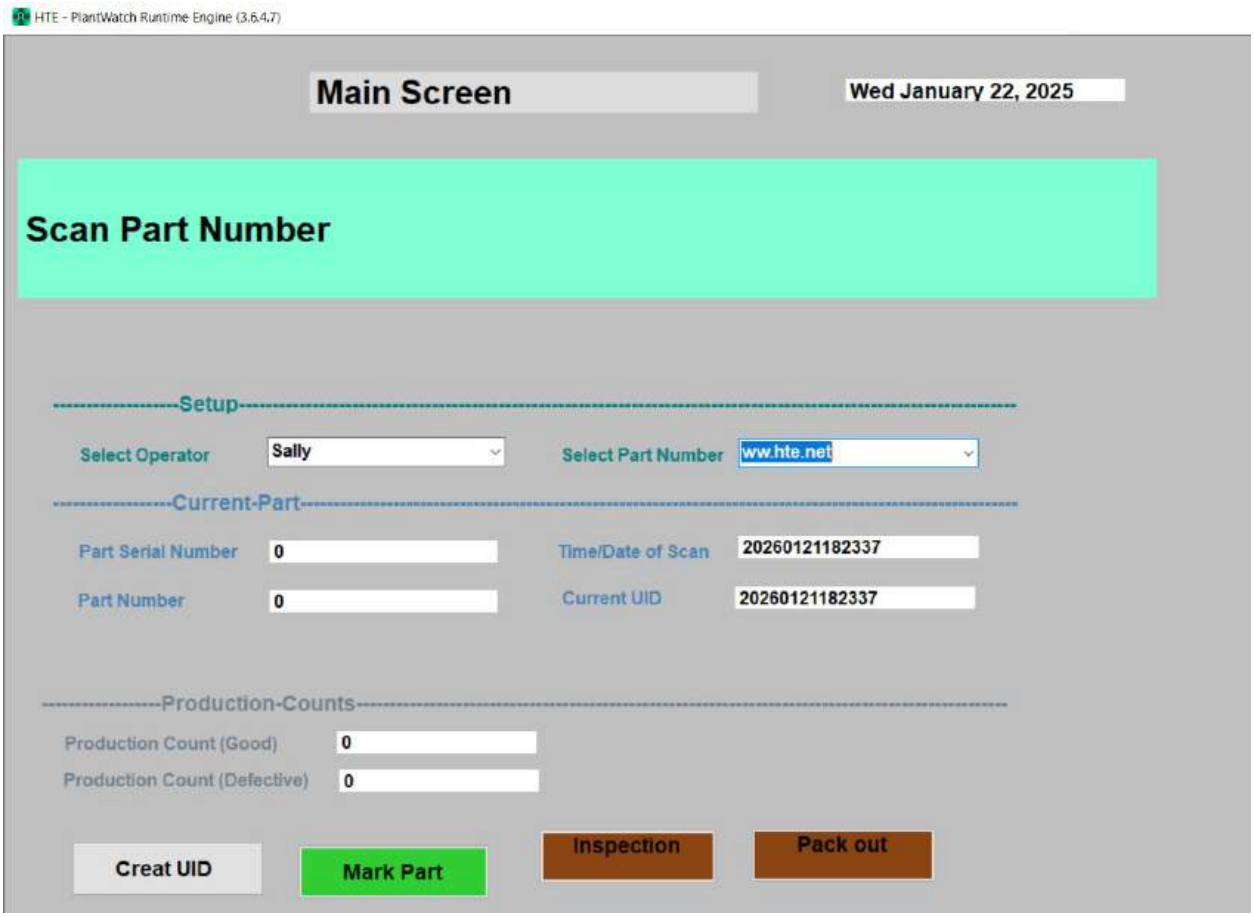
Thermal transfer label printer

Prints the shipping label for those parts that have completed the manufacturing process and passed inspection.

Track-Pac System Flow

The Track-Pac application starts by clicking the runtime icon on desktop.

Lead-off station



The first step is to select the Operator

The prompt banner message is “Select an Operator”.

Operator selects a name from the drop-down dialog.

The prompt banner message changes to “Select Part Number”

Operator selects a Part Number from the drop-downdialog.

The prompt banner message changes to “Scan Part Label “

The handheld scanner is used to scan the barcode on the part or part box.

Track-Pac confirms this is the correct scanned part number as the one selected from the drop-downdialog by the operator. If they do not match, a message of the mismatch is displayed on the prompt banner.

PlantWatch generates a unique serial number UID for tracking each part. The UID is the date/time of when the part was scanned, therefore ensuring a unique serial number.

The “Load Mark Data” button illuminates Green.

Operator clicks on the “Load Mark Data” button to create two text files that will provide the variable text to the Laser Marker via EZCad marking software running on PW computer. This will provide the data necessary to mark the part with the barcode and human readable text.

PlantWatch will create two text files that contain the operator selected part number and a UID serial number. These files will be stored on a common shared drive where both PlantWatch and the EZCad software packages can access them.

The two text files format to mark each part:

- Field 1: Data Matrix that is comprised of Part Number and a unique serial number. Data-Matrix is a 22 x 22 which can contain 32 alphanumeric characters)
- Field 2: Human readable characters Part Number

Operator manually transfers the part into the laser

Operator presses foot switch to fire the laser.

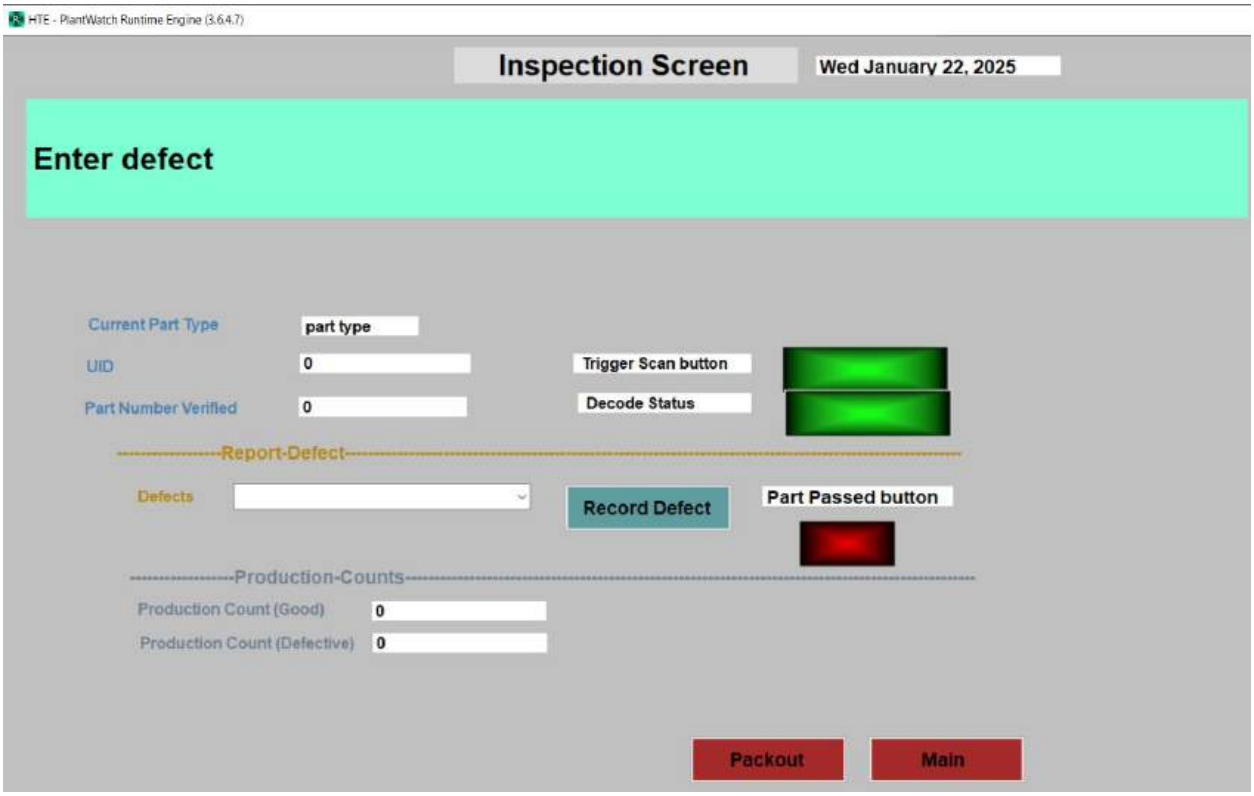
The prompt banner message changes to “Scan Next Part Label and Load Mark resets to not selected

The EZCad software accesses the two text files on the shared disk storage

Upon completion of the marking process the operator manually moves the part to the Inspection Station and the two text files are archived or deleted.

PW will append an entry to the Trace Log file, including UID, Part No, station, date, time, part status, defect

Inspection Station



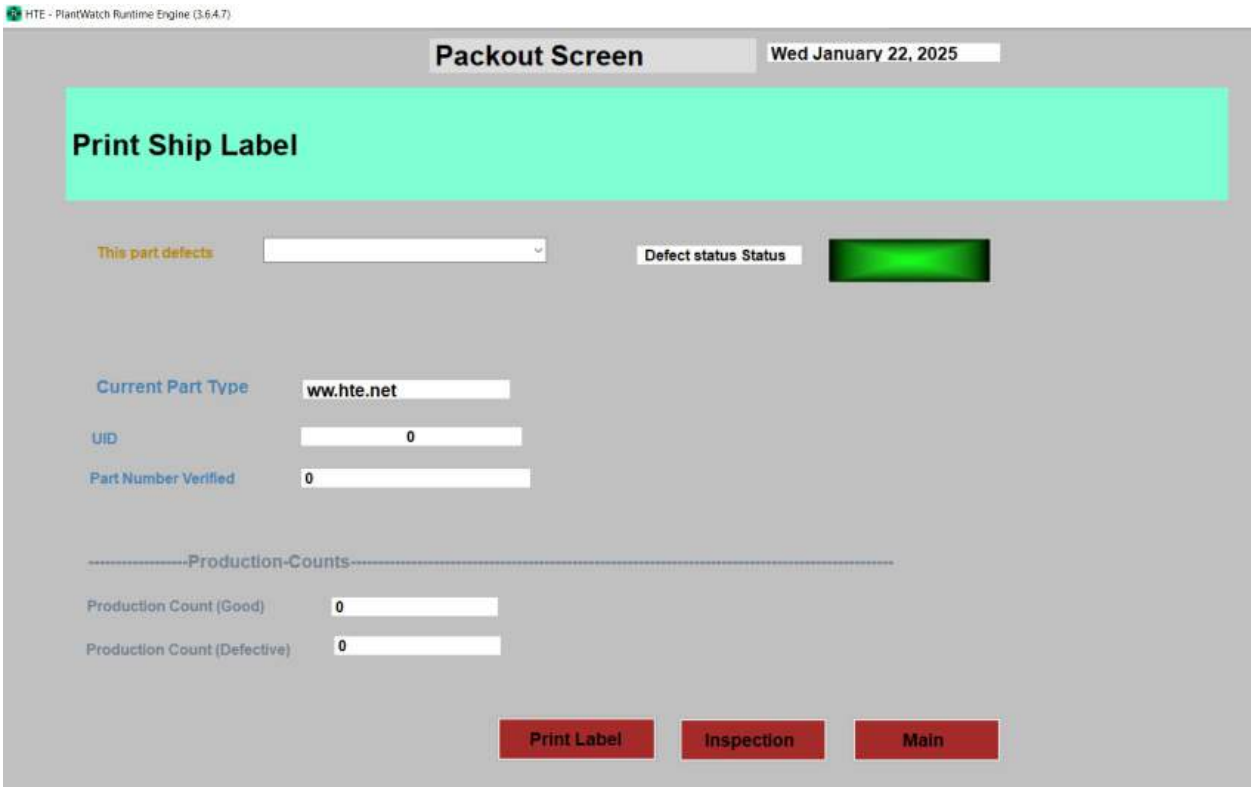
At the Inspection Station the laser marked bar code is read by fixed mount scanner.

Operator is looking at screen on the client computer

Upon inspection, operator either selects a defect from the drop-down listand presses the DEFECT button which sets the parts status to FAIL or presses the PASS button, setting the part status to PASS.

PW will append an entry to the Trace Log file, including UID, Part No, station, date, time, part status, defect

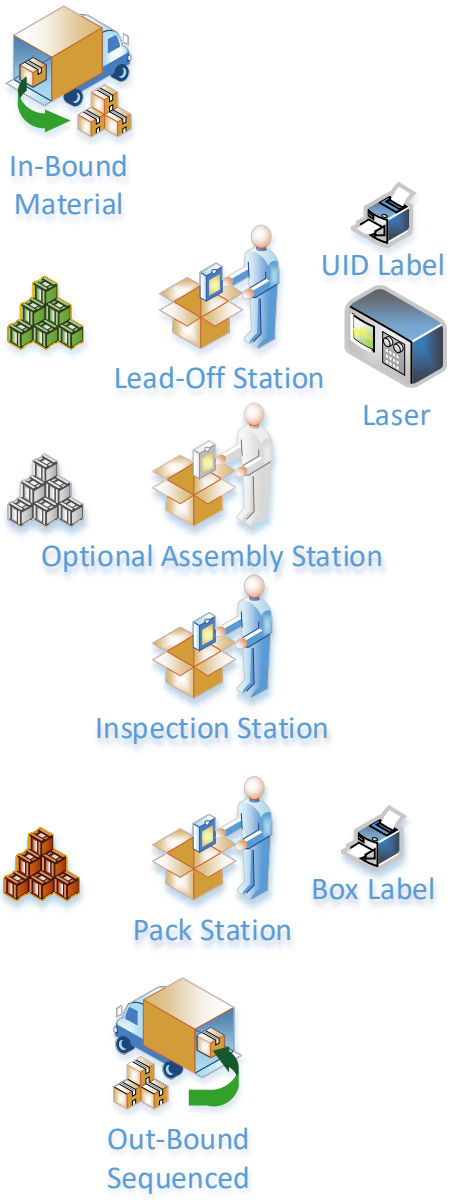
Pack Station



Laser marked barcode is scanned to confirm it is readable and has passed the Inspection Station and shipping label is created if passing status. No label if status is FAILING.
PW will append an entry to the Trace Log file, including UID, station, date, time, part status
Need to define shipping label format and content.

Track Pac Detailed Design

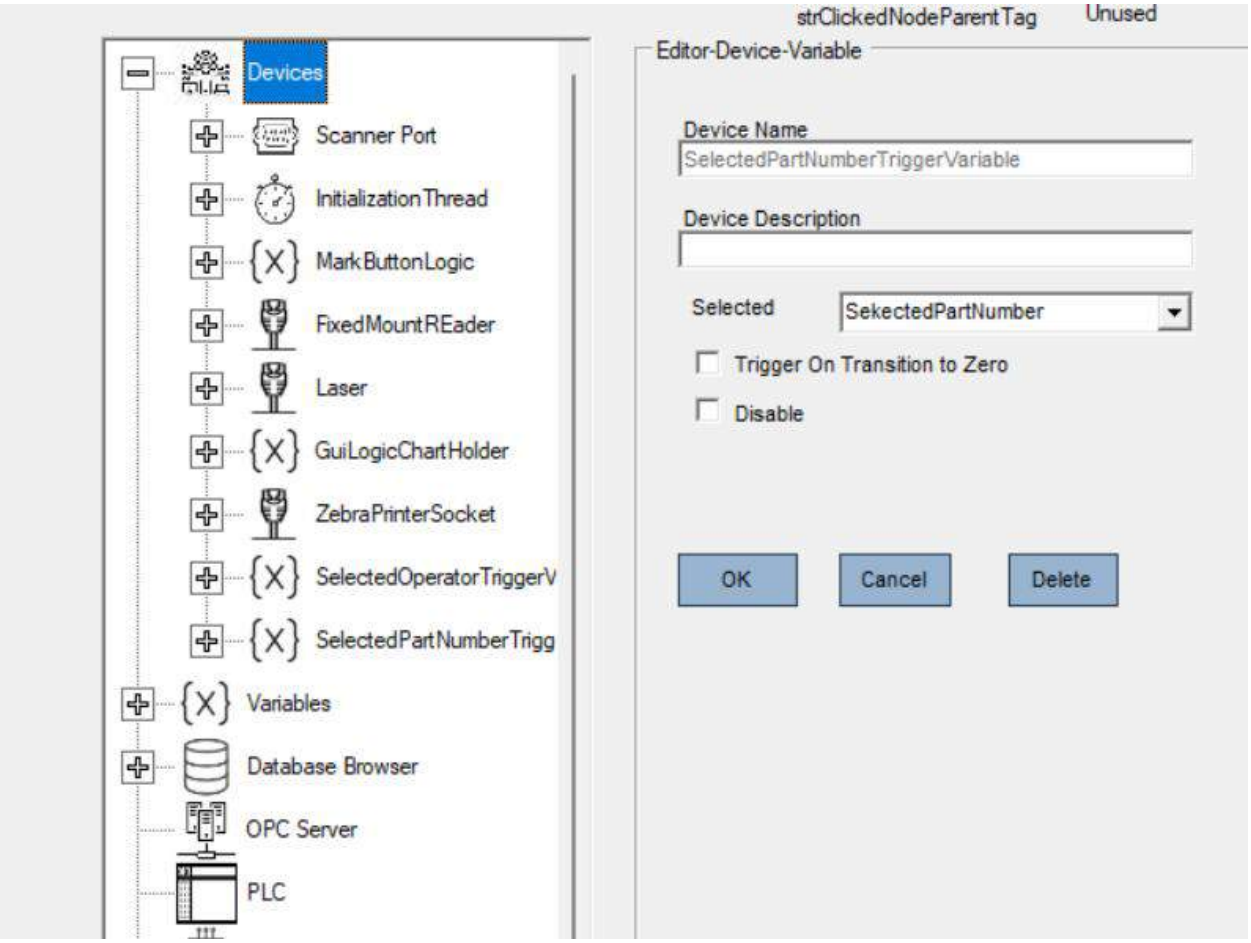
Devices



Devices perform two functions, getting data into and out of PlantWatch and triggering the execution of *Logic Charts*. Data can flow to and from PlantWatch through a device, such as a bar code reader connected to the through RS232 port.

When new data flows into the system thru a *Device*, the *Device* is triggered and all logic charts associated with that *Device* are executed.

It is also possible to write data out thru the*Device*.



Variables

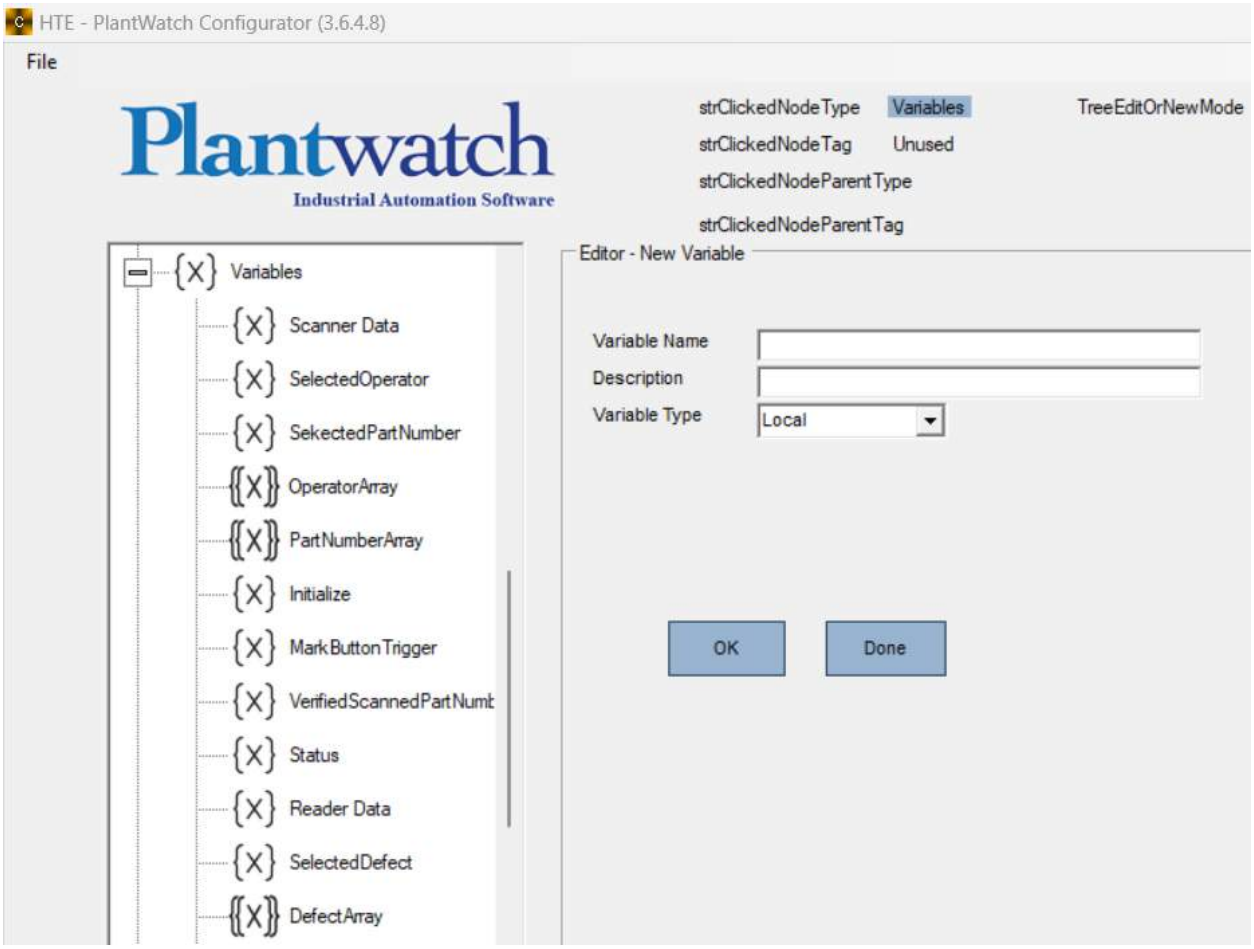
Variables are used to bring OPC and IO values into PlantWatch as well as holding values used in logic charts or screens. There are four types of variables, Local, OPC, PLC Tag and Array.

Local type variables are used for storing values within PlantWatch for later reference by a logic chart cell or graphic screens.

OPC type variables are used to bring in data via OPC servers. OPC type variables are associated with an OPC item and are constantly updated with the items value.

PC Tag type variables are used to bring in data via direct connection to a PLCPLC Tag type variables are associated with a specific PLPC Tag and are constantly updated with the items value.

A single Array variable can hold many values which can be presented to a user via a list box on a graphics screen or used within a Logic Chart cell.



Logic Charts

A *Logic Chart* is a collection of cells made up of action cells and logic cells. Each Logic Chart is associated with a specific Device. When that specific *Device* is triggered, all of the logic charts associated with the Device are executed. When a logic chart is executed, it will process the configured cells starting at the top left and will execute cells until it reaches a point where there are no more cells to execute.

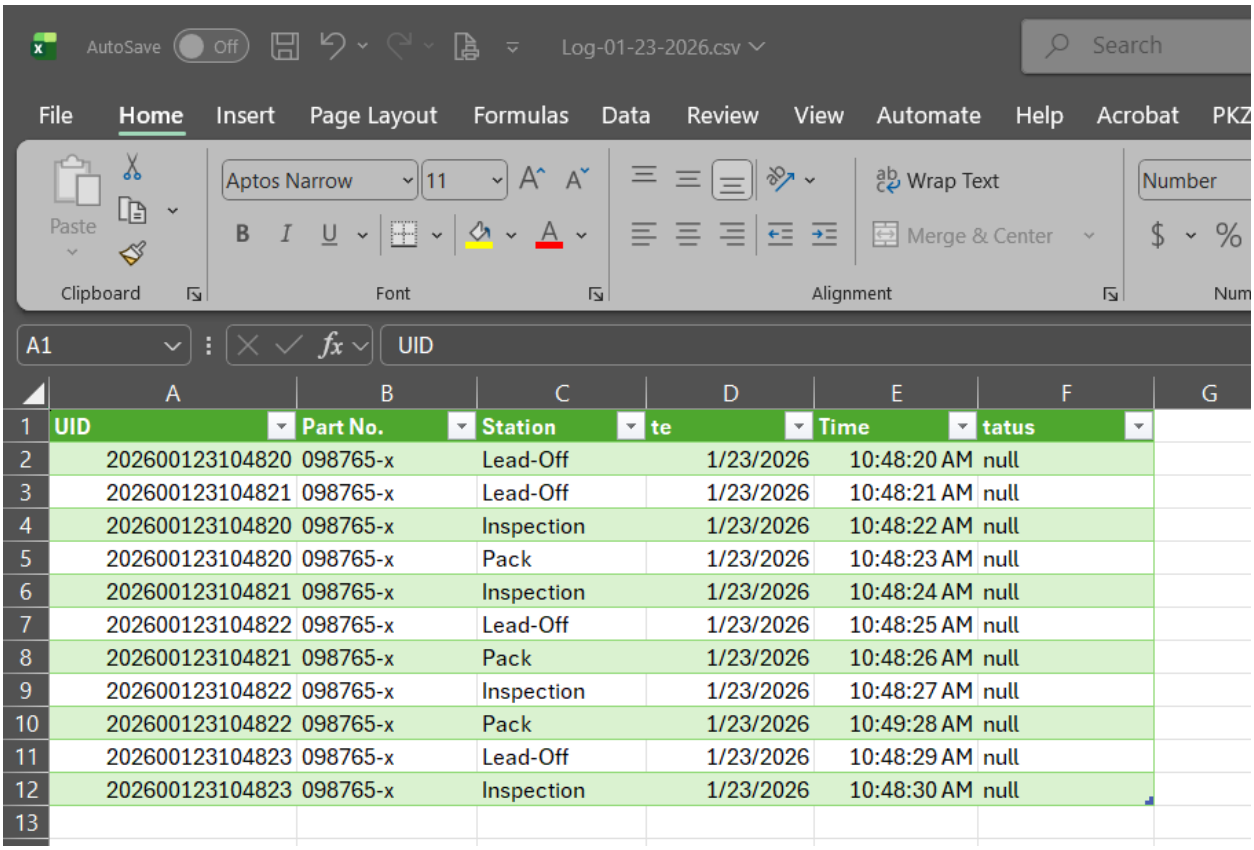
There are two types of cells, action and logic, within a *Logic Chart.*

An example of an **action** cell is *WriteToOPC*. Using the *WriteToOPC* cell you could write a value to a register in a PLC.

An example of a **logic** cell is *IF.* Using an *IF* cell you can control the execution path within the *Logic Chart.* If the statement defined within the *IF* cell is true, the cells following the *IF* will be executed. If the statement defined within the *IF* cell is false, the cells following the *IF* will not be.

Track Pac Data Reporting

MS Excel with UNIQUE and FILTER on Columns with drop-downs.



	A	B	C	D	E	F	G
1	UID	Part No.	Station	te	Time	tatus	
2	202600123104820	098765-x	Lead-Off	1/23/2026	10:48:20 AM	null	
3	202600123104821	098765-x	Lead-Off	1/23/2026	10:48:21 AM	null	
4	202600123104820	098765-x	Inspection	1/23/2026	10:48:22 AM	null	
5	202600123104820	098765-x	Pack	1/23/2026	10:48:23 AM	null	
6	202600123104821	098765-x	Inspection	1/23/2026	10:48:24 AM	null	
7	202600123104822	098765-x	Lead-Off	1/23/2026	10:48:25 AM	null	
8	202600123104821	098765-x	Pack	1/23/2026	10:48:26 AM	null	
9	202600123104822	098765-x	Inspection	1/23/2026	10:48:27 AM	null	
10	202600123104822	098765-x	Pack	1/23/2026	10:49:28 AM	null	
11	202600123104823	098765-x	Lead-Off	1/23/2026	10:48:29 AM	null	
12	202600123104823	098765-x	Inspection	1/23/2026	10:48:30 AM	null	
13							

Track Pac Files

Configuration

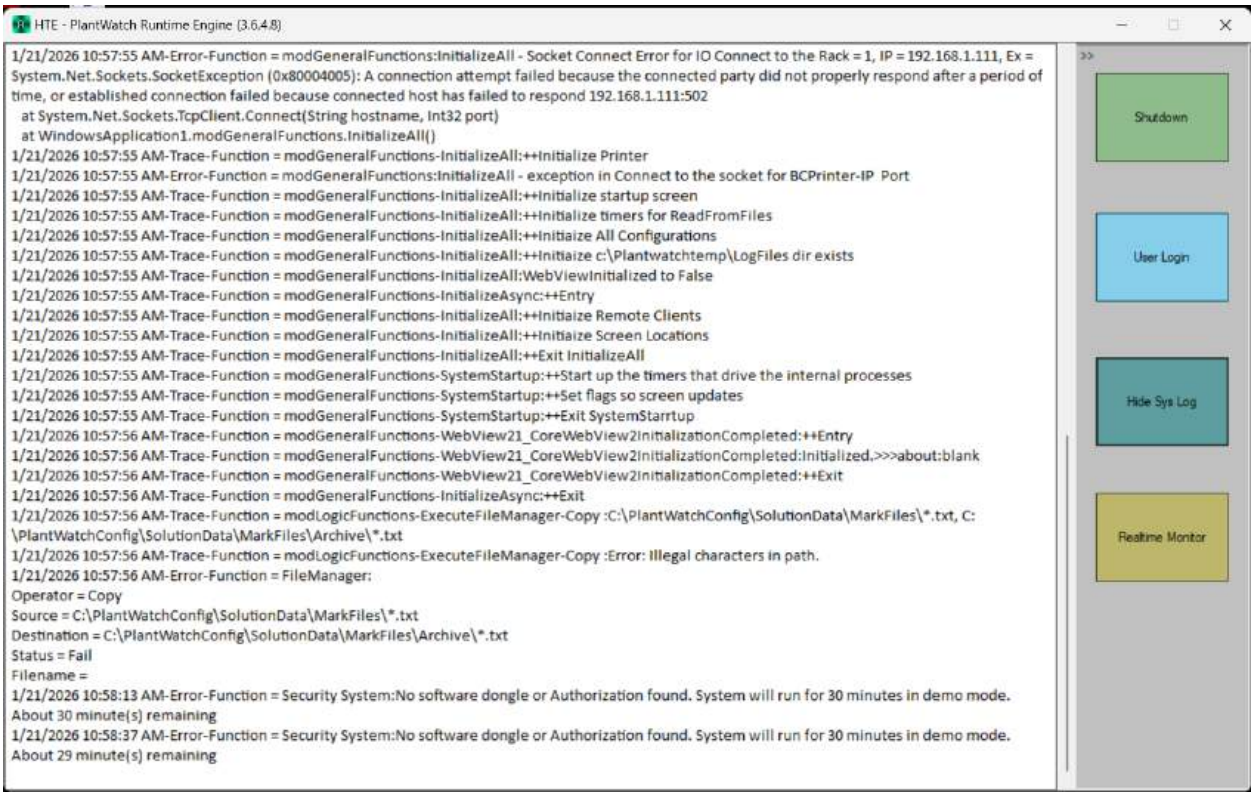
Configuration of static items, such as Operator name, Part numbers and Defects can be managed by editing the corresponding text files. These files are located inC:\PlantWatchConfig\SolutionData\Config Files. Using a standard text editor, you can add or delete items to these static configuration files. For the edits to take place, you mustrestart the Track Pac Application.

Appendix A – PlantWatch Diagnostic Tools

PlantWatch has several tools designed to help the user maintain and diagnose the system.

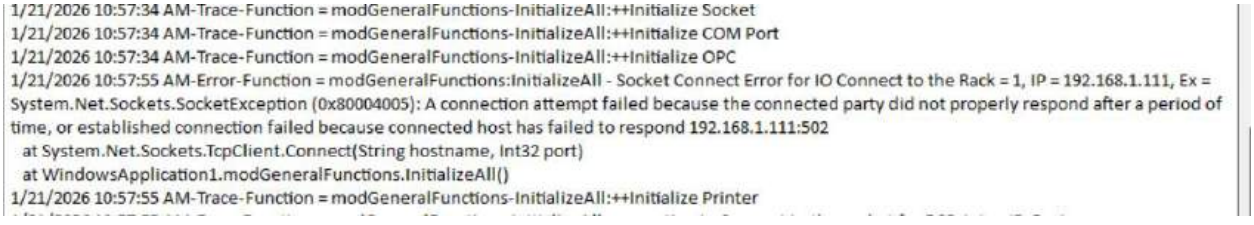
System Log

The Sys Log is a scrolling log of events as they happen and are captured and displayed in real-time as the system runs.



If system levels error conditions occur, they will bepresented here.

Ex: The system can't find an ethernet connection. You will se a message like the following:



This can be used to monitor the execution of the Track Pac logic and to solve errors in the logic.

Runtime Monitor

This page allows the user to see the internal values of the defined variables, single step through a logic chart, set logging levels and deep dive into the communication between PlantWatch and OPC, PLC, database and remote clients[i].