

WILLRICH PRECISION
INSTRUMENT
THINK MEASUREMENT... THINK WILLRICH

Ph 866-945-5742 email:sales@willrich.com

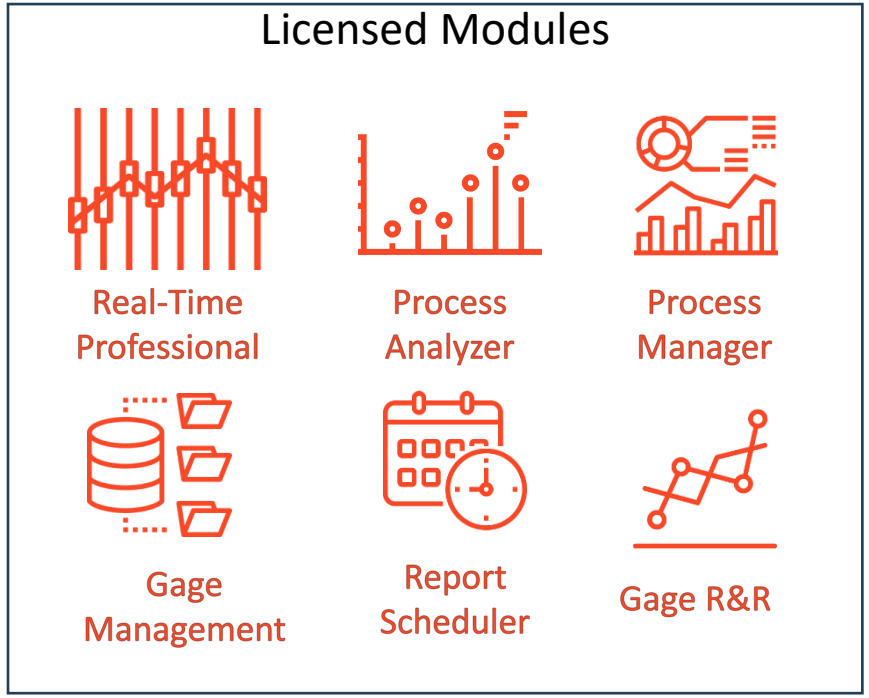
MeasurLink

QUALITY DATA MANAGEMENT

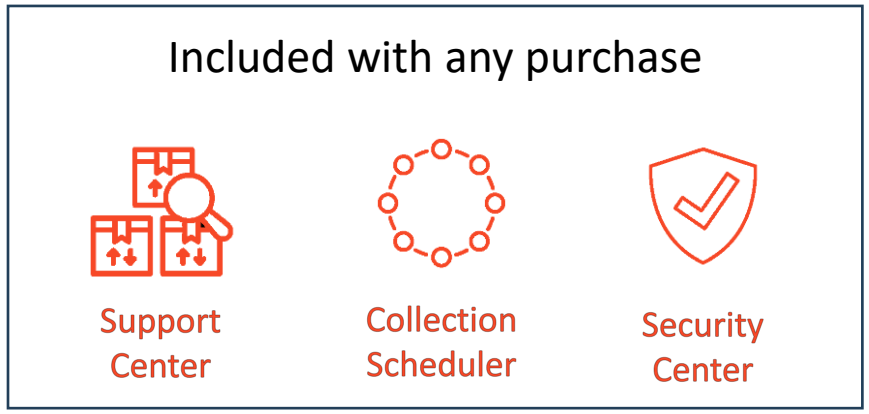
OVERVIEW

MeasurLink Modules

- MeasurLink consists of several licensed modules to choose from
- Licenses can be fixed, floating, or a combination
- Build a quality data management package that suits your organizational needs
- Or start small and scale up as your needs increase
- MeasurLink is used in factories large and small all over the world







Real-Time – Basic Data Collection

- Regardless of brand and type of inspection equipment, data can be captured from:
  - Keyboard
    - Supports variable and attribute data collection
  - HID (Keyboard emulator - USB, Bluetooth, etc.)
  - Serial data (RS-232, VCP)
- Data Tagging
  - Capture Traceability such as serial number, job number, operator, machine ID, material, supplier, date/time, gage serial number
    - Supports manual entry, barcode scanner, and other automated methods
  - Assignable Cause/Corrective Action
    - Captures the reason for non-conformance
    - Provides work instructions to fix the problem
    - Email alerts for out of tolerance or trending data











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Real-Time – Advanced Data Collection

- Data can be captured from:
  - Over the network
    - MTConnect,
    - MQTT,
    - OPC UA
  - DDE
    - Directly from Mitutoyo CMMs, Vision, & Form machines
  - Import Templates
    - Requires custom built template from an ASCII file to **capture data from any non-Mitutoyo machine**
      - Ex. ASCII files: .txt, .csv,
      - One import template is included with purchase
    - **Imports can be set to capture data automatically**
  - QIF Results Import (ISO 23952:2020)
    - An XML-based ISO standard
      - Similar to an Import Template but does not require any custom work
    - Imports can be set to capture data automatically
  - Calculations
    - Average, range, max, min, area, position, etc.





QIF

OPC FOUNDATION

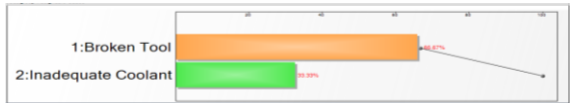
MQTT

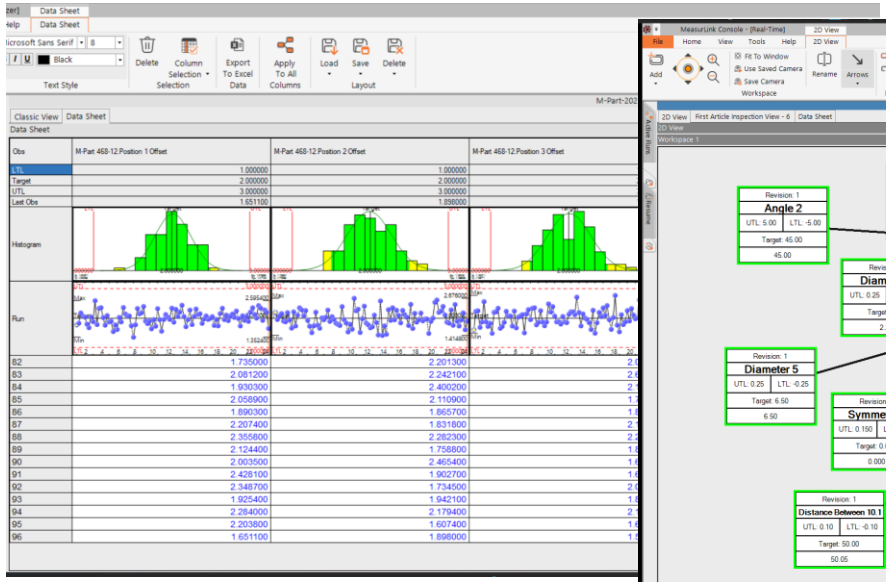
MTCONNECT POWERED BY AMT

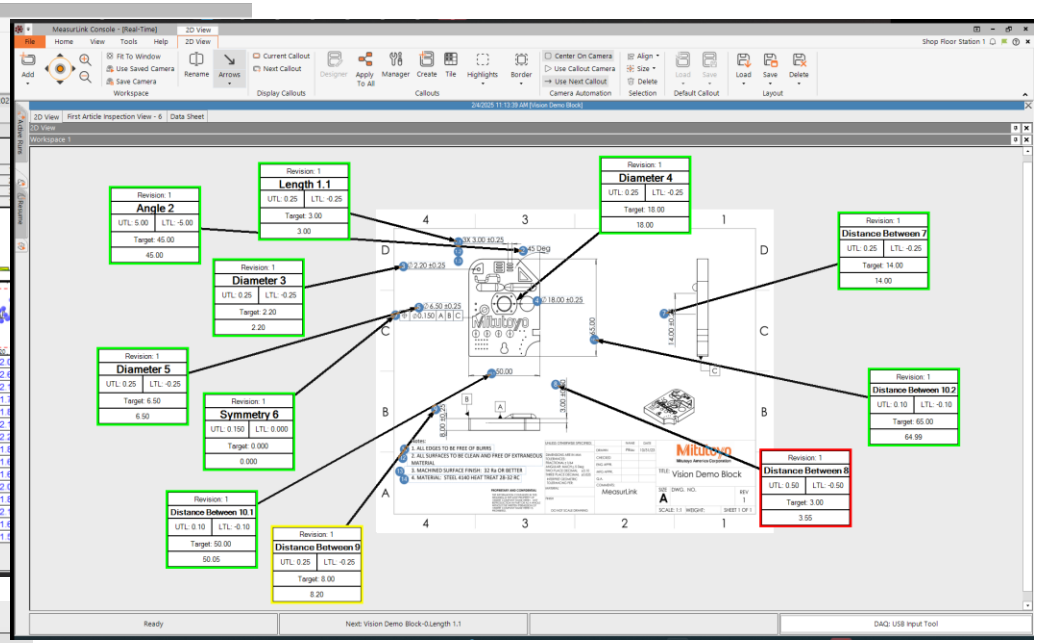
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Real-Time - Display

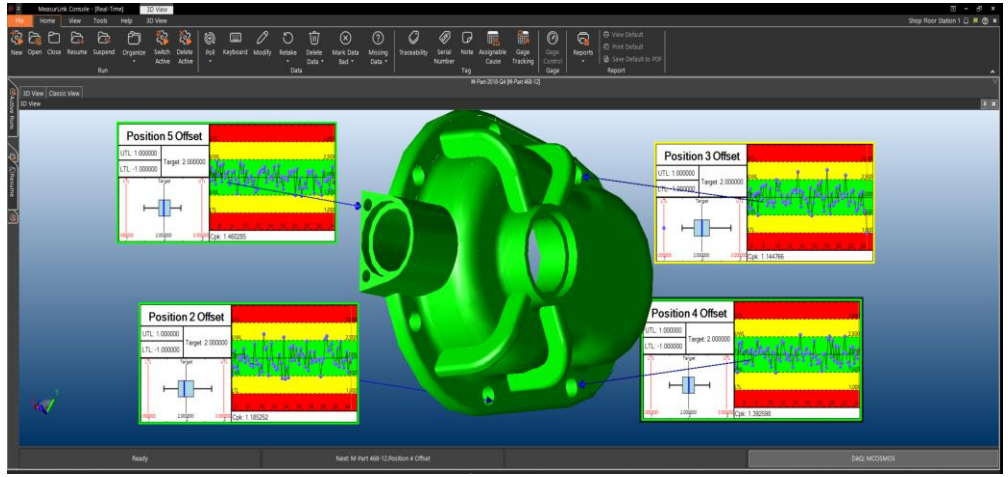
- All views are configurable to assist and guide operators through data collection.
- Types of view options:
  - 2D Print
  - Spreadsheet
  - Images
  - 3D Model (.HSF)
    - Requires Real-Time Professional 3D add-on
  - Combination views
  - And more
- Text and Charts
  - Text items and charts can be configured and saved as defaults such as cpk, ppk, Xbar charts, histograms, etc.
- Alerts
  - Can be displayed for out of tolerance, trending, or other out of control conditions







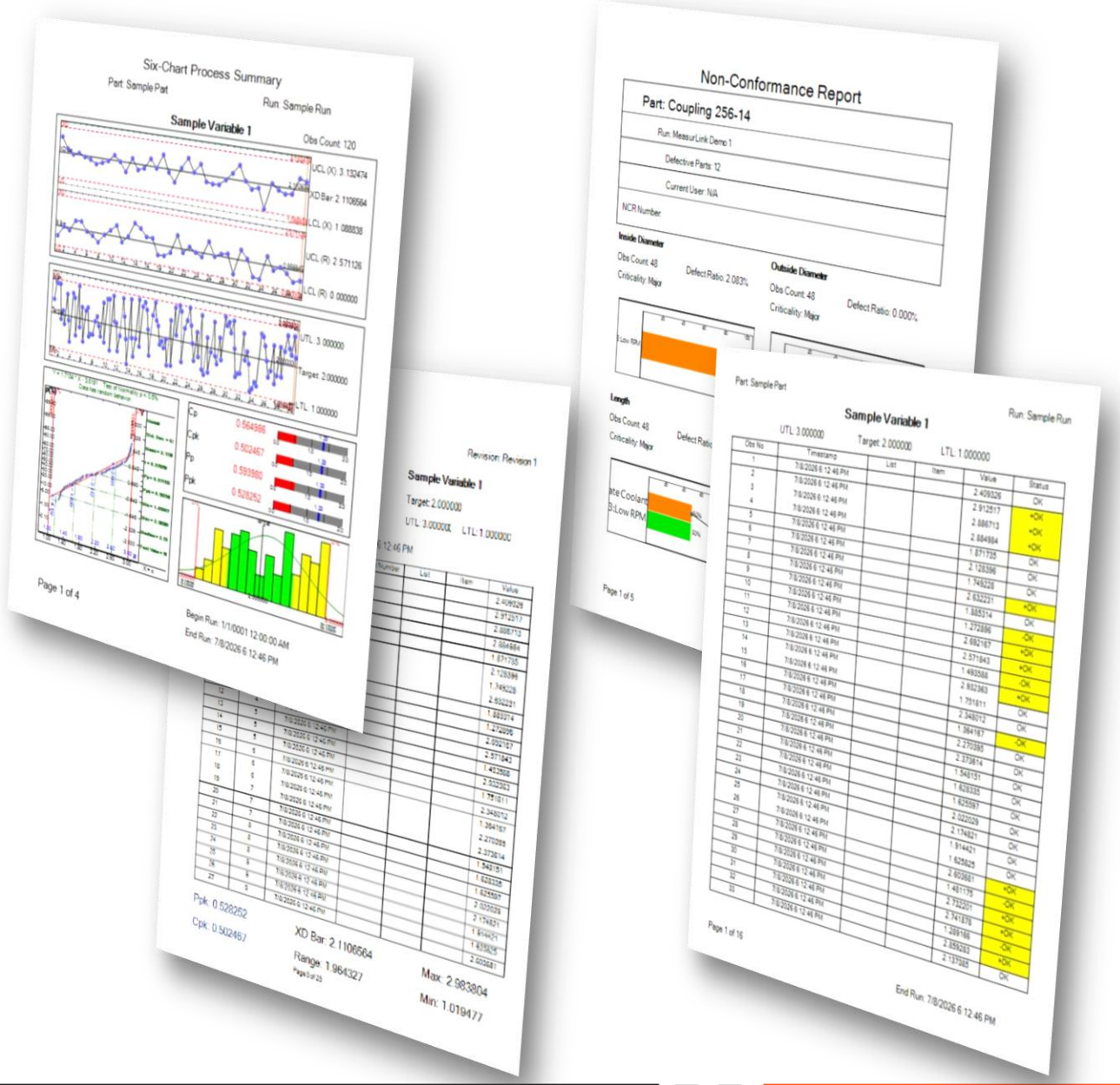




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Real-Time - Reports

- Custom Reports
  - Reports can be custom made in the MeasurLink Report Designer
  - Crystal Reports can be created as a service or in the Crystal Reports application
- Premade Reports
  - Comes with configurable turnkey report options such as SPC reports, numerical reports, non-conformance reports
- First Article Inspection
  - Ready-made AS9102 standard report
- Excel, .csv, and .txt file outputs available



Real Time - Sampling

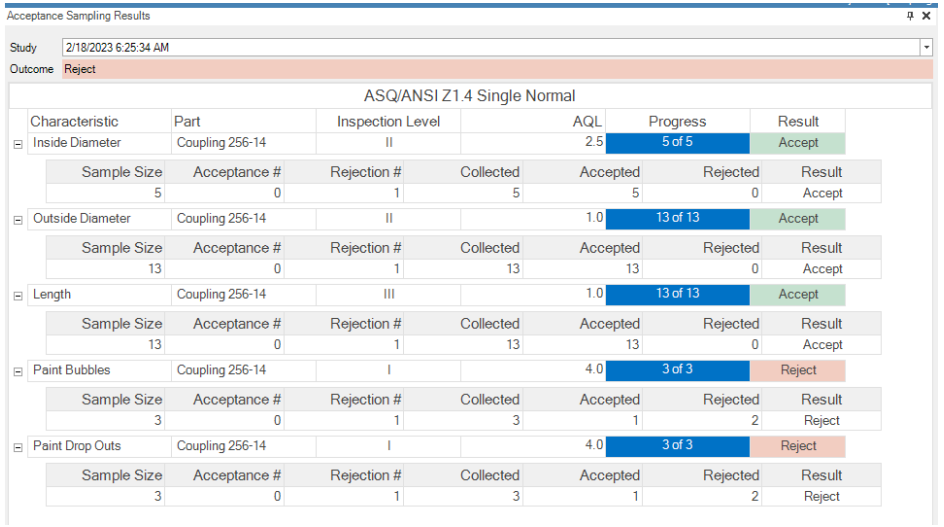
Collect by Time or By Lot

Collection Scheduler

- By Time: Collection Scheduler
  - For customers who manufacture/measure on a timed measurement schedule
  - Andon display lets operators know when measurements are due next
  - Email alerts for missed measurements
  - Customizable schedules

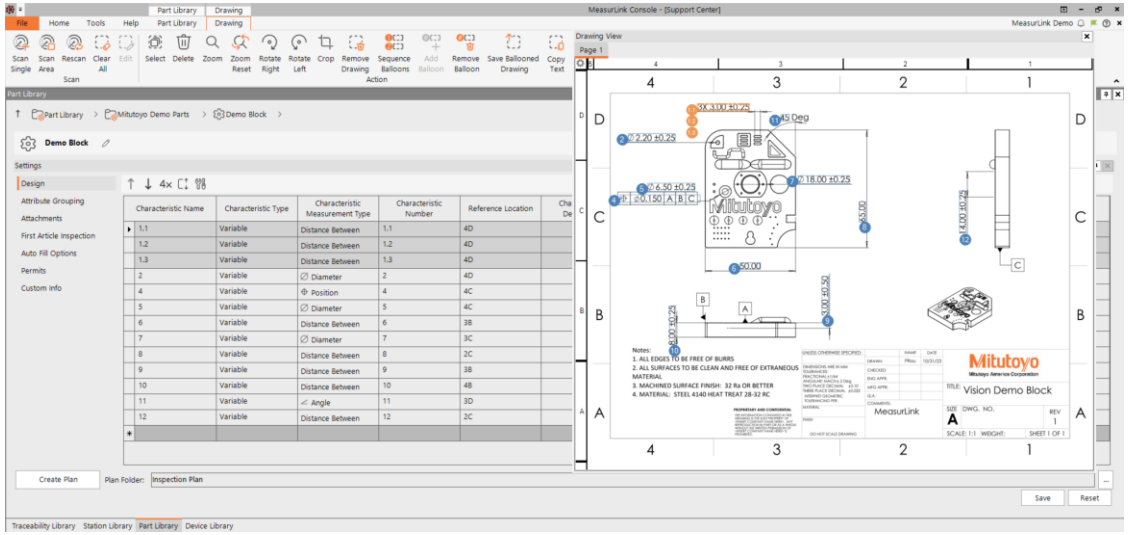


- By Lot: Acceptance Sampling
  - Included in all Real-Time Editions
  - Supports C=0 and Z1.4 Sampling Plans
  - Enter lot size and AQL
  - Automatic pass/fail judgements

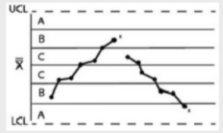


Support Center

- Support Center is used to prepare data collection for operators and inspectors
  - Key features
    - Automated ballooning and extraction of part drawings
      - Saves administrators time and effort
    - Set up alerts
      - Based on criteria such as out of tolerance or trending measurements
    - Create a library of causes and corrective actions
    - Create a library to track critical process information
      - i.e.: operator, material, temperature, lot number, machine line, etc.
    - QIF import of part definition



Enabled	Name	Param	Apply	ForceAC	MarkBad	Prompt	Email	LogFile	Sound
☐	Extreme point		XBar&Range	☐	☐				
☐	Run above or below centerline	8	X Bar	☐	☐				
☐	Linear Trend	6	X Bar	☐	☐				
☐	Oscillatory trend	14	X Bar	☐	☐				
☐	2 of 3 beyond 2 sigma		X Bar	☐	☐				
☐	4 of 5 beyond 1 sigma		X Bar	☐	☐				
☐	Stratification	15	X Bar	☐	☐				
☐	Mixing/Overcontrol	8	X Bar	☐	☐				
☑	Out of Tolerance			☑	☐				



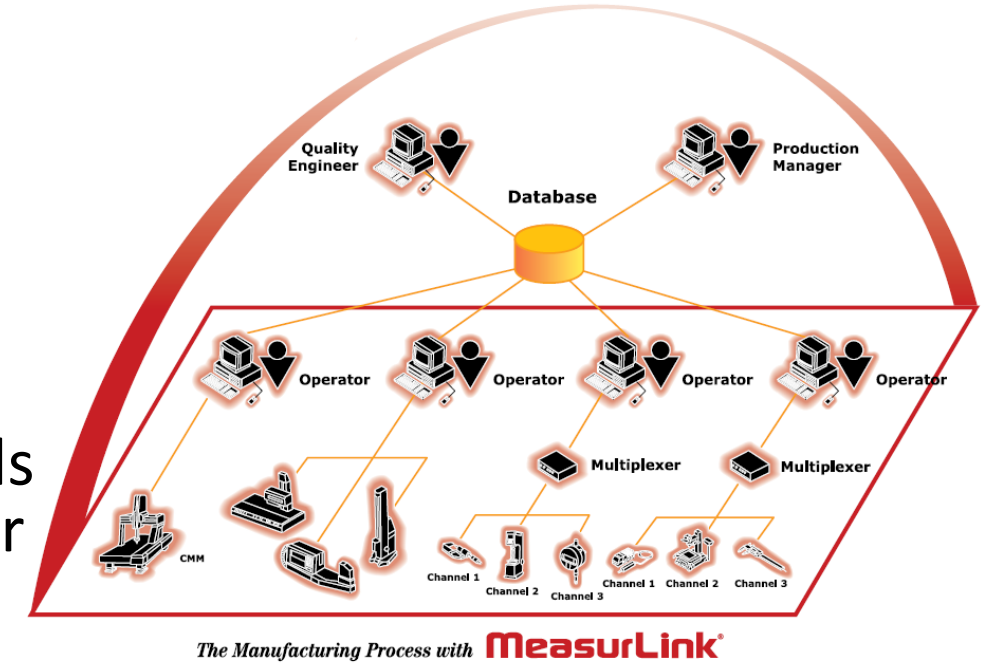
Linear Trend

Out of control condition - specified number of consecutive subgroup averages (typically 6) are all increasing or decreasing in value. Neither the chart centerline nor the zones are considered.

This could be a sign of tool wear.

MeasurLink Database

- Real-Time data can be stored on a standalone database, on the computer hard drive
- For multi-license applications, all the stations store their data in an SQL Database located on the user's network
- Monitoring information from all MeasurLink® data collection terminals networked together on the shop floor and QC Lab is the ideal way to maximize cost reduction and process efficiency
- System Requirements

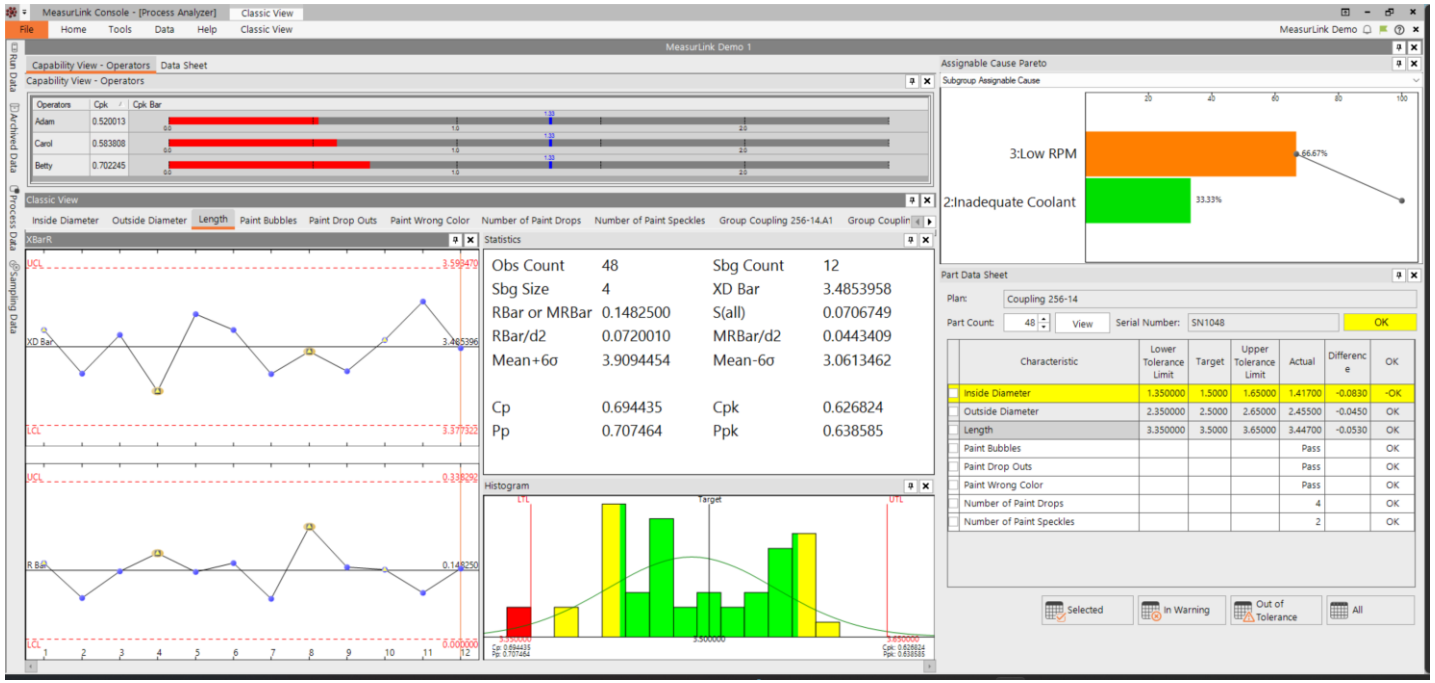




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Process Analyzer

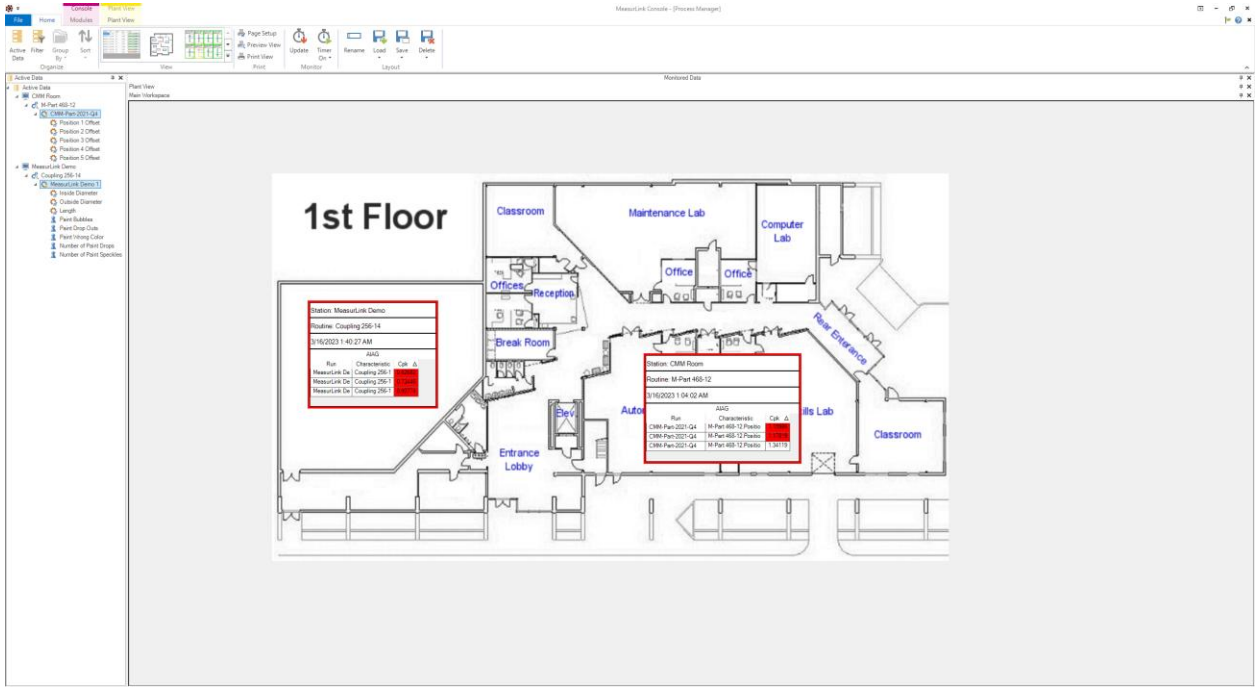
- Answer questions about Quality
- For engineers/managers to remotely access data from all Real-Time stations
- Copy, merge, and filter data by time/date, lot, serial number, machine operator or any other traceability element
- Custom report creation
- Powerful analysis features
  - Normal probability
  - Multivariate
  - Pareto
  - Scatter
  - What-If analysis
  - Summary analysis

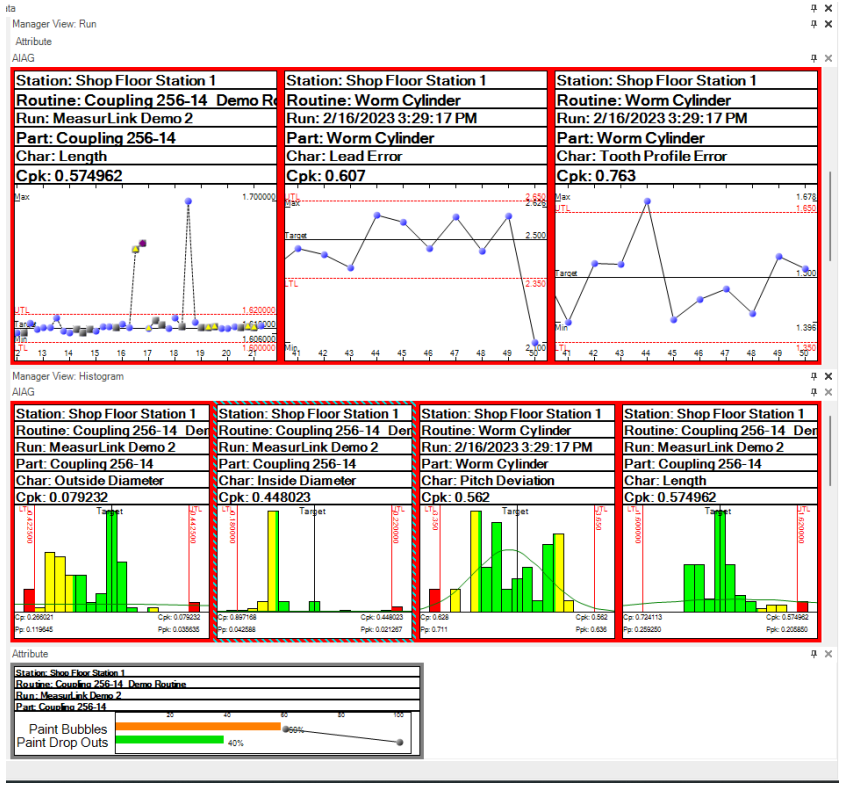


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Process Manager

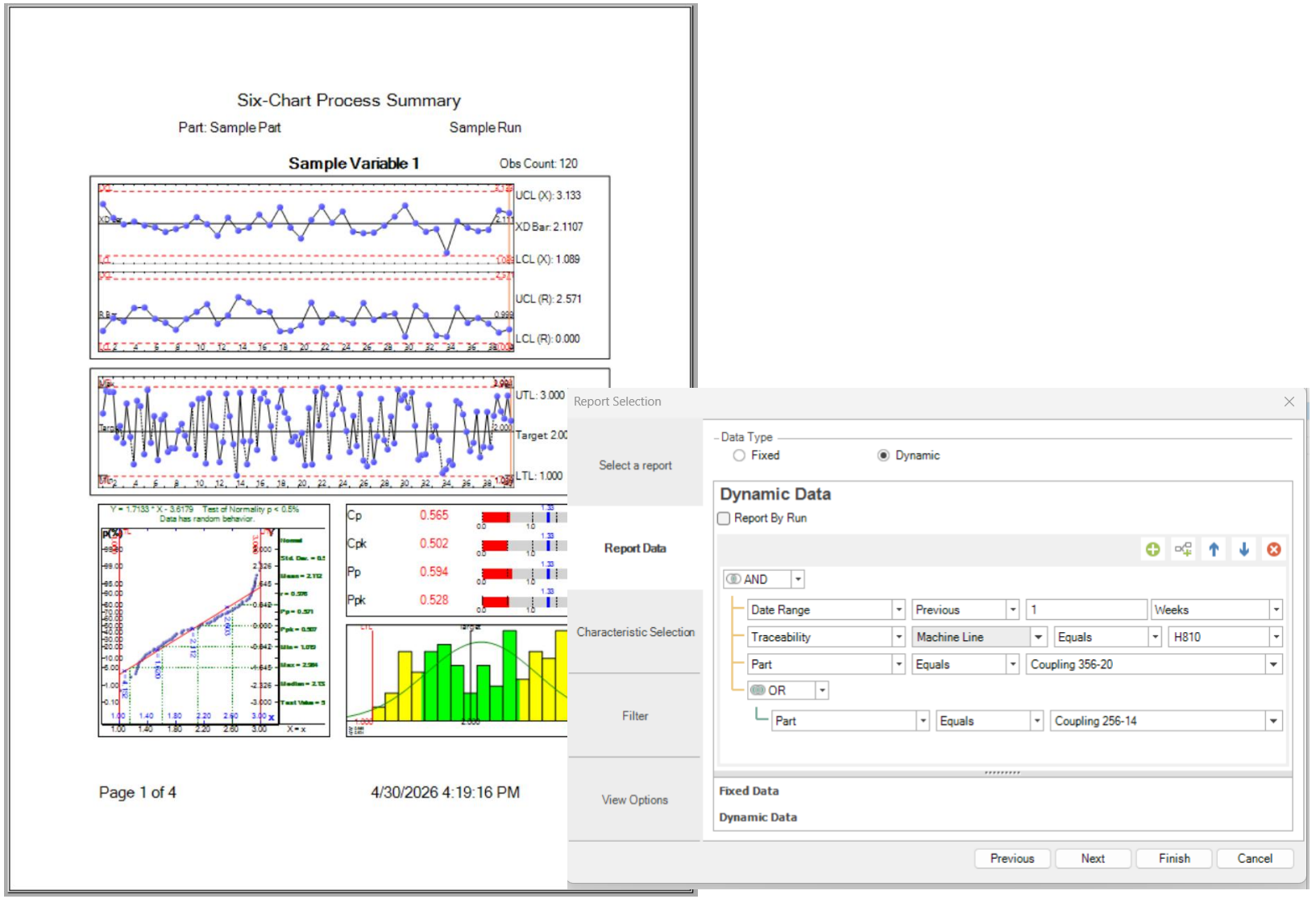
- Live dashboard of inspection data
  - Histograms
  - Run charts
  - Capability
  - Plant-wide view
- View entire plant data collection or specific lines/cells
- Log events
  - Retaken, modified, or out of tolerance data
  - Process capability fails





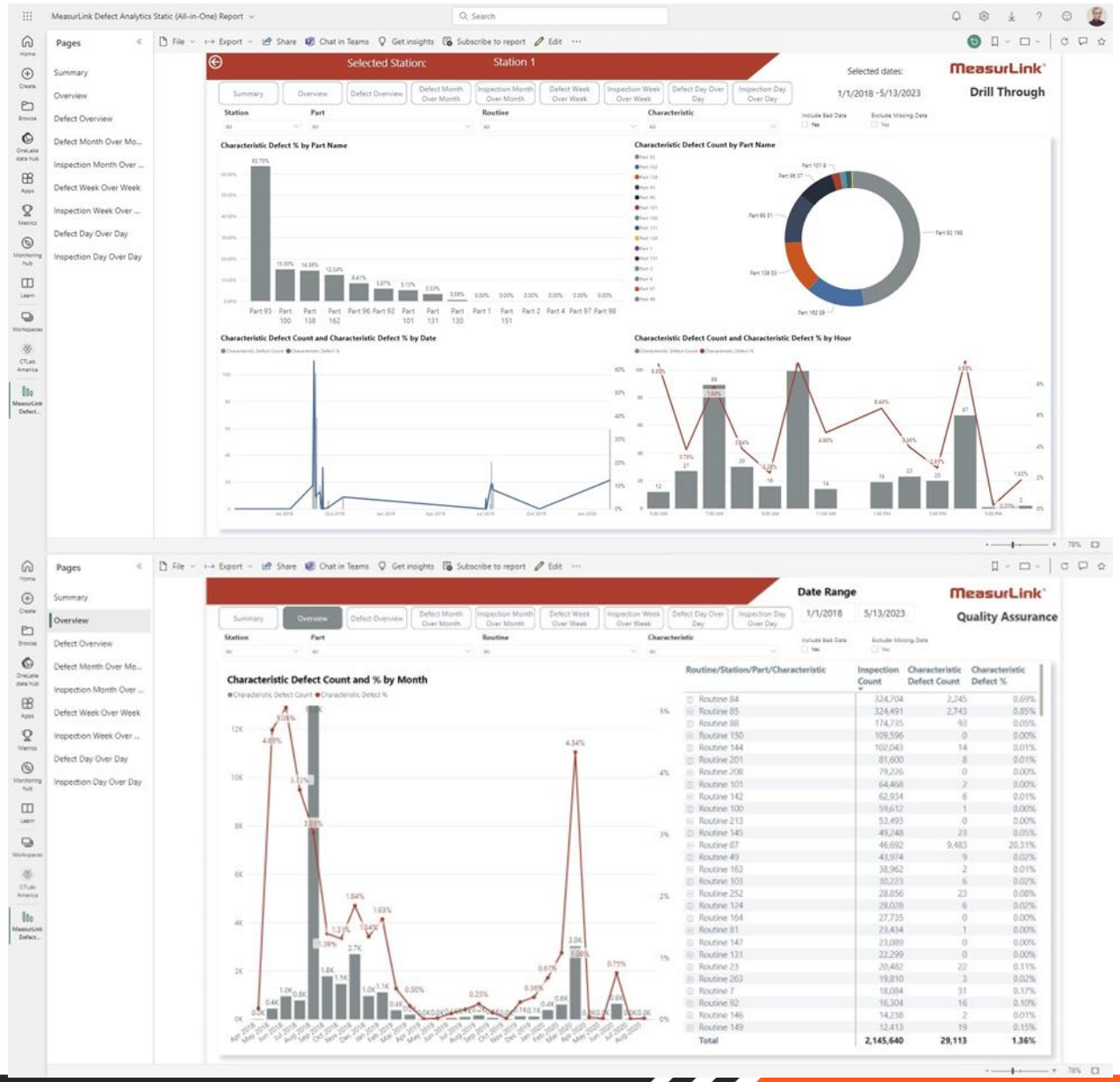
Report Scheduler

- Automate analysis and reporting tasks that will run on a given schedule
- Reports can be:
  - printed,
  - emailed,
  - and exported
- Schedules can be defined at timed intervals
  - hourly,
  - daily,
  - weekly,
  - monthly,
  - and yearly intervals



Defect Analytics Report for Power BI

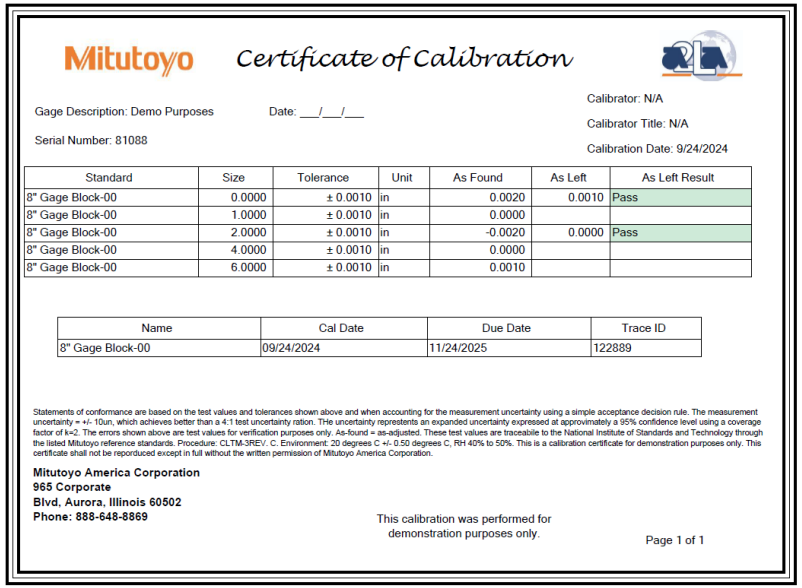
- Provides interactive intuitive visualizations for defects
  - By part, by characteristic, by time (month, week, day)
- Requires a Microsoft Power BI application or subscription
- Unlimited use and access to the report after one-time purchase
- Does not require a MeasurLink license
- Interactive Power BI Demo



Gage Management

- Manage, maintain, and organize important gage information
  - Track gage inventory, last used by, last location, calibration date, calibration costs and repair
- Calibration due date alerts
- Perform calibration procedures or save records for outside calibration
- Excel import of gages
- Use with Real-Time & Analyzer for auditing





Mitutoyo *Certificate of Calibration*

Gage Description: Demo Purposes
Date: ___/___/___
Serial Number: 81088
Calibrator: N/A
Calibrator Title: N/A
Calibration Date: 9/24/2024

Standard	Size	Tolerance	Unit	As Found	As Left	As Left Result
8" Gage Block-00	0.0000	± 0.0010	in	0.0020	0.0010	Pass
8" Gage Block-00	1.0000	± 0.0010	in	0.0000		
8" Gage Block-00	2.0000	± 0.0010	in	-0.0020	0.0000	Pass
8" Gage Block-00	4.0000	± 0.0010	in	0.0000		
8" Gage Block-00	6.0000	± 0.0010	in	0.0010		

Name	Cal Date	Due Date	Trace ID
8" Gage Block-00	09/24/2024	11/24/2025	122889

Statements of conformance are based on the test values and tolerances shown above and when accounting for the measurement uncertainty using a simple acceptance decision rule. The measurement uncertainty = +/- 10un, which achieves better than a 4:1 test uncertainty ration. THe uncertainty represents an expanded uncertainty expressed at approximately a 95% confidence level using a coverage factor of k=2. The errors shown above are test values for verification purposes only. As-found = as-adjusted. These test values are traceable to the National Institute of Standards and Technology through the listed Mitutoyo reference standards. Procedure: CLTM-3REV. C. Environment: 20 degrees C +/- 0.50 degrees C, RH 40% to 50%. This is a calibration certificate for demonstration purposes only. This certificate shall not be reproduced except in full without the written permission of Mitutoyo America Corporation.

Mitutoyo America Corporation
965 Corporate
Blvd, Aurora, Illinois 60502
Phone: 888-648-8869

This calibration was performed for demonstration purposes only.

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Preliminary Instructions and Notes

Calibration shall be performed in an environment that conforms to manufacturer specifications.

The caliper will hereafter be referred to as the Instrument Under Test (IUT).

Verify that the IUT is clean.

Visually examine the IUT for any condition that could cause errors in the calibration.

If a malfunction occurs or a defect is observed while calibration is in progress, the calibration shall be discontinued and necessary corrective action taken; if corrective action affects a measurement function previously calibrated, the function shall be recalibrated before the remainder of thre procedure implemented.

Use extreme care when removing dirt, fingerprints and other foreign substances so that cleaning solutions do not enter internal portions of the IUT.

Detailed Procedure

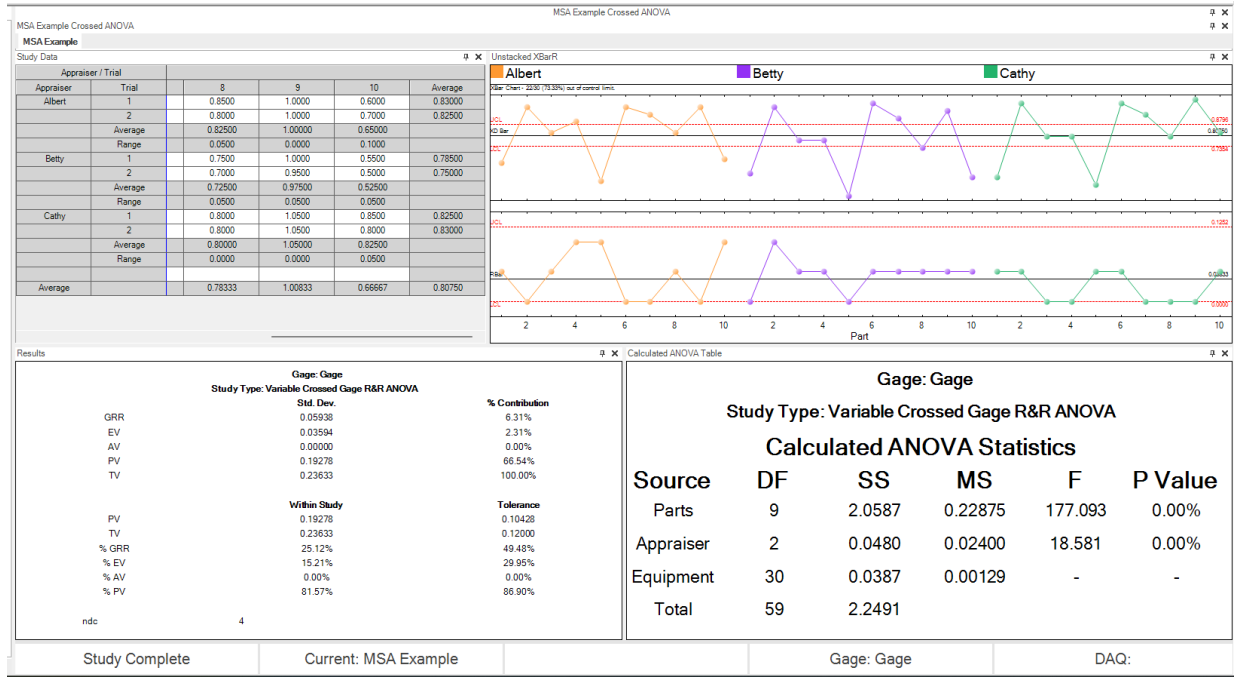
- [ ] Examine all gaging surfaces for nicks, burrs, scratches, wear or other signs of mishandling that may affect accuracy of the instrument. Remove any positive surface imperfections utilizing a hard arkansas stone.
- [ ] Apply sufficient amounts of cleaning solution to dampen a lint free cloth. Carefully clean all exposed surfaces removing all foreign substances and particulate matter.
- [ ] Check O.D. jaws when in the closed position. Hold calipers to light source and visually examine for light between the jaws. Light will not be seen if jaws are parallel.
- [ ] Check I.D. knife-edge jaws for wear when in the closed position. Caliper must be positioned squarely in line of sight to detect air gaps or surface imperfections between jaws.
- [ ] Verify zero setting of caliper by observing the indicated reading with jaws in the closed position. If caliper does not read 0.000, dial calipers can be adjusted to zero by loosening the bezel lock screw, then rotating bezel to align the zero graduation to the pointer.
- [ ] Record measurements in data grid.

Result	Standard			Tolerance		As Found		As Adjusted	
	ID	Unit	Size	(-)	(+)	Value	Error	Value	Error

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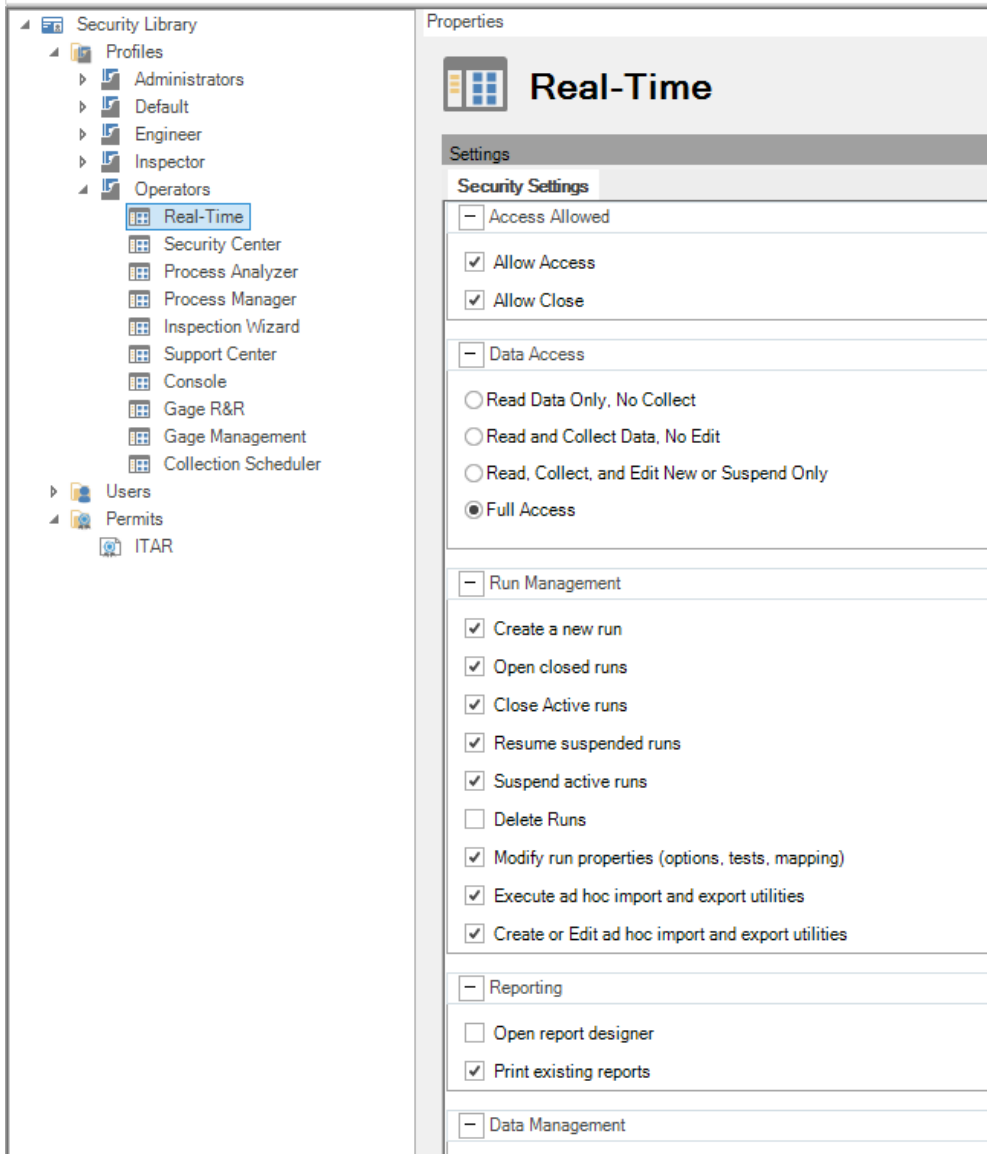
Gage R&R

- Perform all MSA4 Gage R&R Studies to determine the measurement system's capabilities
- Study Wizard
  - User guided study setup helps the user define the study that needs to be performed
- Direct input from the gage saves time and reduces errors
- Copy/paste past data for retroactive studies
- Supports ANOVA and ndc



Security Center

- Allows administrators the ability to manage differing levels of user permissions
  - Give different access to operators, engineers, and managers
- Easy to use even for those who infrequently need to access Security Center
- Required for FDA 21 CFR Part 11
- Supports Windows Active Directory
  - Authorized users will have the proper rights just by logging in to the computer and launching Real-Time with single sign-on capabilities

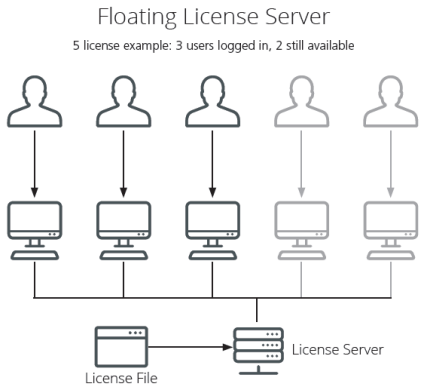


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Licensing

MeasurLink License Options:

- Fixed
  - Choose any licensed module to be fixed on a PC
- Floating
  - Includes all modules in the MeasurLink suite that can be shared across multiple users
  - Required for thin client or cloud installations



Enterprise License Options:

- Workgroup
  - Mix and match any licensed module to form a bundled package, with reduced cost-of-ownership
  - Discounts available after 5 or more licenses



*Additional cost for RT3D edition

MeasurLink Modules



COLLECT
UNIFY
ANALYZE
VISUALIZE

Licensed Modules

- Real-Time Professional
- Process Analyzer
- Process Manager
- Gage Management
- Report Scheduler
- Gage R&R

Add-On

- Real-Time Professional 3D
- Power BI

Included with any purchase

- Support Center
- Collection Scheduler
- Security Center

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Helpful Links

- General Overview
- Data collection and barcode scanning
- OCR and Ballooning
- Assignable Cause / Corrective Action Alerts

