DIGITAL VISION

MACHINERY & DIGITAL SURFACING

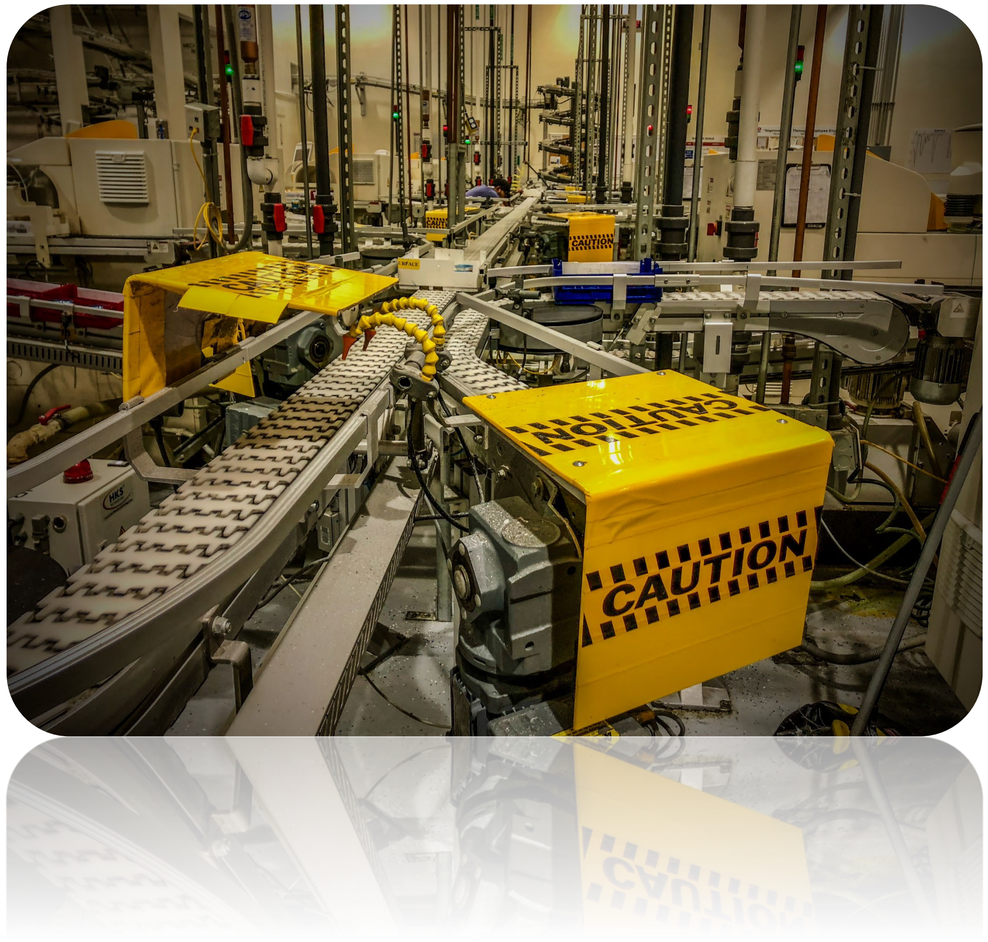
Developments in Equipment and Vendor Interfacing, Lens Data, Tracer/Edger Sync, Digital Surface and Inspection Station

Brian Biggs, Aaron Hagen, Danny Reyes

MACHINERY

New development in lab equipment interfacing

- ✦ Satisloh ART Blocker:
  - ART glue thickness at block diameter for de-blocker
  - ART manual blocker support on front-side progressives
- ✦ Expanded support for Essilor CLBS interface to DVI—tracking, checkoffs, etc.
- ✦ New Interface for Essilor DECIDE inspection device and process

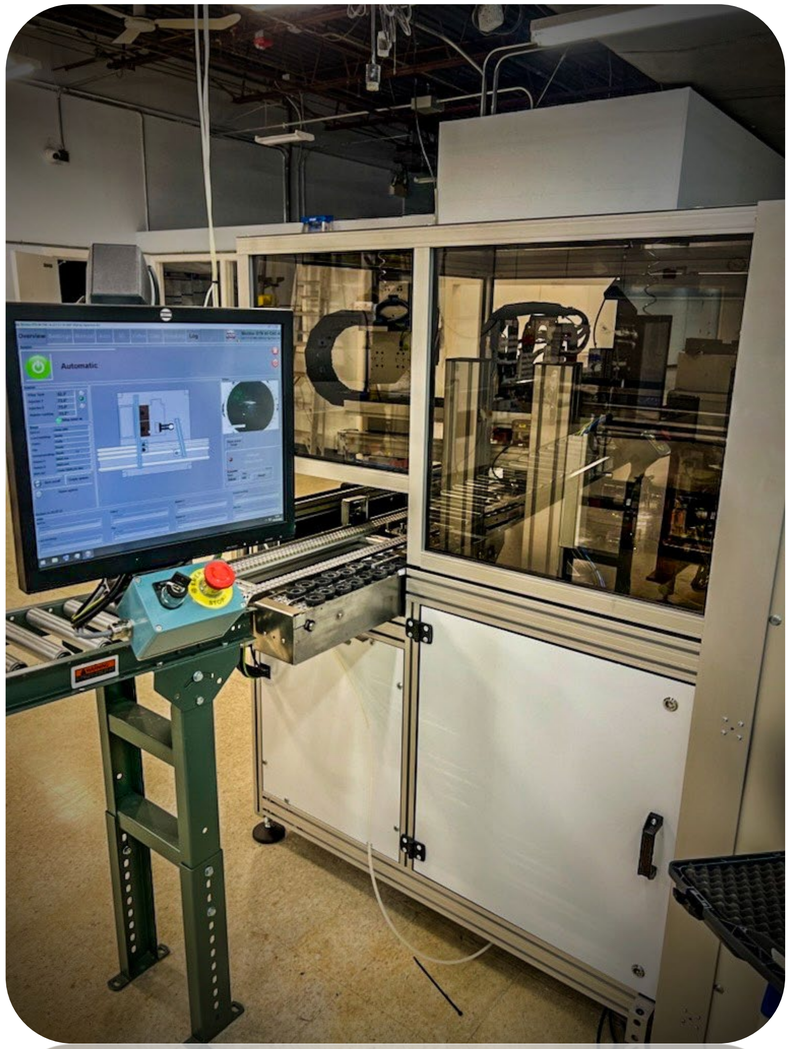


MACHINERY

DIGITAL VISION

New development in lab equipment interfacing

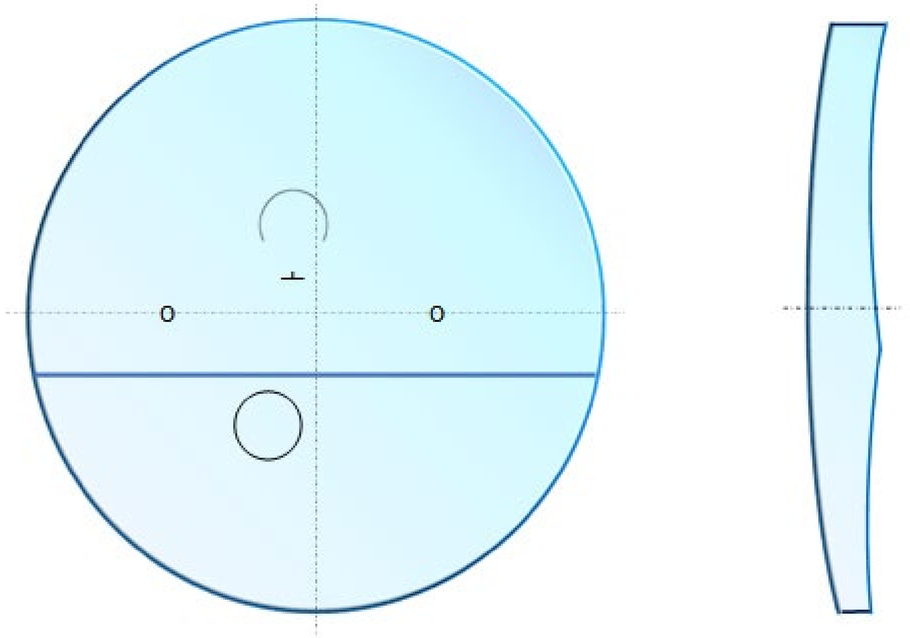
- ✦ Support Optotech Complex Cribbing
- ✦ MEI CORE generator support
  - Generates, polishes, and engraves without a block



MACHINERY

Slab Offs

- One-call / Two-pass Slab off support (Satisloh and Schneider)
  - Schneider requires VCA 3.15 or newer on generator (verify initialization)
  - Satisloh requires dual surface add-on
  - Older equipment may not be eligible
- Slab Offs on IOT designs
  - Also available with new process supported above
  - Work with DVI to coordinate IOT license update



MACHINERY

Lens Inventory Storage Systems

- Schneider AWS integration and support (both lenses and frames)
- Continued support of RAX inventory system
- Kardex improvements

MACHINERY

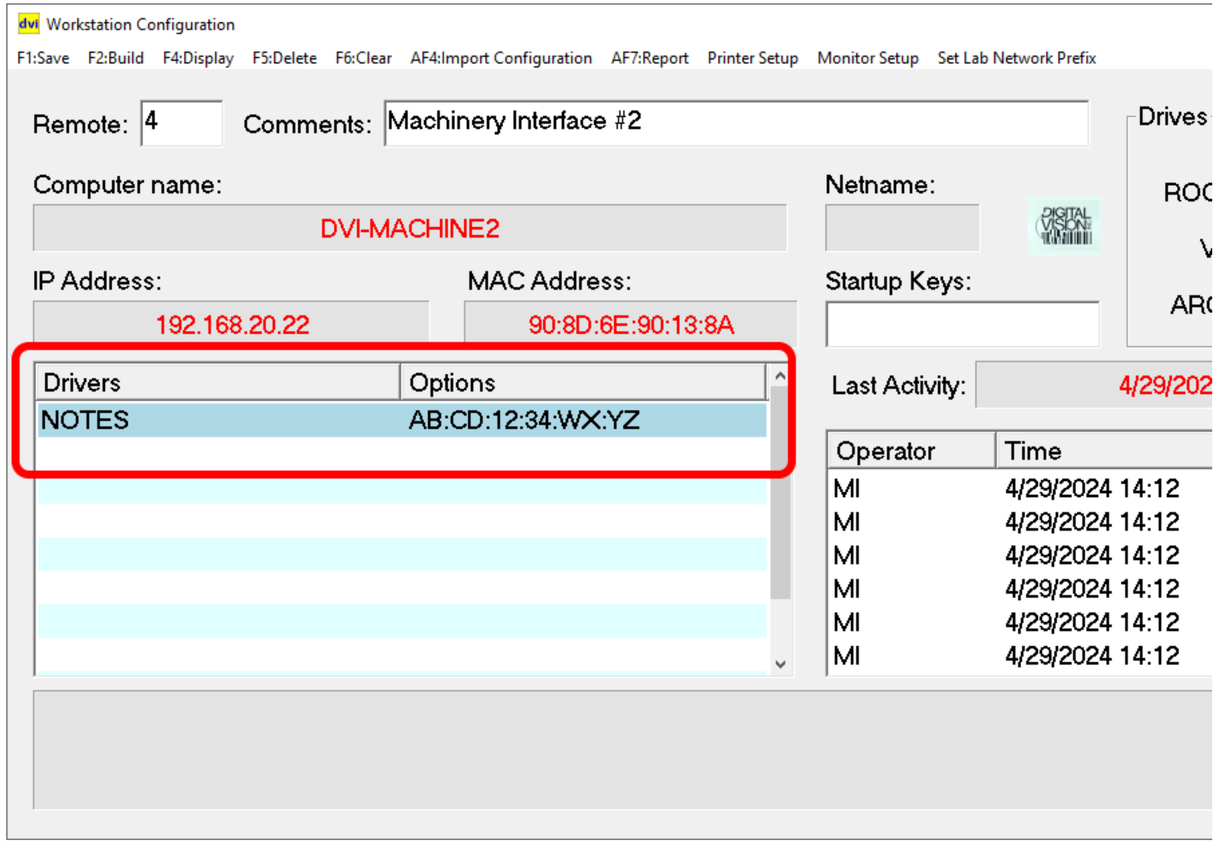
Serial Port Interface

- ✦ Enhancements for serial port communication
  - Began with support for new Digi hardware during parts shortages
  - Communications are now buffered, making them faster
- ✦ TCP/IP preferred, but all barcode scanning and most frame tracers still require serial

MACHINERY

Serial Port Interface

- Network-based serial port modules can be tough to troubleshoot when things go awry
  - Strongly recommended to configure via MAC address (as opposed to DHCP IP)
  - Label your Serial hubs (corresponding DVI workstation number, MAC address, nickname, etc.)
- Use DVI Workstation Configuration to record MAC address <5,5>



MACHINERY

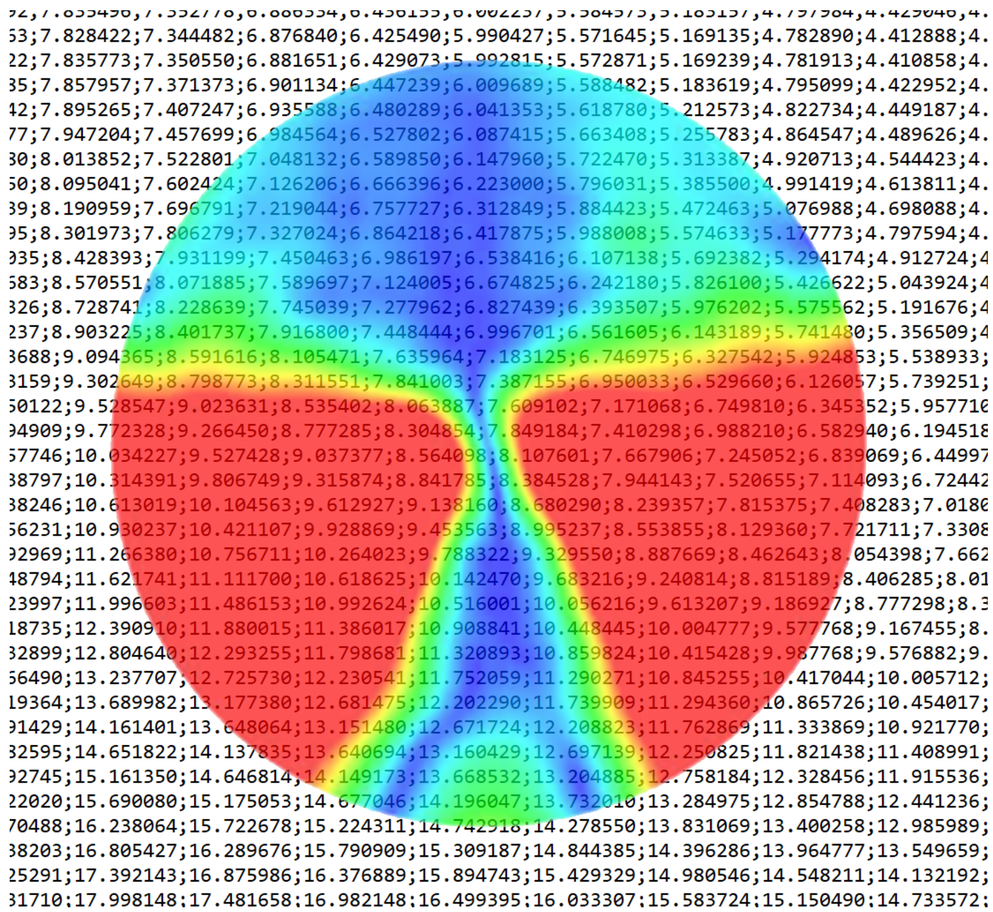
How to handle new machines and processes

- For new machines, ask the vendor if they have worked with DVI to create a working interface…before you purchase
- After that conversation, talk with DVI about the machine and the process.
- Let us know when the installation is occurring.
  - Consider necessary Job Filters
  - DVI machinery port setup is in place before the machine installation
- The same can be said of a new Digital Integration

DIGITAL INTEGRATIONS

Bridging the lab orders to 3rd party digital calculations

- Developing an integration
- How we choose who to work with
- Ongoing support of the product
- Options for getting started with a new vendor
  - Outsourcing product—quick and easy to set up
- Considering installing surfacing for first time?
  - Set up outsource brand with your house brand name



DIGITAL INTEGRATIONS

New and Updated

- Tokai
  - Heavy use of lens selection database (BCCH)
  - New 1.76 material
- Unity
  - Calculation process update
  - Unity Via II and some legacy styles
- Optotech—Optocalc 4.0 platform
- Signet Armorlite integration with Essilor DS platform
- Launch of Varilux XR line
  - Support for new fitting values

NEW LENS PROJECTS

Transitions Gen S

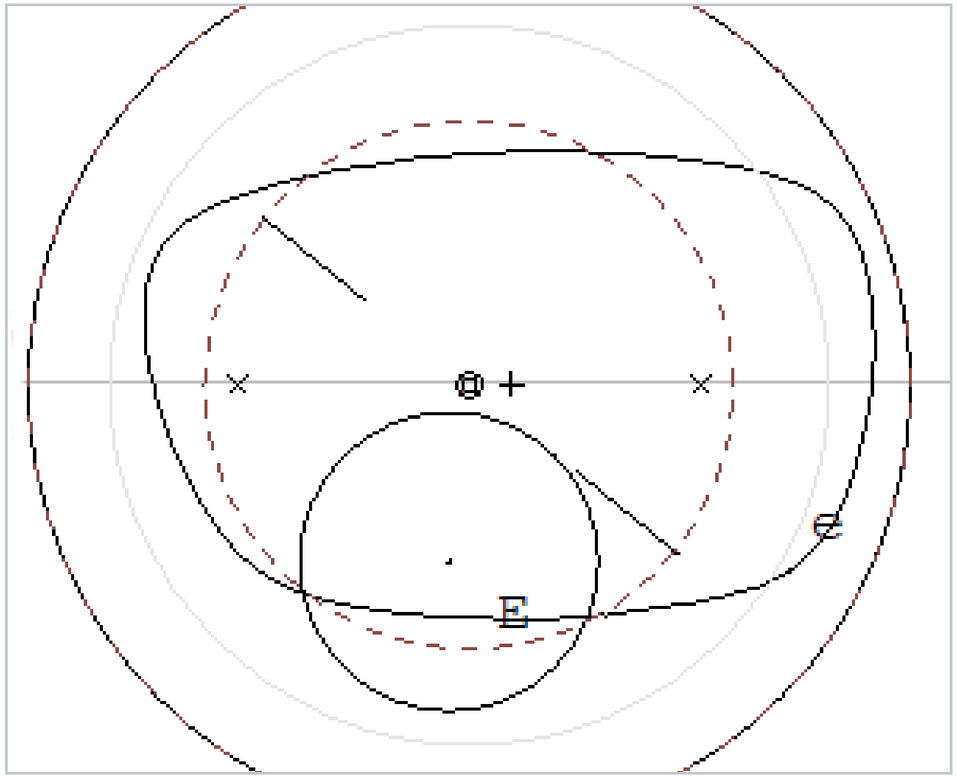
A generation update is a large scale project!

- DVI begins work on translations months in advance
  - Lens data from multiple vendors
  - SFSV, pucks, finished lenses
  - Translation tables (Digital calc, Visionweb, etc.)
- Why do we choose to use old color codes (as opposed to new color codes)?
  - Ordering preferences, and ease of existing setup “downstream”
  - Easy to map color codes, depending on preference!
- Why new special indicators?
  - Significant change in true curve
  - Allows for new product to exist alongside old product temporarily

NEW LENS PROJECTS

Spot Segs on any SF lens

- Previously limited to multifocals
- Useful for niche product such as Lenticular bowl lenses
  - Fills in for when round seg not available or lengthy back orders
  - Placement and size customizable
  - Not available on 3rd party digital design
- Contact DVI for documentation and assistance



MEASUREMENT TOOLS

Tools and Gauges to help tackle processing problems

- ✦ Document available from DVI for recommended QC gauges and measurement tools
- ✦ Surface line gauges:
  - 50mm and 20mm sag gauge, 3 point “in-line” gauge
  - Prism gauge
  - Thickness gauge for on-block lenses (SVAL/TVAL test)
  - ARC Lamp (surface quality)

MEASUREMENT TOOLS

Tools and Gauges to help tackle processing problems

- ✦Finish gauges and devices:
  - DVI calibration frame
  - Digi-sizer for circumference check
- ✦Contact DVI for sources

Digi-Sizer II

TRACER/EDGER SYNC PROCESS

Overview

- This process ensures that sizing and the sizing values on the work ticket are correct and in sync with all Tracers and Edgers.
- It’s not a new idea. But it has been refined with the use of tools available in DVI.
- A solid frame with a known circumference is used. DVI has had a frame made specifically for this process.
- First time fit is improved, and sizing issues in general are reduced.
- The process helps ID machines that are in need maintenance or replacement.

Vision/Trace/Machine Interface

File Machinery Wizard TRACE

Rmt	Port	Dev	Type	R	Comment	MachWiz	Station	FCirc+	PCirc+	DBL+
			TRACER							
101	1	TRACER	OMA TRACER		TRACER 1		019 TRACER 1	0.00	0.00	0.50
101	2	TRACER	OMA TRACER		TRACER 2		020 TRACER 2	0.48	0.00	0.50
101	3	TRACER	OMA TRACER		TRACER 3		021 TRACER 3	0.45	0.00	0.50
101	4	TRACER	OMA TRACER		TRACER 4		022 TRACER 4	0.28	0.00	0.50
101	5	TRACER	OMA TRACER		TRACER 5		023 TRACER 5	0.38	0.00	0.50
101	6	TRACER	OMA TRACER		TRACER 6		024 TRACER 6	-0.39	-0.20	0.50
101	7	TRACER	OMA TRACER		TRACER 7		025 TRACER 7	0.50	0.70	0.50
101	8	TRACER	OMA TRACER		TRACER 8		061 TRACER 8	0.35	0.06	0.50
101	9	TRACER	OMA TRACER		TRACER 9		068 TRACER 9	0.00	0.00	0.50
101	13	TRACER	OMA TRACER		TRACER 10		069 TRACER 10	0.10	0.00	0.00

TRACER/EDGER SYNC PROCESS

Case Study

- We have been helping labs install this process and they have seen some significant reductions with sizing issues.
- We typically start with the Custom Breakage Report to see if we can identify specific machines that are contributing higher than average breakage with smalls.
- It is important to note that Breakage must be recorded **accurately** to understand the magnitude of the situation. Using the TRACE ID when recording Breakage, which we covered yesterday in the TRACE Presentation, helps ensure accurate machine recording.
- Some labs end up refining their breakage setup and recording to ensure that they can monitor and track improvements correctly.

TRACER/EDGER SYNC PROCESS

Case Study – Lab before process installation

- ✦Heavy presence in the Top 20 Breakage By Cost/Count Report in (3,7 – Breakage Reports)
- ✦Total Finish Breakage of 6.4%
- ✦DPJ at 3.4
- ✦1131 Small in a Month
- ✦Average of 54 small lenses per day

RX DE	DEPT	POSITION		REASON	# LENS
POLY	TINT, ASSY, INSP	ASSEMBLY		SCRATCH	817
PLASTIC	TINT, ASSY, INSP	ASSEMBLY		SCRATCH	347
PLASTIC	TINT, ASSY, INSP	ASSEMBLY		CHIP	249
POLY	MRIII	1PM -5PM		PITTS	197
POLY	COAT	QUANTUM		PITS	181
PLASTIC	TRACE	TRACER 7		SMALL	175
POLY	TRACE	TRACER 4		SMALL	174
POLY	TRACE	TRACER 7		SMALL	170
PLASTIC	TRACE	TRACER 4		SMALL	168
POLY	POLISHING	9AM -1PM		SWIRLS	153
POLY	TRACE	TRACER 3		SMALL	153
POLY	AR ROOM	KEVIN (K3)		VOID /FP	152
POLY	POLISHING	1PM -5PM		SWIRLS	143
HIRES	TINT, ASSY, INSP	ASSEMBLY		SCRATCH	124
POLY	DIP ROOM	QUANTUM		PITS	121
POLY	AR ROOM	KEVIN (K3)		WRONG RECIPE	108
POLY	MRIII	9AM -1PM		PITTS	108
PLASTIC	TRACE	TRACER 3		SMALL	102
POLY	TRACE	TRACER 5		SMALL	95
PLASTIC	TRACE	TRACER 1		SMALL	94

TRACER/EDGER SYNC PROCESS

DIGITAL VISION

Case Study – Lab a couple of months after process installation

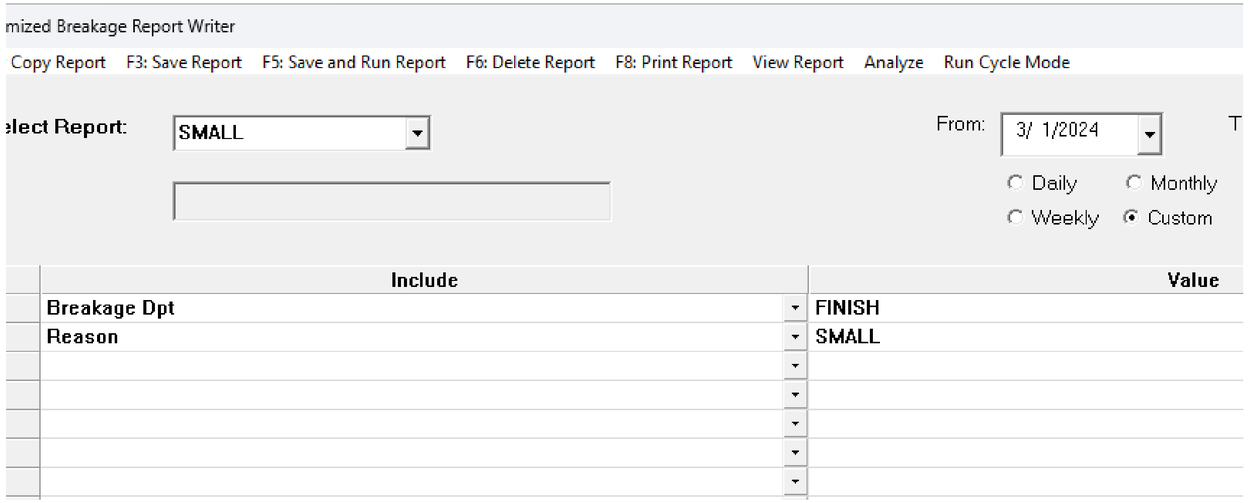
- ✦Total Finish Breakage of 1.4% (-5%)
- ✦DPJ at 1.4 (-2 days)
- ✦279 Small in a Month (-852 lenses)
- ✦Average of 13 small lenses per day (-41 lenses)
- ✦Significantly reduced presence in the Top 20 Breakage By Count Report in 37
- ✦Note that lab is also tracking “Big” as well via Rework Department.

RX DEPT	DEPT		POSITION		REASON	# LENSES
POLY	TINT, ASSY	INSP	ASSEMBLY		SCRATCH	450
PLASTIC	TINT, ASSY	INSP	ASSEMBLY		SCRATCH	211
POLY	SURFACE				BLOCK PRISM	129
PLASTIC	AUTO EDGER				SMALL	125
POLY	AUTO EDGER				SMALL	106
PLASTIC	TINT, ASSY	INSP	ASSEMBLY		CHIP	95
POLY	POLISHING				SWIRLS	90
POLY	SURF REWORK				MR3 PITS	85
PLASTIC	SURFACE				BLOCK PRISM	82
POLY	POLISHING				UNPOLISH	68
HIRES	TINT, ASSY	INSP	ASSEMBLY		SCRATCH	66
POLY	SURF REWORK				NO REASON	55
HIRES	AUTO EDGER				SMALL	48
POLY	SURFACE				DEBLOCKED	37
POLY	AR ROOM		ANDREAS (	A3)	VOID /FP	37
POLY	AR ROOM		JARED (3J	)	VOID /FP	36
POLY	AUTO EDGER				BIG	35
POLY	POLISHING				WAVES	34
POLY	AUTO EDGER				CROOKED SEG	33
HIRES	SURFACE				BLOCK PRISM	27

MACHINE ANALYSIS

The tool to identify issues – <3,8,7>

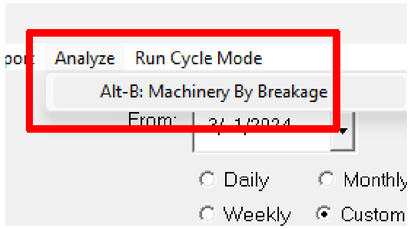
- Report going back a couple of months on a breakage reason like “Small” in the Finish Breakage Department
  - If Small is reported in another Breakage Department add that Department as well

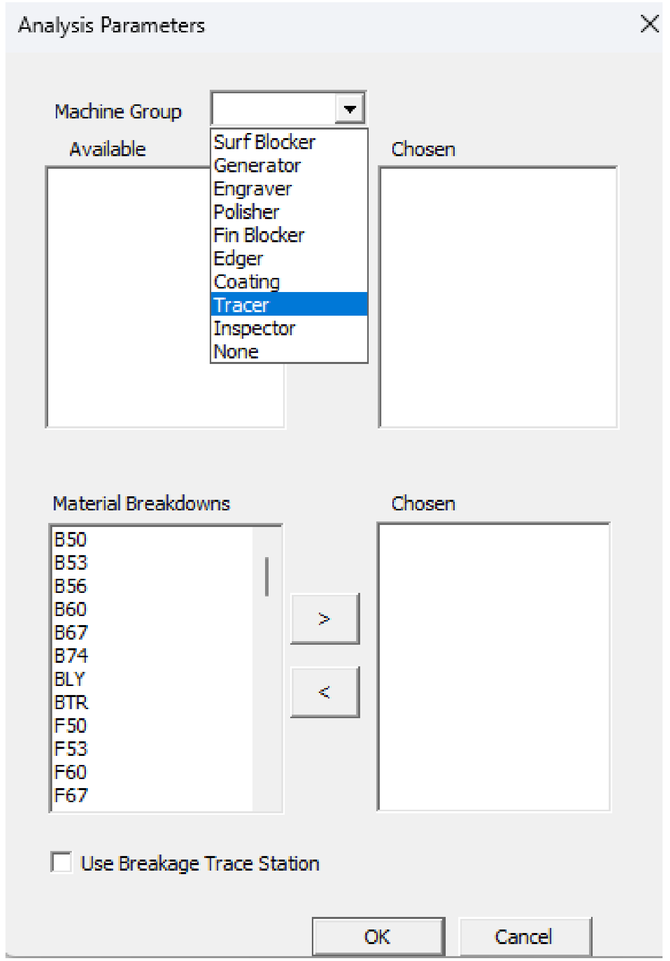


MACHINE ANALYSIS

The tool to identify issues – <3,8,7>

- Machine Analysis is a tool within the Custom Breakage Report Writer
- Once the report is complete, run a Machine Analysis by group and investigate breakage/production rate by machine group.
  - Tracers
  - Edgers

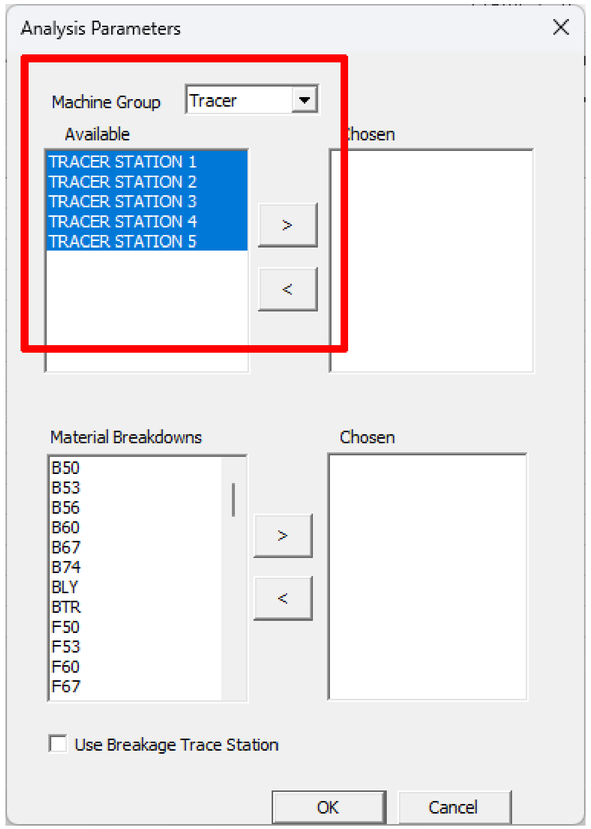


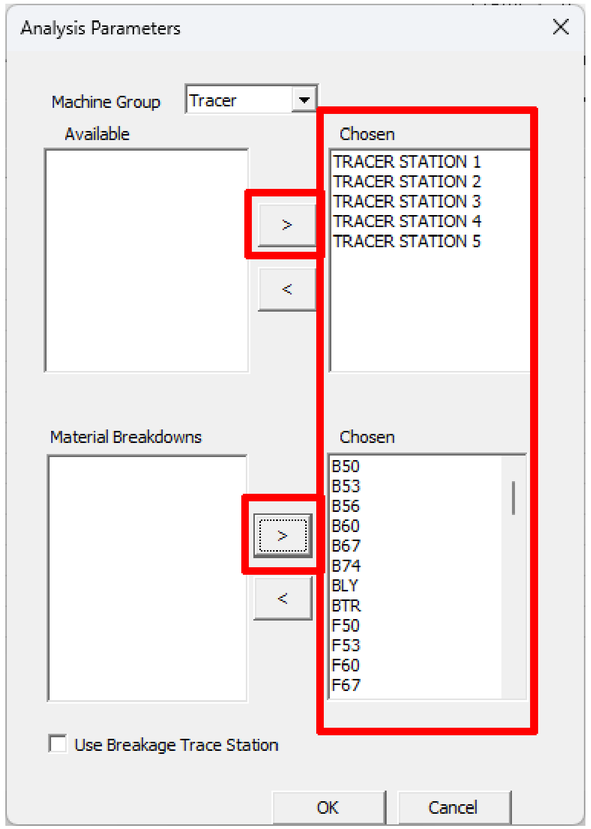


MACHINE ANALYSIS

The tool to identify issues - <3,8,7>

- Select all Tracers and all Materials and then move the to the “Chosen” field Analysis Parameters.
- “Use Breakage TRACE Station” can be selected if you are selecting TRACE Stations when posting breakage.
- Hit OK to start the machine analysis.

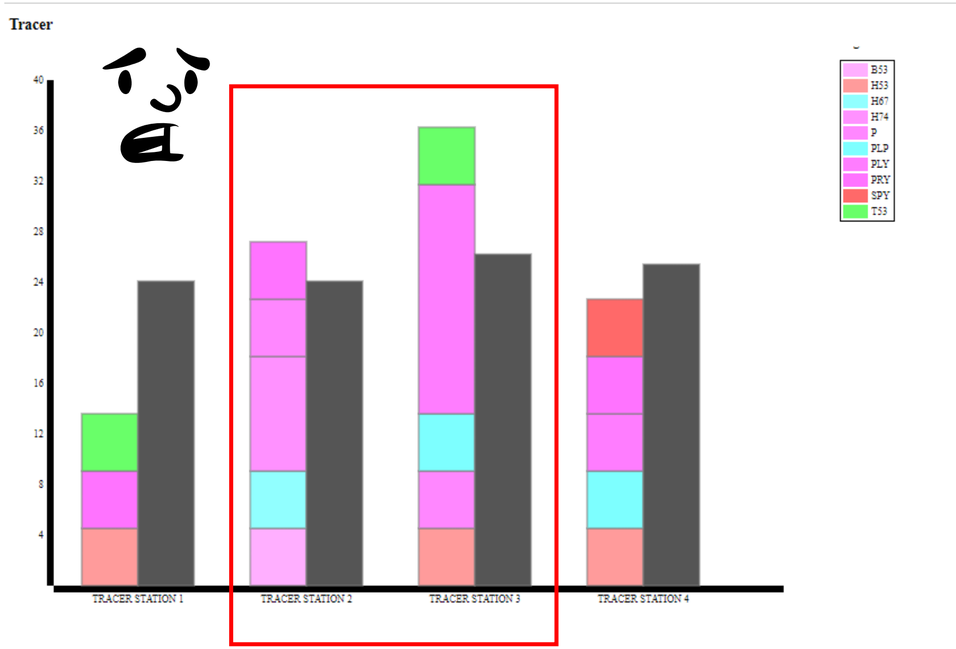




MACHINE ANALYSIS

The tool to identify issues - <3,8,7>

- The Machine Analysis will show
  - Breakage Rate on the left
  - Production Rate on the right
- And will ID machines that have large breakage/production ratios
- This example is with Tracers
- Look for anomalies
- We ID these in Red under “Breakage by Machine”



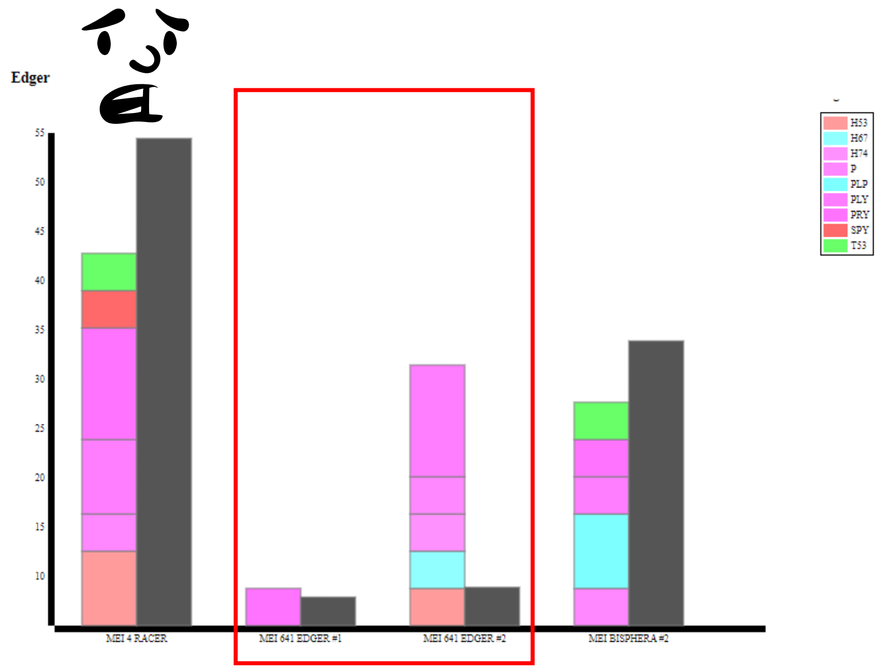
Breakdown by Machine

Stations/Materials	B53	H53	H67	H74	P	PLP	PLY	PRY	SPY	T53	Total Breakage pctg	Trace Production pctg
TRACER STATION 1		4.55%						4.55%		4.55%	13.64%	24.16%
TRACER STATION 2	4.55%		4.55%	9.09%	4.55%			4.55%			27.27%	24.14%
TRACER STATION 3		4.55%			4.55%	4.55%	18.18%			4.55%	36.36%	26.25%
TRACER STATION 4		4.55%				4.55%	4.55%	4.55%	4.55%		22.73%	25.44%

MACHINE ANALYSIS

The tool to identify issues - <3,8,7>

- Same report analyzing Edgers.
- Note that sometimes you will see a machine with high breakage and a low production output. This can be a machine that handles “problem jobs”.
- Nevertheless, more reason to investigate the process.



Breakdown by Machine

Stations\Materials	H53	H67	H74	P	PLP	PLY	PRY	SPY	T53	Total Breakage pctg	Trace Production pctg
MEI 4 RACER	8.33%			4.17%		8.33%	12.50%	4.17%	4.17%	41.67%	54.43%
MEI 641 EDGER #1							4.17%			4.17%	3.23%
MEI 641 EDGER #2	4.17%	4.17%	4.17%	4.17%		12.50%				29.17%	4.37%
MEI BISPHERA #2				4.17%	8.33%	4.17%	4.17%		4.17%	25.00%	31.89%

TRACER/EDGER SYNC PROCESS

Case Study –Discoveries from different labs

- Tracers taken offline due to mechanical issues.
- Incident with a Tracer that was not settling into bevel correctly.
- Varying size adjustments across all Tracers and Edgers.
- Labs not keeping tabs on stylus cycles we can lead to excessive wear. Some machines, like the LT1200, can be setup to display the cycle count on the Tracer Job Screen.
- The common thought is that running the calibration jig on the Tracer, and calibrating the edgers, is all you need to do to get good sizing…it’s not.

TRACER/EDGER SYNC PROCESS

Case Study –Discoveries from different labs

- The Station Analyzer <TRACE-3,6,6> is useful to get an understanding of multiple calls on trays which is can be associated with size changes and offsets by a machine operator.
- Inconsistent or nonsensical Breakage setups and recording practices made it difficult to analyze what machines were the most suspect, however…
- Availability issues led us to work with a frame company to create a frame designed specifically for this process.

TRACER/EDGER SYNC PROCESS

DVI Calibration Frame

- ✦Solid steel Frame.
- ✦Holds the shape well.
- ✦Good circumference.
- ✦Good for the sizing check off the edger.
- ✦Available now.
- ✦Any solid metal frame works.
- ✦Contact DVI for documentation.

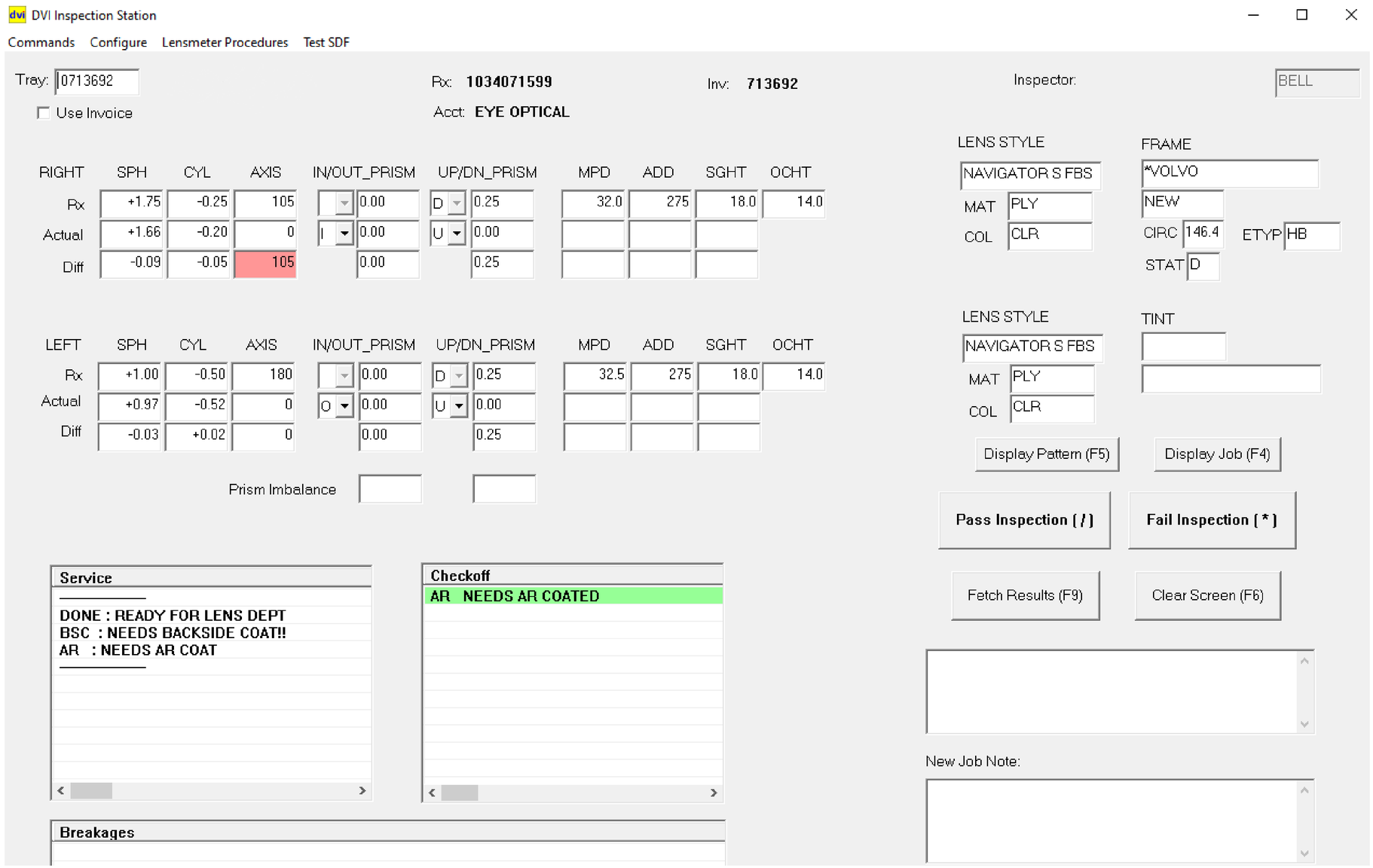
TRACER/EDGER SYNC PROCESS

Sustainable Process Improvements

- ✦ Breakage reporting becomes accurate and is a useful tool.
- ✦ Labs paying attention to stylus cycles and condition.
- ✦ Labs identifying issues tied to a specific machine…quickly.
- ✦ Operators no longer manually applying offsets.
- ✦ Internal Frame shape tracing data is more accurate.
- ✦ Communication between Front End (Tracers) and Finish Department (Edgers) staff is greatly improved.

INSPECTION STATION <1,5,7>

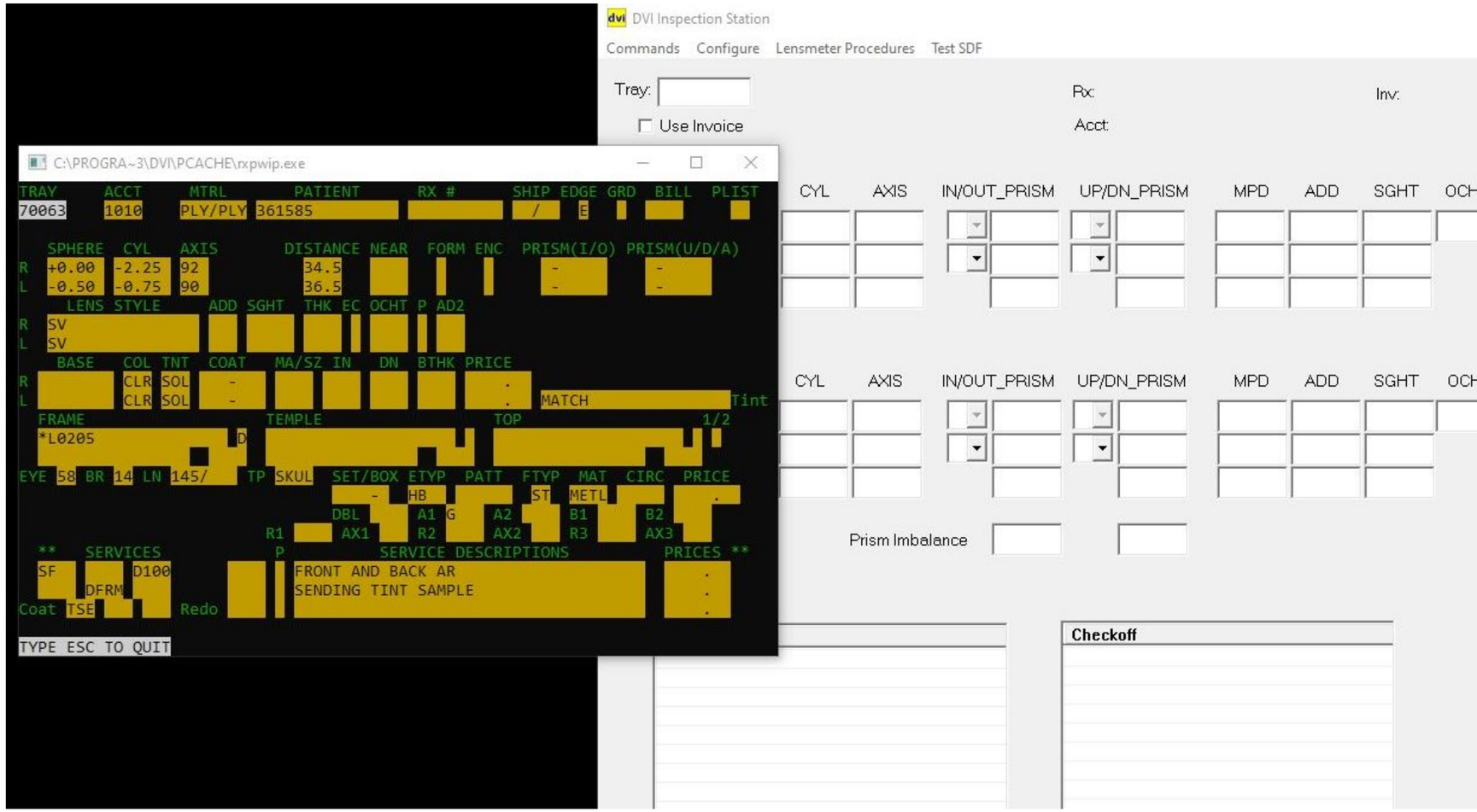
INSPECTION STATION UPDATES



SHIPPING FROM THE INSPECTION STATION (WSR)

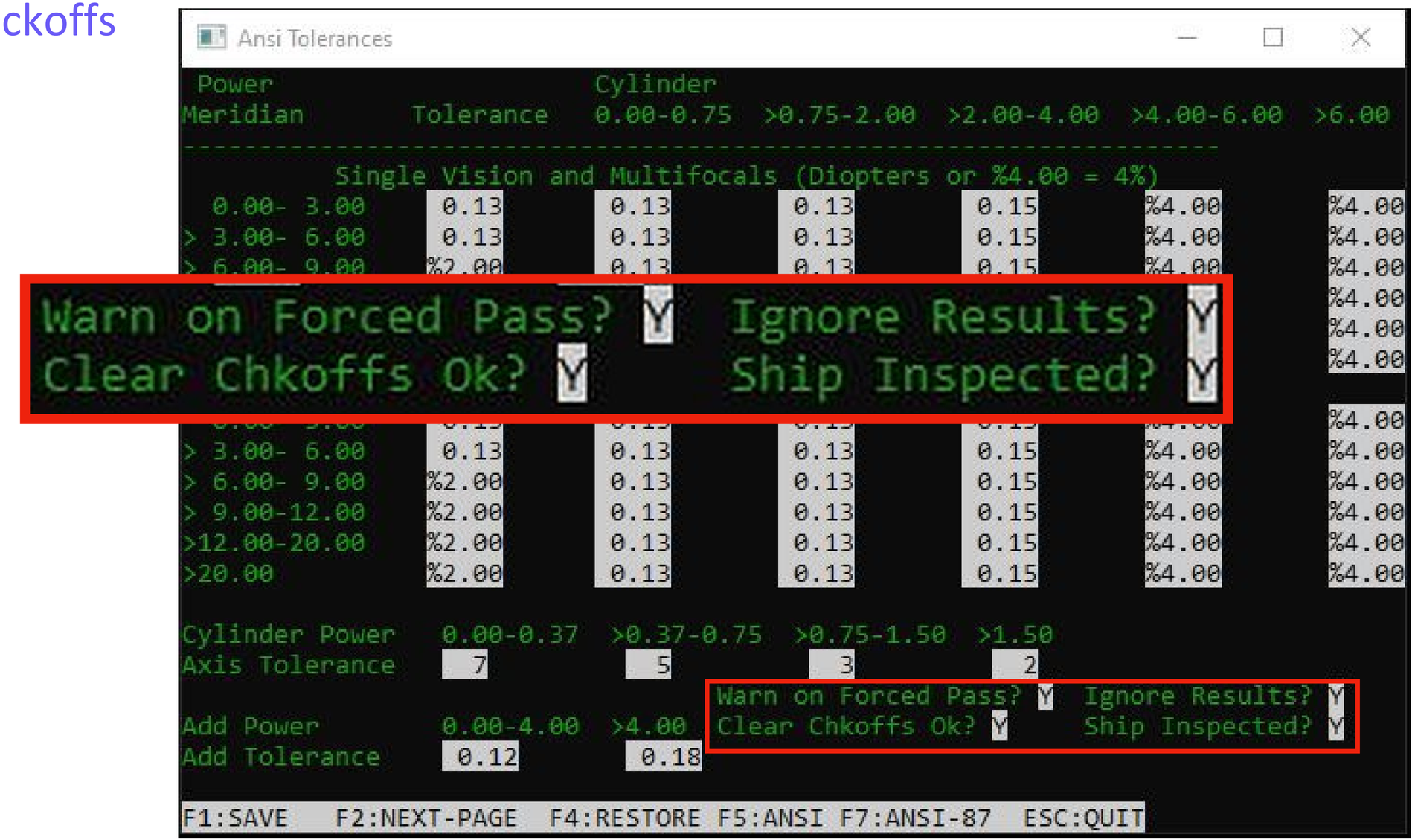
Individual Invoices

- Pass, ship, package at once



INSPECTION STATION CONFIGURATION <4,8,8,6,1>

Disable clear checkoffs



TEST SDF MENU

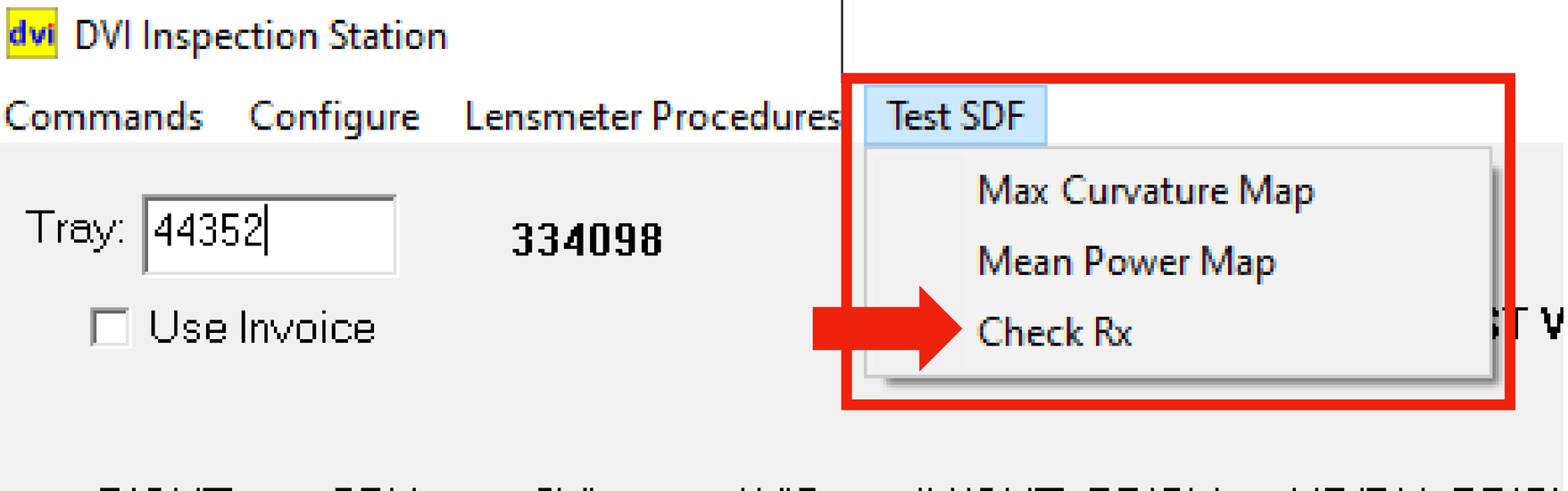
SDF Troubleshooting

- Check Rx
- Mean power map
- Max curvature map
- Use in special situations for troubleshooting

334098_rxTest.txt - Notepad

File Edit Format View Help

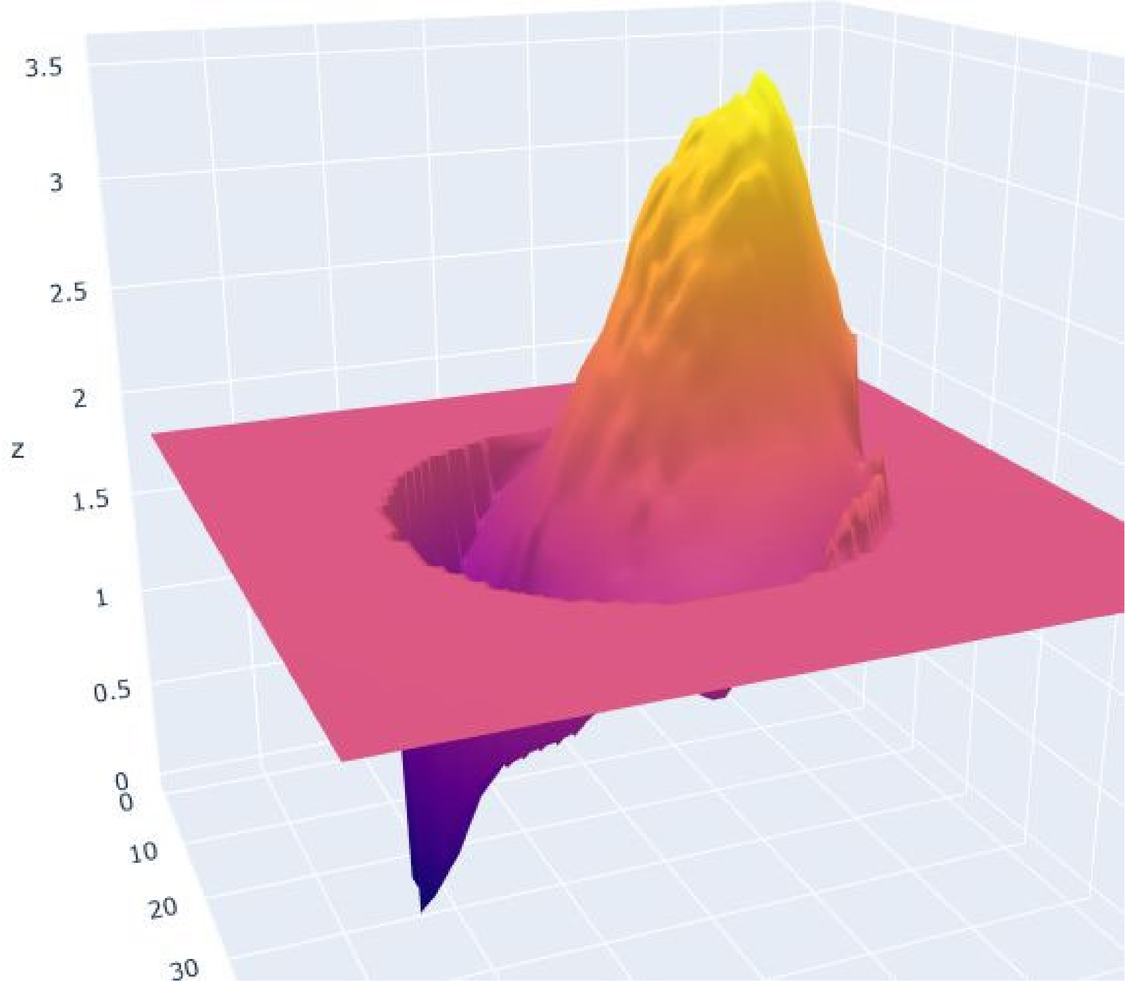
```
distance vision, eye = 1
sph at distance sighting circle = 2.48792
cyl, cyl axis at distance sighting circle = -0.28063, 138.561

near vision, eye = 1
sph at near sighting circle = 3.64004
cyl, cyl axis at near sighting circle = -0.156937, 42.6715


distance vision, eye = 0
sph at distance sighting circle = 1.8918
cyl, cyl axis at distance sighting circle = -0.205822, 50.3437

near vision, eye = 0
sph at near sighting circle = 3.16497
cyl, cyl axis at near sighting circle = -0.265575, 115.842
```

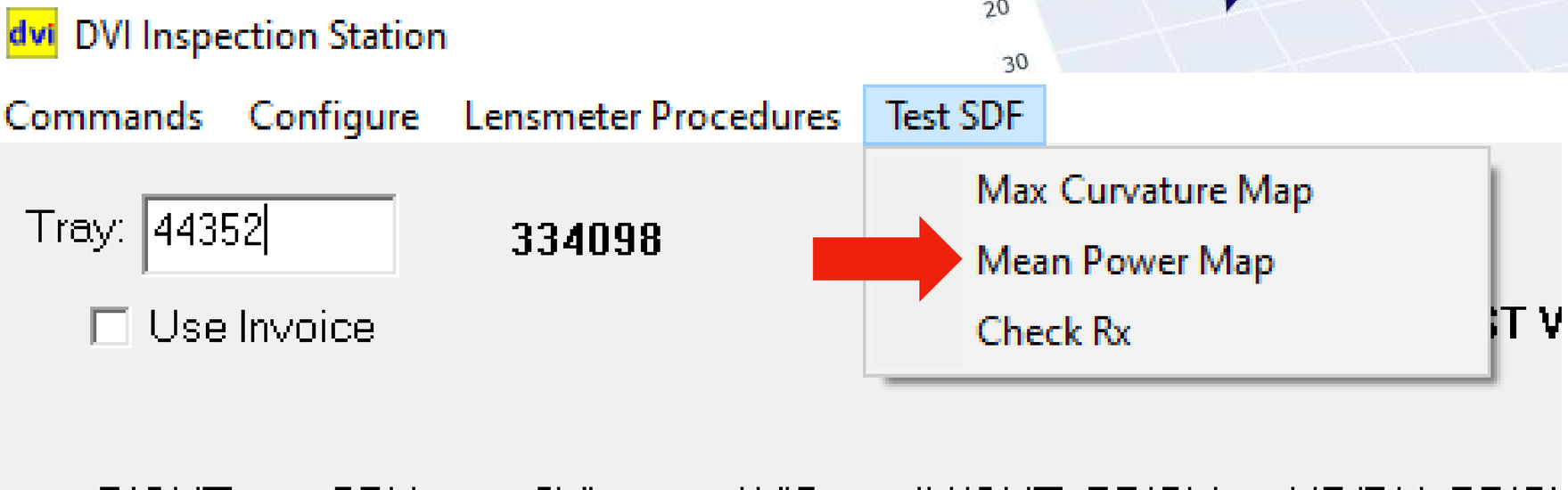


TEST SDF MENU

SDF Troubleshooting

- Check Rx
- Mean power map
- Max curvature map

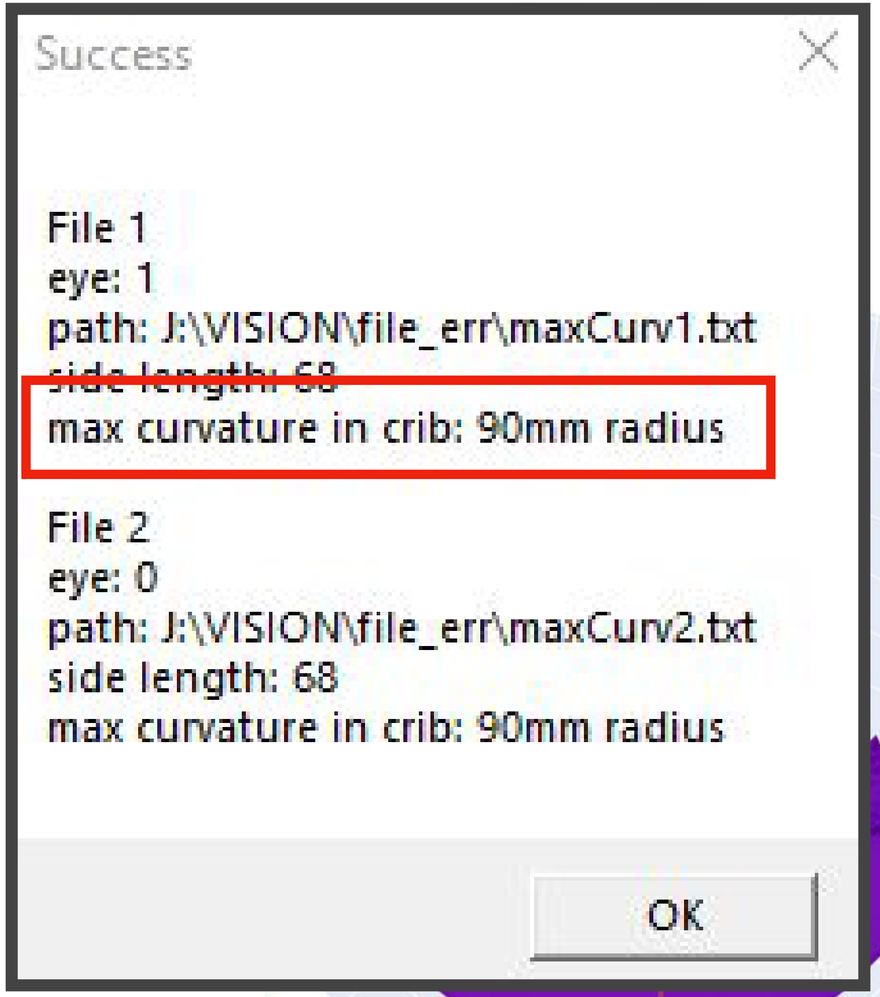


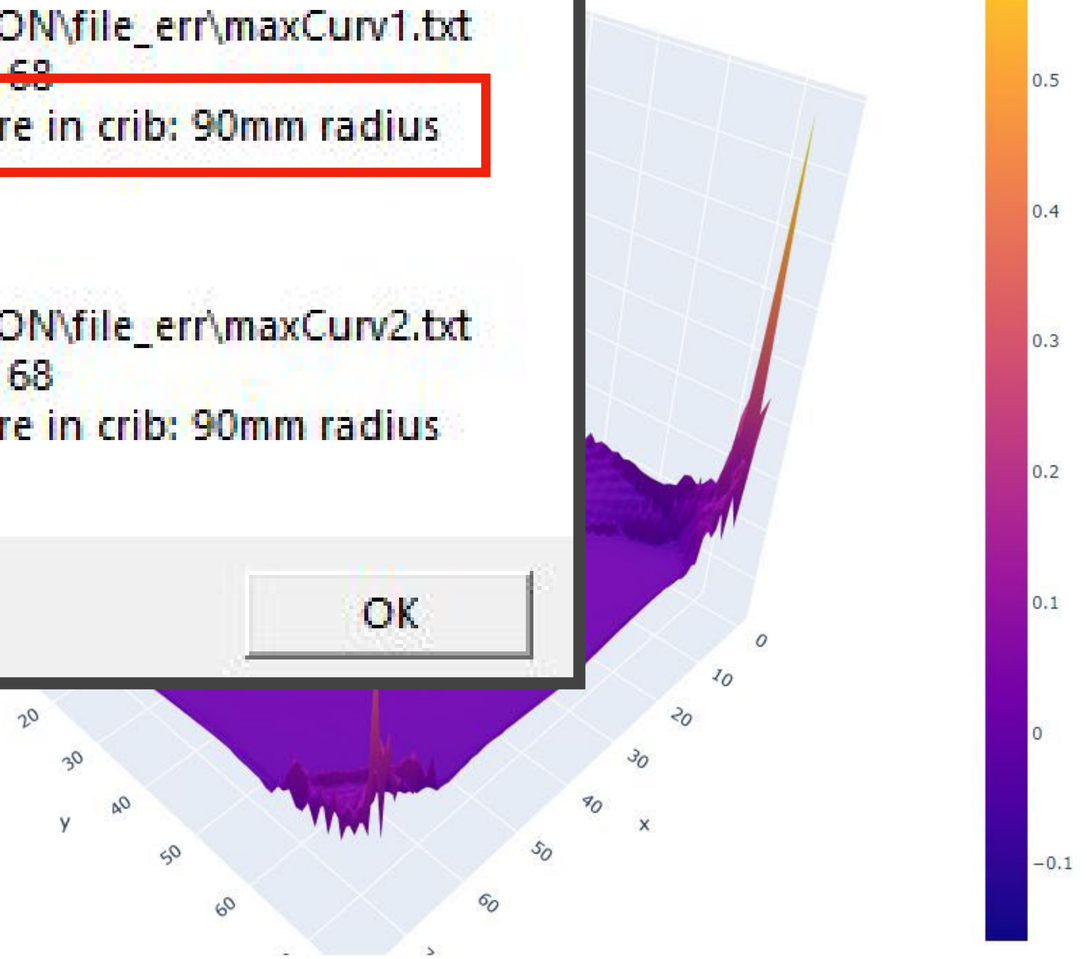


TEST SDF MENU

SDF Troubleshooting

- Check Rx
- Mean power map
- Max curvature map





dvi DVI Inspection Station

Commands Configure Lensmeter Procedures

Tray: 44352

334098

Use Invoice

THANK YOU

Contact Digital Vision:

(503) 231-6606 | info@thedvi.com