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Technical Webinar for IM

General Knowledge **and common issues**

Overview

High level discussion of webinar

- Diagnostic Tools
 - Communications Trace
 - Specimen Event Log (SEL)
 - System Log
 - Loopback Test
 - Basic troubleshooting
- RD Web
 - Upgrading or Deploying with RD Web vs. Thin Client
 - Thin client pulls web help from server now, not loaded locally.

Troubleshooting

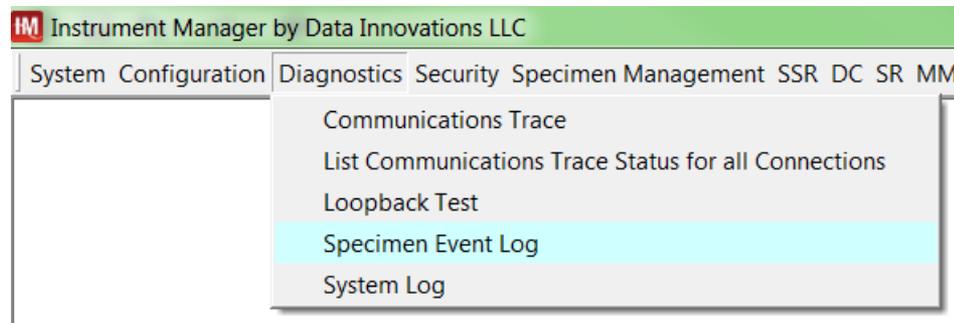
The Diagnostic menu

Troubleshooting

Overview

- Diagnostic Tools

- Communications Trace/List of Communications Trace Status for all connections
- Loopback Test
- Specimen Event Log / SEL
 - Log Minimal vs Log All events.
- System Log
- Basic troubleshooting questions for each item



Troubleshooting

Communications Trace

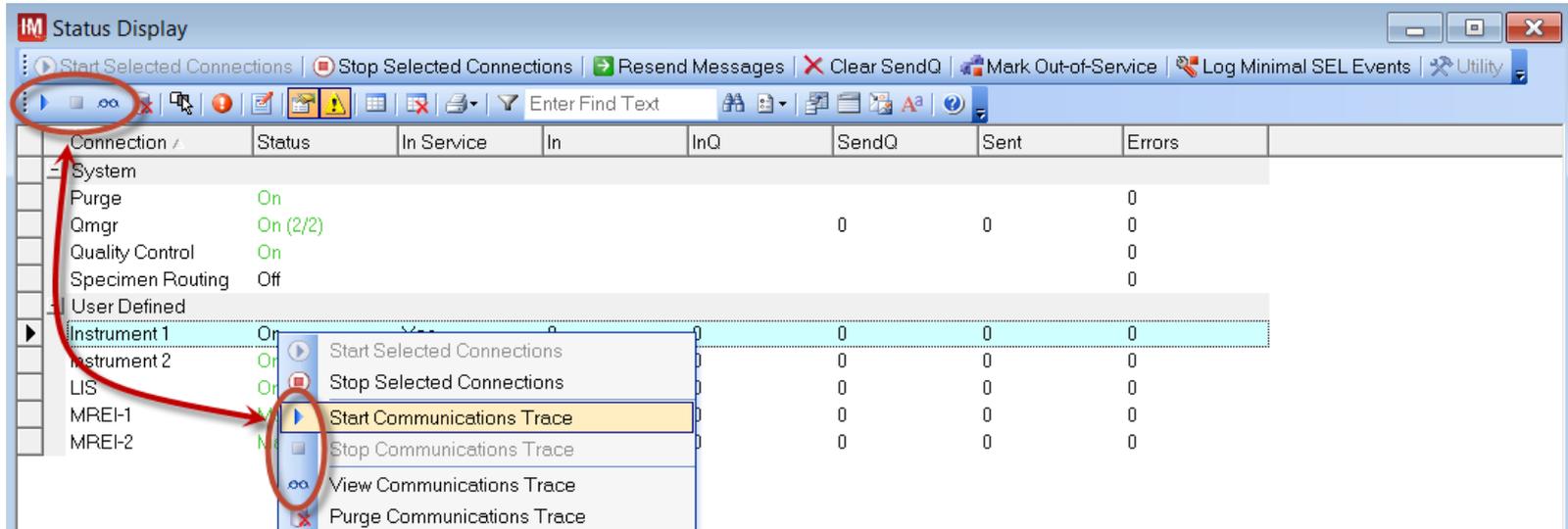
- The Communications Trace is a log of the raw data that comes into the connection
 - Some basic formatting is done to translate unprintable characters into human readable text
 - A Carriage Return (ASCII 13) would display as `<cr>`
 - An Acknowledge character (ASCII 6) would display as `<ack>`
- A user must start the Communications Trace in order for it to log the inbound data
 - If the trace was not on, then we cannot know what came into IM on that connection
- The Trace gives us a history of what was seen on that connection. With the Comm Trace and your Global Configuration, we can recreate most issues locally.

Troubleshooting

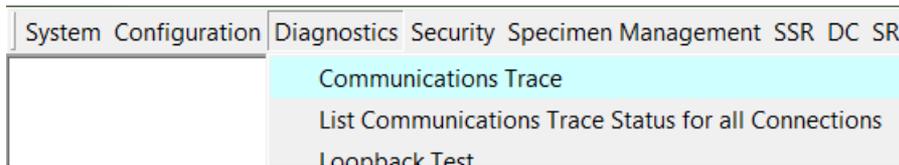
Starting the Communications Trace

There are two ways to Control or Access the Comm Trace:

1. Status Display (Menu Bar or Right Click menu)



2. Diagnostics Menu → Communications Trace



Troubleshooting

Communications Trace

- When you start a Comm Trace or start the connection while the Comm Trace is running, the system will log information about the connection and configuration into the Trace
- It is **NOT** advised to leave traces running all the time
 - This can cause large amounts of disk space to be consumed
 - **Start** the traces only when you are **Testing** or **suspect** a problem
 - **Stop** the traces when you move **Live** or the issue is **resolved**
 - **Do not** start the traces on any of the System connections without a specific request from Data Innovations Support
 - Archive
 - QMGR
 - Purge
 - Quality Control
 - Specimen Routing
 - Shadowing

Troubleshooting

Communications Trace

- Traces are always relative to the connection logged
 - Messages **IN** are messages that have come into IM on that connection
 - Does not indicate that the message actually was sent out the destination connection
 - Messages **OUT** are messages that have been sent out of IM on that connection
 - Doesn't indicate that the message was received, only that it was sent
- Remember: Turn on the traces for the LIS and instrument connections at the same time
 - It will be harder to troubleshoot if the LIS trace is from a different time than the Instrument Trace
 - You can't be sure of the data **out** if you don't have the data **in**

Troubleshooting

Communications Trace, Why?

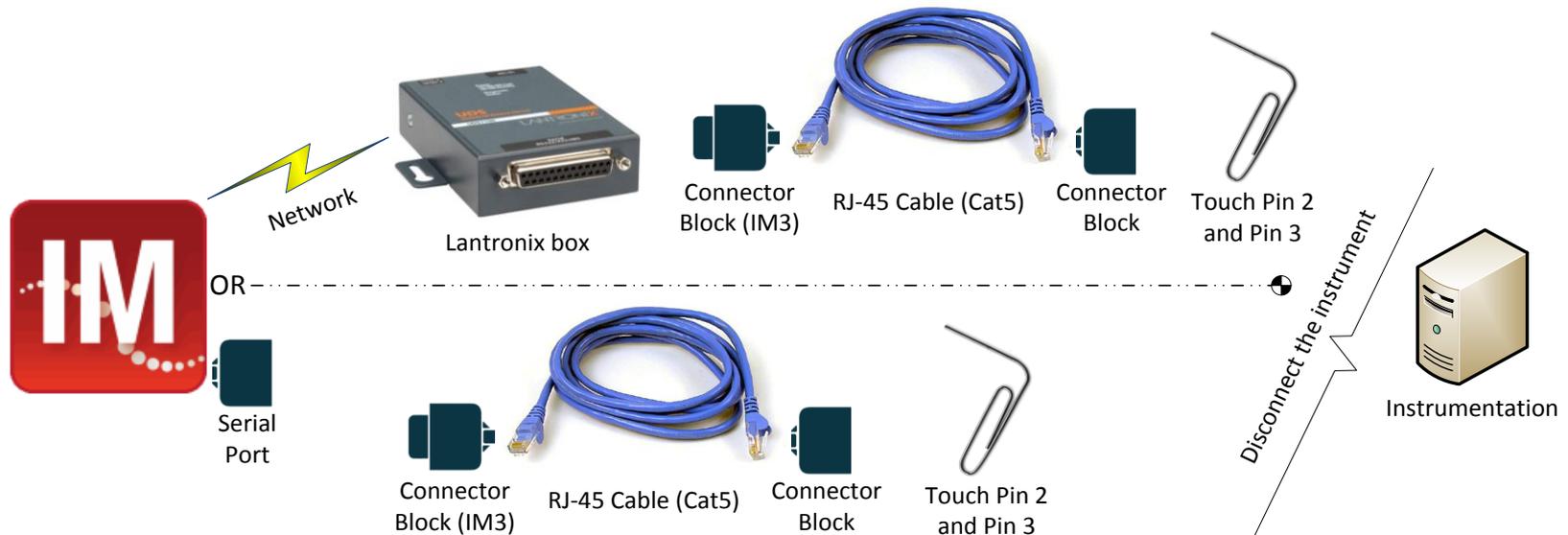
- The two primary uses of a trace
 1. View the communication on the connection in real time
 2. Save the communicated information for troubleshooting
- Questions the Comm Trace can help us answer:
 - Can we see a query in the trace?
 - Is the Order/Result being sent/received and acknowledged?
 - Is there any communication between the analyzer and IM?
 - What did we send and when?
 - What was the demographic information we sent with the message?
 - Do we have connectivity to the device?
 - Are there serial setting differences between the device and the port?



Troubleshooting

Loopback Test

- A Loopback Test is used to verify that the Send and Receive pins of the COM port are active and work
- This is accomplished by stopping the connection that is using the serial port, unplugging the cable from the back of the instrument, using a paperclip to touch pins 2 and 3 together, and running the test



Troubleshooting

Loopback Test

- A Loopback Test will **not** tell you if the cable pinout is correct for the instrument
- A Loopback Test will **not** tell you if the serial settings on the instrument match the settings on the COM port
- A Loopback Test done from IM will **not** tell you if the instrument's send and receive pins are working
- Questions a Loopback Test can answer:
 - Are we using the correct Serial port?
 - Has the Lantronix box/serial port failed?
 - If the cable is correct, can IM speak/hear the instrument?



Troubleshooting

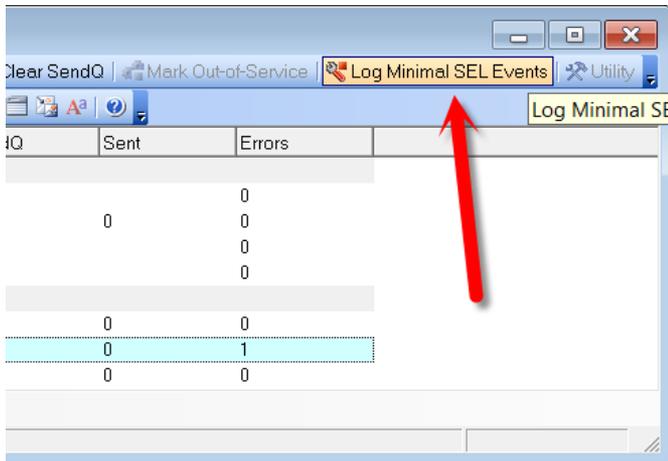
Specimen Event Log

- The Specimen Event Log (SEL) always tracks the events of every specimen's data as the data flows through the Instrument Manager system
- Events include:
 - Mapping events: What Test/Fluid/Error/Instrument ID code value was received and what did we change it to?
 - Audit Events: What rules fired on the data and what changed as a result? What data did a user add/edit/release?
 - System Events: What major parts of the system did the data move through?
 - System Events typically include all of the data for the sample as we knew it when the event was recorded. If the data has changed, the SEL events recorded before that time will remain unchanged.
 - Tracking Events: The sample was sent to these connections.

Troubleshooting

Specimen Event Log

- The SEL is **ALWAYS** logging data and it **cannot** be turned off. It is possible to reduce the amount of data logged into the SEL from the Status Screen
 - Log Minimal SEL Events will only record specific events from the list of Log All SEL Events



Type of Event	Log ___ SEL Events	
	All	Minimal
Audit Events	X	X
Mapping Events - Error, Fluid, Instrument ID and Test Code	X	
Orders Database Events	X	
System - Data Added to Specimen Management Events	X	
System - Data After Mapping Events	X	X
System - Data After Rules Processing Events	X	
System - Data Before Message is Sent to Destination	X	X
System - Data Queued Internally Events	X	X
System - Data Queued Internally to Update Orders Database Events	X	
System - Data Sent to Data Collection File Format Events	X	
System - Data Updated with Specimen Management Info Events	X	
System - No available destinations Events	X	
System - No configured destinations Events	X	
Tracking Events	X	X

Troubleshooting

Specimen Event Log

- The Specimen Event Log provides three views of diagnostic data:
 1. **Specimen Event Log View**
 - Shows all data recorded into the SEL
 - The most amount of data, but shows everything that happened
 2. **Audit Trail View**
 - Shows only the Audit Events
 - Useful to see Rules or Specimen Management actions
 3. **Specimen Tracking View**
 - Shows only the Tracking events
 - Useful to see at a high level the events that transpired for the sample

Troubleshooting

Specimen Event Log

- Questions the SEL can answer:
 - What did IM parse from the inbound message?
 - What connections was the order/result sent to?
 - What happened to the result? Was it held?
 - What data came in vs. what data has been sent out?
 - The order of events that transpired for the sample.
 - Did the Query come in after the order?
 - Was there a result before the query?
 - Did the order get removed from the Orders DB prior to download?
 - Which connections saw the sample and in what order?



Troubleshooting

System Log

- Where the **Communications Trace** logs the **incoming** and **outgoing** data, the **Specimen Event Log** tracks what happened to the sample as it moves through the system, the **System Log** keeps track of what happens with the IM system itself.
 - The System Log will track the following for all events:
 - When the event happened (with Date and Time)
 - What User ID is associated to the event
 - The Computer Name/IP used in the event
 - What was the event and specific details about the event

Events		
Notifier Event Triggered/Cleared	Configuration Changed	User Security changes
Connection Started/Stopped	Connection Assignment	Unsuccessful Logon
Communications Trace File Creation and Purge	Driver Properties	Logon/Logoff
Connection/Test Marked In/Out of Service	Driver Loaded	Purge Events
Maintenance Manager events/file creation	IM Configuration Restore	Moving Averages events
Rules Processing Changed - LIS, SM, and Instrument	SendQ Cleared	Backup Creation
Mapping Changes - Test, Error, Fluid, and Instrument ID.	SM Workspace Action	Backup Setup
SM Workspace Popup Configuration Changed	SM Coded Entry	Hot Backup Setup

Troubleshooting

System Log

- Questions the System Log can answer:
 - Where and when a User ID logged In/Out
 - Some of the actions that the user did while logged in
 - When a connection was started and stopped, by whom
 - Who added/changed a rule and when?
 - When did Purge fire to remove/backup data?
 - When the configuration was changed, what did it change?
 - When did a user release/reject this sample?
 - When did this Moving Average go out?
 - Who cleared the Notifier event so that it stops popping up?
 - Who changed the mapping?
- Note: We only log the IM user account, not the windows account. If everyone logs into IM as IM_ADMIN, we won't know which user of IM_ADMIN accomplished the event.
- Note: This does not cover any events related to Cache.

Troubleshooting

Putting it together

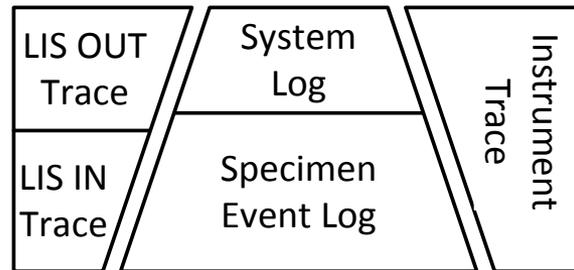
- The largest part of Troubleshooting any issue is determining the location of the failure and what tools you need to identify the location.



LIS/HIS



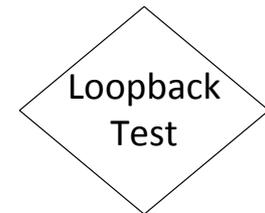
Connection
to LIS



Connection
to instrument



Instrument



Loopback
Test

Troubleshooting

All these tools are nice. When/How do I use them?

- Start traces when you are having or think you are having an issue. They don't log automatically. If you didn't have them running, you could miss critical diagnostic data!
- Orders or Results not crossing (Traces and SEL)
 1. What's the data flow? Where should you see the data?
 2. Where was it seen last? What trace or where in the SEL?
 3. What happens between its last seen and the next step?
- Nothing in IM at all (Traces and Loop Back test)
 1. Is the cable seated correctly?
 2. Is the cable pinned correctly?
 3. Does it pass a Loop Back test?
 4. Is there anything, even invalid data, in the trace?

Troubleshooting

Other tools

- **cconsole.log**
 - The Cconsole.log file is located in the C:\InterSystems\Cache\mgr\ directory
 - It is a log of Cache specific events. Support will often reference this file when troubleshooting issues with Cache
 - Shows startup and shutdown events within Cache
 - Limited use for connection troubleshooting
- **Windows Event Log**
 - Microsoft has an Administrative Tool to track Windows OS events for the system
 - Primarily used by Site IT to troubleshoot system issues outside of Instrument Manager or Cache

Troubleshooting

Documentation and guidelines

- Troubleshooting
 - Take it slow. You can miss the obvious rushing!
 - Compare bad data to good data. What is the difference?
 - We cannot look at data not recorded. Log everything!
 - Specimen Event Logs (Support File)
 - Communications Traces on all connections (LIS in/out & instrument(s))
 - Global Configuration
 - Don't forget to ask for help if you are stumped!
 - <http://cwp.DataInnovations.com/>
 - 802-658-1955
 - NorthAmerica-Support@DataInnovations.com
 - DI is open 9am – 8pm Eastern Monday through Friday for all calls
 - And open 24x7x365 for emergency live down issues
- Documentation about all of the tools presented here are available in the Troubleshooting guide

Questions?

Remote Desktop Web Application

- Microsoft's RD Web
- RD Web vs. Thin Client

RD Web Access

What is Microsoft RD Web Access?

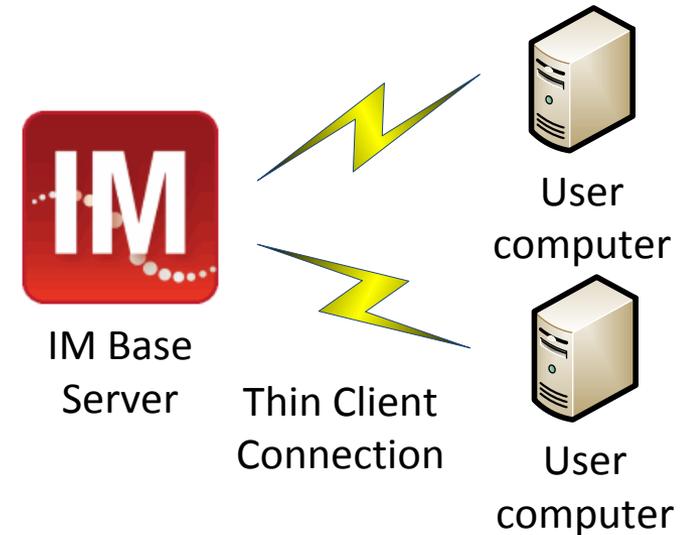
- Remote Desktop Web Access (RD Web Access) is a technology from **Microsoft** that provides an alternative deployment method for users to access Instrument Manager (IM) other than the traditional IM Thin Client method
- It uses Microsoft's **Remote Desktop Web Connection** to provide user access to IM via a web browser
- This Microsoft technology allows users to access an application installed on another PC through an internet connection
 - Additional information available in the *Did You Know* article: **“Access Instrument Manager Via a Web Browser”** from April 2015
 - <http://didyouknow.datainnovations.com/>
 - AND
 - <https://technet.microsoft.com/en-us/library/dd759202.aspx>

RD Web Access

RD Web vs. Thin Client

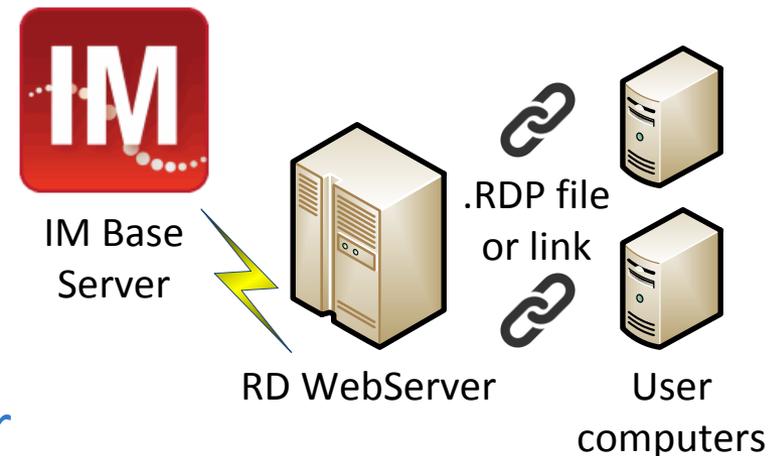
Thin Client

- Requires IM folder to be shared
- Must edit IMOPTION.INI file
- Program runs on User's computer
- Thin Client application must be managed on each user computer



RD Web Access

- Browser Based
- No base system edits in IM folder
- No folder sharing (permissions)
- Can be secured via SSL
- Program running on Webserver
 - Patient data not transmitted
- Easy deployment on any computer



RD Web Access

Starting the process

There are two licenses that are involved with setting up an RD Web Access solution:

1. **Instrument Manager Thin Client connection license**
 - Available from Data Innovations Sales
 2. **Windows Remote Desktop Services Client Access License**
 - A Microsoft RDS CAL for Windows is not available from DI
 - Site IT should have avenues to acquire needed licenses
- Having insufficient of either licenses could cause connections to be rejected

Questions?

Last slide, please ask!