TranScanLAN™

Response Time Reporter

User's Manual

Statistics File V2.0

(Ethertest Platform)

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Ontrac Consulting, Inc.
45 Chaucer Court
San Ramon, CA 94583

Preface

This document contains principles and procedures for use of the TranScan/LAN Response Time Reporter Module[1] to create transaction response time statistic files for import into Excel and calculation of average response time statistics.

The Response Time Reporter works in conjunction with TranScan Viewer and TranScan/LAN, identifying the request and response message pairs that constitute a transaction and calculating the transaction response time.

The TranScan Viewer and TranScan/LAN are described in the document TranScan Viewer and TranScan/LAN.

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1. Introduction to Response Time Reporter

The Response Time Reporter is an optional software module for the TranScan Viewer and TranScan/LAN.

1.1 Response Time Reporter and TranScan Viewer

The TranScan Viewer parses and displays application messages. The optional Reporter then matches each request message with its associated response and calculates the time difference between the arrival of the two messages, known as the transaction response time. Each ISO 8583 dialect has its message types and their key specified in the TranScan msgkey.ini file.

The Reporter can be invoked to calculate response time statistics in real time, or from previously captured LANWatch32 .dmp or Ethertest .cfa files.

Various response time statistics are calculated and written periodically to an ASCII file whose fields are separated by "commas", (","). The name of the statistics file includes the user supplied MonitorID for this copy of the Reporter as well as the date and times of the first and last frames analyzed by the Reporter or the start and end time of the calculating process. The name also indicates whether the file was created in real time or as result of analyzing a previously captured LANWatch or Ethertest file.

During real time capture, a new statistics file is begun each day. At the end of the month, these files can be imported into Excel and a monthly Average Response Time can be calculated.

Response time statistics calculated from a previously captured file will be written to a single file.

Originally, TranScan products were designed to parse and display various dialects of the ISO/8583 Message Format for BankCard Processors. This ISO standard has had a number of different transmission implementations. The TranScan has added support for many of these dialects to support the user base who gateways into the different Bank Card Networks. The TranScan has grown in function and now handles a number of different "higher level" or application level message formats that are not ISO/8583 yet are specifiable in our table driven format. We encourage our users to send us specifications for their message formats for inclusion in their system as a new dialect. So, as on the various screens you see the word "ISO", please substitute "application message" in your mind, as TranScan now handles much more than the ISO/8583 formats.

1.2 Reporter Functionality

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1.2.1 Reporting Interval

The Reporter maintains transaction response time statistics or acculmulators for each responding endpoint over a reporting interval. At the end of a reporting interval, a statistics file record is written for each responding endpoint that the Reporter is tracking. The statistics are then cleared and the reporting for the next interval begins. The reporting interval is configurable, with a default value of 60 minutes.

1.2.2 Monitor ID

The user will identify each copy of the Reporter by specifying a Monitor ID of up to 9 characters. This ID will be the first n characters of the name for each statistics file created. The default Monitor ID is the serial number of the C drive.

1.2.3 Accumulation of statistics

A TCP/IP session is a dialog between one two sockets, where each socket can be identified as an IP address and a port number: SocketA(IP addrA, PortA) <-->SocketB(I addrB,PortB). The reporter accumulates response times for each Socket in a session. Thus, if SocketA only sends requests to SocketB, and SocketB only responsds and never sends requests, then only one set of statistics will be kept, those that reflect how SocketB responds while in session with SocketA. If each side of the dialog sends both requests and responses, then two response time accumulators will be kept for the session, one for each sides response statistics.

1.2.4 File Naming

The name of a statistics file indicates

- Whether it was collected in real time or from captured data
- The actual interval starting and ending times are within the file

A statistics file is named:
[monitor-id].stat-mode. start-year|| start-month|| start-day|| start-hour|| start-min||"."||"E"|| end-year|| end-month|| end-hour|| end-minute||"."||"FV"file-ver||"."||stat-mode||"SF"

Stat-mode is either "R" for real time statistics or "C" for captured statistics.

It is important to note that the name of each statistics file indicates the reporting time interval present, which Monitor system created the file, the file format version and whether it was created in real time or from previously captured data.

1.2.5 Real Time Reporter

When calculating statistics in real time, the Reporter will always append an interval's statistics to the current .rsf file for today's date. Thus, if the system was running real time statistics gathering , was booted and statistics gathering re-started, the new statistics intervals would be appended to the previously created file for this date. At midnight, the Reporter will write out the current .rsf file and open a new .rsf file for the new day.

1.2.6 Captured File Reporter

When the user specifies calculate response time statistics from a captured file, a .csf statistics file will be created when a .dmp file is loaded in LANWatch or a .cfa file in Ethertest. That .csf file will have as its name
[monitor-id].C.S[start-yyyymmddhhmm].E[end-yyymmddhhmm].fv001.csf, where start-yyymmddhhmm is the date and time of first data frame in the file and end-yyymmddhhmm is the date and time of last data frame in the file.

A statics file from a system with a user-supplied Monitor Id of IBM10 looking at a caputured file whose first data frame has a time stamp of 2001-29 June-18:30 and who last data frame has a time stam of 2001-3 July-3:10 would have the name
IBM10.C.S2001061830.E200107030310.fv001.csf.

Note that .csf files can contain frames of data accumulated over multiple days.

1.2.7 Statistics Details

See Appendix A. See Response Time Report Template.xlt for names of columns created by the Reporter.

Note that the current Interval Transactions count is a count of the pairs of transactions that are listed in msgkey.ini. It does not include other message types, unparseable messages, orphaned or timed out messages.

1.2.8 Statistics File content

Each record written to the statistics file will become one line in the summarizing Excel spreadsheet. Each record is identified by a two character event or record type. See Appendix B for a complete list of event or record types.

1.2.9 Message matching configuration

The Reporter uses a file msgkey.ini to determine what the matching fields are for each transaction. Both requests and responses will contain each of these fields. Msgkey.ini is organized by dialect.

1.3 Operational Principles.

As you use the Reporter, please be aware of the following:

- **IF RUNNING LANWATCH, NEVER ALLOW LANWATCH TO BE MINIMIZED ON THE SCREEN. YOU MAY, HOWEVER, ALLOW IT TO BE HIDDEN BY OTHER WINDOWS. IF MINIMIZED, LANWATCH STOPS PASSING MESSAGES TO THE TRANSCAN VIEWER AND THE REPORTER.**
- The Reporter attempts to parse and either match or timeout each application message it sees. Thus, it can challenge a processor. Be sure to provide whatever filtering you can, both for LANWatch or Ethertest. Filtering means that the Reporter will only see the relevant messages that you want it to see.
- The Reporter was designed to run unattended. If your volumes are low, you may continue to display application messages in the Viewer. When volumes increase, be sure to turn off the display and run in unattended mode.
- If you are performing Real Time statistics gathering, never go into Examine mode as this will block any data from being presented to the Reporter.
- The TranScan Viewer will remember which dialect it is analyzing and whether statistics calculation is enabled. If enabled, the Viewer will remember whether to do this in real time or when looking at captured data.

2. Running the Reporter

2.1 Configuration (setting) in TranScan Viewer:

- On TranScan Viewer: menu options/options - "ID/License" tab: set Monitor ID
- The Monitor ID can have a maximum length of 9 characters

2.2 Unattended response time calculations gathering:

- On TranScan Viewer: menu options/options... - Statistics tab: check box "Unattended Execution for Reponse Time Calculation"
- On TranScan Viewer: menu options/options... - Statistics tab: UNcheck box "Display Messages During Response Time Statistics Gathering"

2.3 Starting response time calculation for realtime:

1) Start Ethertest
2) On TranScan Viewer: menu File/Response Time Statistics/Calculate for Realtime

2.4 Starting response time calculation for captured file:

1) Start Ethertest
2) On TranScan Viewer: menu File/Response Time Statistics.../Calculate for Captured File Loads
3) On Ethertest, load captured file.
4) Wait for load to complete.
5) On TranScan Viewer: menu File/Response Time Statistics.../Stop and Close Out Response Time Calculations. (This Close Out must be done to cause the last records to be written to the statistics file.)

3. General Response Time Calculation tips

- View Response time calculation info as it is running on TranScan Viewer: menu View/Response Time Info...
- Files, .CSF for captured file, .RSF for realtime, are stored in the svdata\ folder (default installation folder would be c:\program files\transcan viewer\svdata\)
- TranScanLAN.ini, with additional TranScan LAN filters, goes into shared Windows directory (e.g. c:\windows\ on Windows 95/98 system, c:\WINNT\ on Windows NT/2000)
- To view additional TranScan LAN filters used by Ethertest, in TranScn Viewer menu Options/Options..., Filters tab.

4. Appendix A: Fields in Statistics Records

Template Field Name	Description	Present for these events:
File version	Format version for this .rsf or .csf file. Initially version 1.0, followed by 1.1	All
Type of event	ID of this line in the table / record in the file. See Appendix B	All
Monitor ID	Monitor ID of the system that created this file, as set in the View Options of Tranview	All
Mode	R= Realtime data being processed C= Capture file being processed	All
Comment	Optional information	All
Starting Date and Time Stamp:		
Starting Year	YYYY	All
Starting Month	MM	All
Starting Day	DD	All
Starting Hour	hh	All
Starting Minute	mm	All
Interval duration	Number of seconds in this reporting interval.	SR, SC, IR, IC
Report Class	Dialect – ISO or other, taken from Msgkey.ini	SR,SC
Protocol	TCP or SNA	SR, SC,
TCP/IP Session Info:		
Response Source IP	IP Address of the responder	SR, SC
Response Source Port	TCP/IP port of the responder	SR, SC
Request Source IP	IP Address of the requestor	SR, SC
Request Source Port	TCP/IP port of the requestor	SR, SC
TCP/IP Session Response Time Statistics:		
Average	Average response time for this interval for measured transactions 01xx, 02xx and 04xx	SR, SC
Longest	Longest response time in seconds for transactions described above.	SR, SC
Shortest	Shortest response time in seconds for transactions described above.	SR, SC
Response Time Percentile Distribution		
% Response times within range1	% of all response times for this interval that are >0 and < range1	
Range1 in seconds	Number of seconds in range1. nnn.nnn	
% Response times within range2	% of all response times for this interval that are => range1 and < range2	
Range2 in seconds	Number of seconds in range2. nnn.nnn	
% Response times within range3	% of all response times for this interval that are => range2 and < range3	
Range3 in seconds	Number of seconds in range3. nnn.nnn	
% Response times	% of all response times for this interval that are => range3 and <	

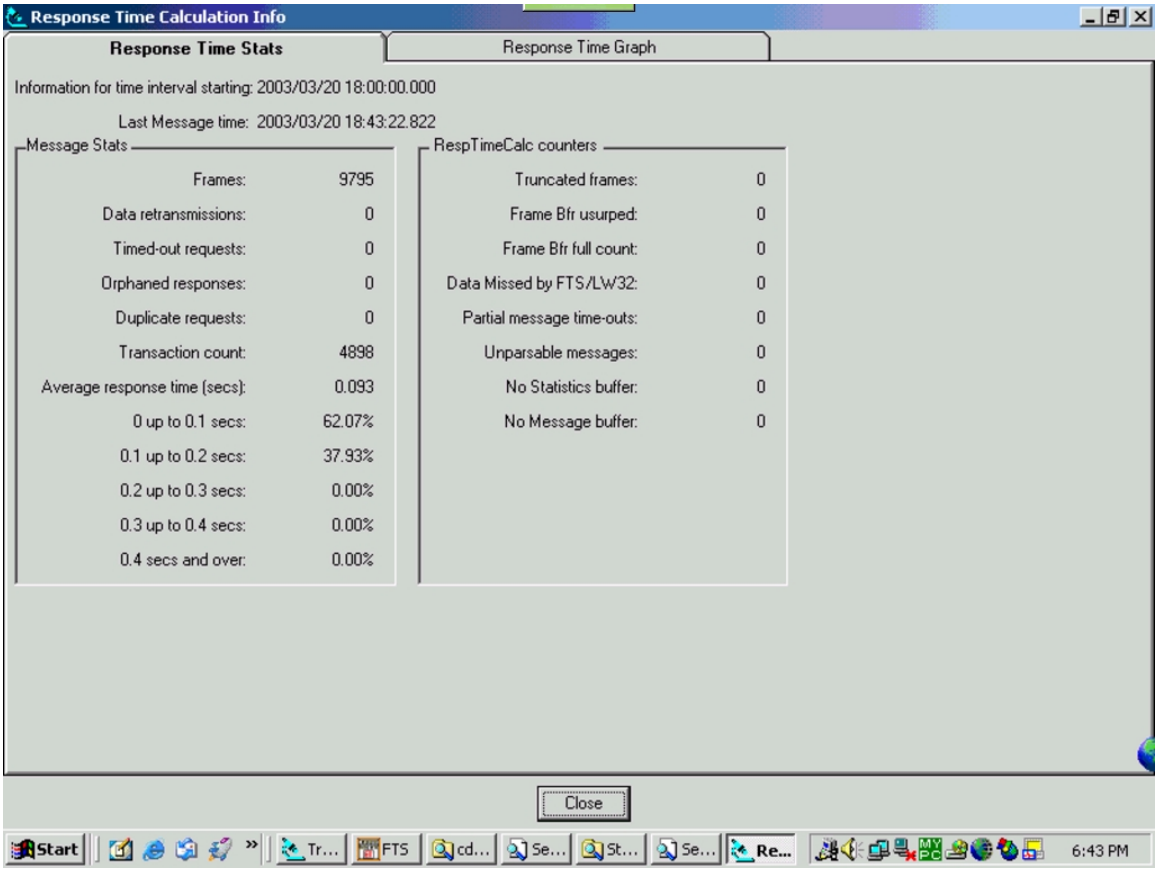
within range4	range4	
Range4 in seconds	Number of seconds in range4. nnn.nnn	
% Response times equal to or greater than range4	% of all response times for this interval that are => range4	
TCP/IP Session Interval Counters:		
Interval Transactions	Count of request/response pairs from msgkey.ini	SR, SC
Timed out requests	Count of requests received whose responses didn't arrive within 35 seconds	SR, SC
Unparsable frames	Count of messages with ISO parse errors	SR, SC
Duplicate requests	Count of request messages with same key received without intervening response	SR, SC
Orphaned responses	Count of responses received with no preceding request	SR, SC
Lost data detected	Number of times data was lost	SR, SC
Lost bytes	Total number of bytes not received	SR, SC
Truncated frames	Number of frames truncated because of too small packet choice	SR, SC
Truncated bytes	Number of bytes lost because of frame truncation	SR, SC
Retransmission detected	Number of times frame re-transmission is detected. Often indicates need for network tuning.	SR, SC
Frame buffers full	Number of times buffers not available for incoming messages. Indicates need for more memory	SR, SC
Frame buffer full lost bytes	Number of bytes not processed because of lack of buffers	SR, SC
Oldest frame buffer usurped	Number of times an older active buffer was grabbed for current message. Can indicate too many active sessions with concurrent outstanding transactions	SR, SC
No stats buffers available	Number of times no space to accumulate statistics. May indicate too many outstanding sessions being monitored for available memory	SR, SC

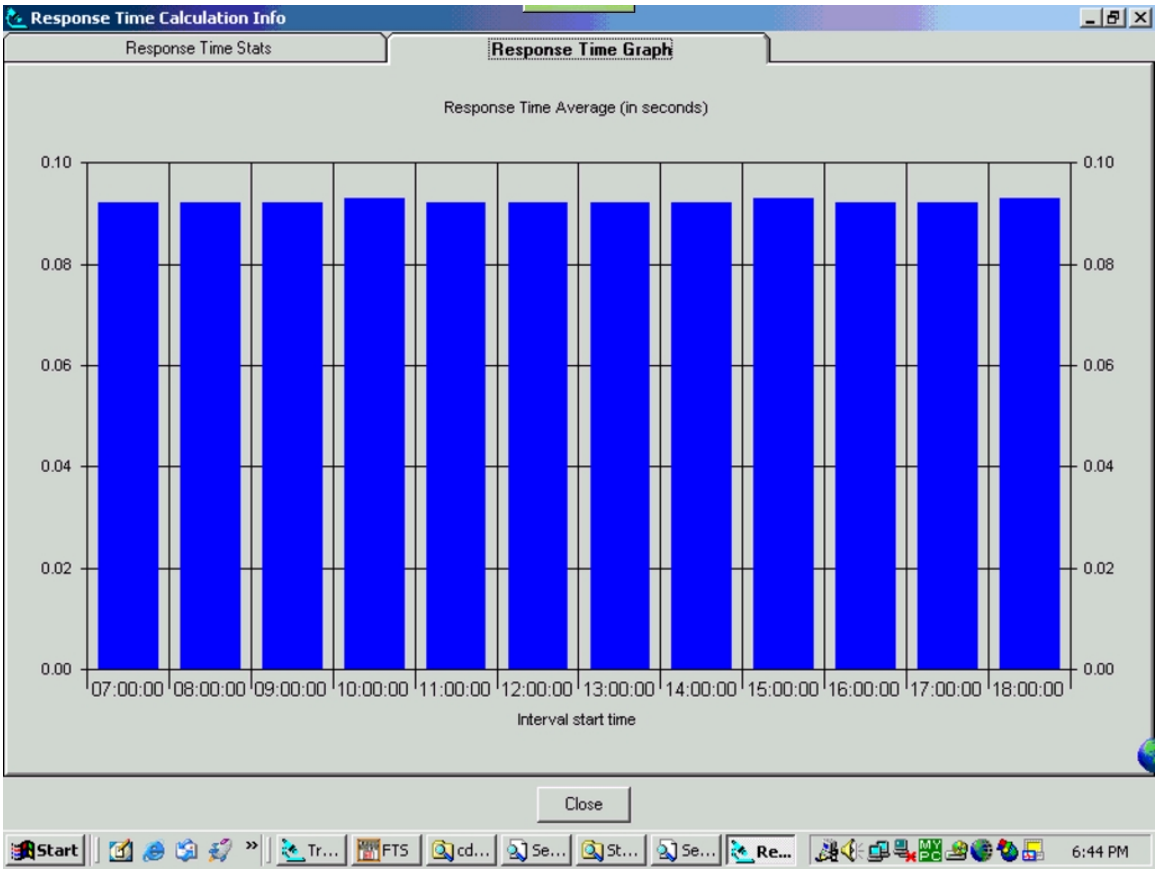
5. Appendix B: Record or Event types in Statistics Files

Record or Event ID	Description
NC	Response time calculation for a previously captured file started
FC	Response time calculation for a previously captured file ended
SC	A statistics interval record for a previously captured file written at the end of an interval
NR	Real time response time calculation started
FR	Real time response time calculation ended
SR	A real time statistics interval record written at the end of an interval
SOD	Record written when a real time statistics file is opened at the start of a new day
EOD	Record written when a real time statistics file is closed out at the end of day
IR	Real time interval end
IC	Captured file interval end

6. Appendix C: Real Time Statistics Display

Real-time statistics can be displayed while the Response Time Reporter is running.




Response Time Calculation Info
Response Time Stats
Response Time Graph
Response Time Average (in seconds)
0.10
0.08
0.06
0.04
0.02
0.00
07:00:00
08:00:00
09:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
Interval start time
Close
Start
6:44 PM

7. Appendix D: Error statistics

Condition	SReturnCodes statistics	Statistics file
for specific connection: No room in CircBfr,	CircBfrFullCnt (Frame Bfr full count)	LostData (count & #of bytes)
for specific connection: no Frame Descriptors avail	CircBfrFullCnt (Frame Bfr full count)	LostData (count & #of bytes)
no Statistics Accumulator buffers available for new reporting connection	NoStatsAccCnt (No Statistics buffer)	IR record, column after "Truncated bytes"
gap in seq# < 10,000	LostDataCnt (Missing data count)	LostData (count & #of bytes)
Packet size smaller than frame	TruncatedCnt (Truncated frames)	TruncatedFrames (count & #of bytes)
Circular buffer taken by force	CircBfrError (Frame Bfr usurped)	n/a need to add Frame buffer usurped
Retransmissions	RetransDetectedCnt (Data retransmissions)	n/a

8. Appendix E: Current MSGKEY.INI File

MSGKEY.INI provides the Response Time Reporter and the Viewer with the rules for indentifying which are the key fields that uniquely identify the request and response pairs. These key fields are used for matching a request and a response during the response time calculation. They are also used in the Viewer when the user positions to a request or response and asks the Viewer to find the related response or request. Sharing the same key.

Please notify Ontrac if you see an error in the file section associated with your ISO dialect.

```
;Copyright Ontrac Consulting, Inc. 2001
;Message Key for matching requests and responses
; NR = Not included in Response Time Calculation
 [MASTERCARD]
0100=7,11,32
0120=7,11,32
0180=7,11
0200=7,11,32
0220=7,11,32
0300=NR,7,11,33,
0302=NR,7,11,33
0400=7,11,32
0420=7,11,32
0422=NR,7,11,32
0620=NR,7,11,33,100
0800=NR,7,11,33,70
0810=NR,7,11,33,70
[VISA]
0100=11,32,37,41,42
0101=11,32,37,41,42
0110=11,32,37,41,42
0120=11,32,37,41,42
0130=11,32,37,41,42
0200=11,32,37,41,42
0201=11,32,37,41,42
0210=11,32,37,41,42
0220=11,32,37,41,42
0230=11,32,37,41,42,
0300=NR,7,11,37
0302=NR,7,11,37
0400=11,32,37,41,42
0401=11,32,37,41,42
0410=11,32,37,41,42
0420=11,32,37,41,42
0422=11,32,37
0430=11,32,37,41,42
0480=NR,11,32,37
0500=NR,7,11,37,70
0520=NR,7,11,37,70
0600=NR,11,32,37,70
0620=NR,11,32,37,70
0800=NR,11,70
0810=NR,11,70
[AS2805ASCII]
0100=11,32
```

0101=11,32
0110=11,32
0120=11,32
0130=11,32
0200=11,32
0201=11,32
0210=11,32
0220=11,32
0230=11,32
0400=11,32
0401=11,32
0410=11,32
0420=11,32
0430=11,32
0800=NR,11,32,70
0810=NR,11,32,70
[JCB]
0100=11,32,37
0101=11,32,37
0110=11,32,37
0120=11,32,37
0130=11,32,37
0200=11,32,37
0201=11,32,37
0210=11,32,37
0220=11,32,37
0230=11,32,37
0300=NR,11,37
0302=NR,11,37
0400=11,32,37
0401=11,32,37
0410=11,32,37
0420=11,32,37
0422=NR,11,32,37
0430=11,32,37
0500=NR,11,32,37
0520=NR,11,32,37
0600=NR,11,32,37
0620=NR,11,32,37
0800=NR,11,32,37
[SHAZAM-ASCI]
0100=11,37
0120=11,37
0200=11,37
0220=11,37
0400=11,37
0420=11,37
1100=11,32,37
1110=11,32,37
1120=11,32,37
1130=11,32,37
1200=11,32,37
1210=11,32,37
1220=11,32,37

1230=11,32,37
1400=11,32,37
1410=11,32,37
1420=11,32,37
1422=NR,11,32,37
1430=11,32,37
1604=NR,37
1624=NR,11,32,37
1804=NR,11,37
[SHAZAM-AUTO]
0100=11,37
0120=11,37
0200=11,37
0220=11,37
0400=11,37
0420=11,37
1100=11,32,37
1110=11,32,37
1120=11,32,37
1130=11,32,37
1200=11,32,37
1210=11,32,37
1220=11,32,37
1230=11,32,37
1400=11,32,37
1410=11,32,37
1420=11,32,37
1422=NR,11,32,37
1430=11,32,37
1604=NR,37
1624=NR,11,32,37
1804=NR,11,37
[SHAZAM-XP]
1100=11,32,37
1110=11,32,37
1120=11,32,37
1130=11,32,37
1200=11,32,37
1210=11,32,37
1220=11,32,37
1230=11,32,37
1400=11,32,37
1410=11,32,37
1420=11,32,37
1422=NR,11,32,37
1430=11,32,37
1604=NR,37
1624=NR,11,32,37
1804=NR,11,37
[SHAZAM-NXP]
1100=11,32,37
1110=11,32,37
1120=11,32,37
1130=11,32,37

1200=11,32,37
1210=11,32,37
1220=11,32,37
1230=11,32,37
1400=11,32,37
1410=11,32,37
1420=11,32,37
1422=NR,11,32,37
1430=11,32,37
1604=NR,37
1624=NR,11,32,37
1804=NR,11,37

9. Appendix F: Current Template

.xls template showing report format
Blue denotes the label.
Green denotes the fields to be written by the response time reporter

Response Time Report,											
File version,	Type of Event,	Monitor ID,	Mode	Comment,	Starting Date and Time Stamp,,,,,,					Interval duration in secs,	**Report Class,**
,	,	,	,	,	Starting year,	Starting month,	Starting day,	Starting hour,	Starting min	Starting min,	,
FV'nnn,	aaa,	aaaaaaaa,	a,	aaa,(<132)	nnnn,	nn,	nn,	nn, (0..23)	nn, (0..59)	nnnnn,	AAAAA,

Protocol,	Reponse session ID,,	
,	Response source IP,	Response source port,
???,	nn.nn.nn.nn,	nnnn,

Request session ID,,		Response Time Statistics,,,		
Request source IP,	Request source port,	Average,	Longest,	Shortest,
nn.nn.nn.nn,	nnnn,	nnnn.nnn,	nnnn.nnn,	nnnn.nnn,

Percentile Distributions								
% response times within range1	range1 limit in secs	% response times within range2	range2 limit in secs	% response times within range3	range3 limit in secs	% response times within range 4	range4 limit in secs	% response times >= range4 limit
NNN%	NNN	NNN%	NNN	NNN%	NNN	NNN%	NNN	NNN%

Interval Counters of: ,,,,,,,,,								
Interval transactions,	Timed out requests,	Unparsable frames,	Duplicate requests,	Orphaned responses,	Lost data detected,	Lost bytes,	Truncated frames,	Truncated bytes,
nnnnnnnnnn,	nnnnnnn,	nnnnnnn,	nnnnnnn,	nnnnnnn,	nnnnnnn,	nnnnnnn,	nnnnnnn,	nnnnnnn,

Reporter verson,	stats class version,	Source filename	Config parms
nnn,	nnn,	See naming rules	p-name1=nnn, pname2=yyy,...

End of Document