

Forensic Link Adapter Report

University of Tulsa

800 S Tucker Dr
Tulsa, OK 74104

Data Package obtained with FLA 1B2R90058 (None) on Thu Aug 27 2015 9:56:58 CST
The operators assigned to this FLA are: Amila Perera (amila-perera@utulsa.edu) , Jeremy Daily (jeremy-daily@utulsa.edu)
Status of the FLA's subscription: **expires in 11 months (July 19, 2016)**

The results on this page haven't been validated. The user is advised to check information against other sources.



Report Notes

no one has made any notes

Vehicle Information

Engine #1 from J1939

Make	CTRPL
Model	C-15
Serial Number	6NZ18866
Unit Number	1XP5dB9x61D532271

Engine #1 from J1587

Make	CTRPL
Model	C-15
Serial Number	NZ188
Vehicle Odometer	641480.4 miles
Engine Hours	17850.00
VIN	1XP5dB9x61D532271

Vehicle OEM Data

Vehicle ID	1XP5dB9x61D532271
Engine serial number	6NZ18866
Quick Stop Rate	7.00

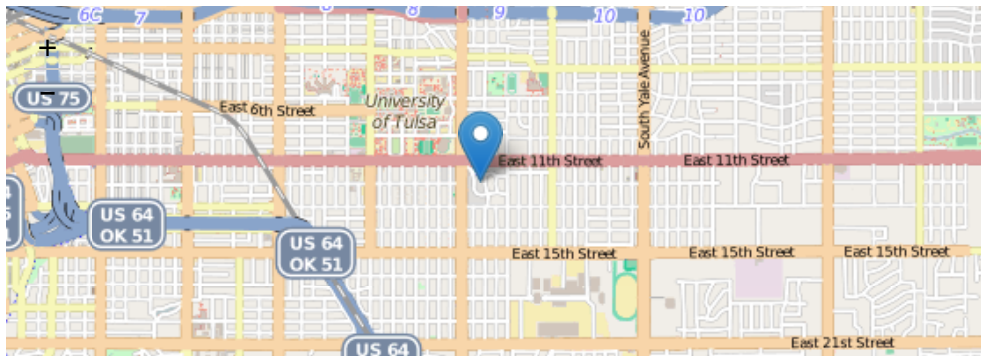
Time Records

FLA Time When User Indicates They Have Permission	Thu Aug 27 2015 9:56:58 CST
FLA Time When Download Complete	Thu Aug 27 2015 10:03:12 CST
Duration of Download	00:06:13 (373 seconds)

Time the FLA System Time was last set	Sun Jul 19 2015 12:24:30 CST
ECM Internal Clock Time	Thu Aug 27 2015 4:57:25 CST
FLA Time When ECM Clock Was Read	Thu Aug 27 2015 9:57:30 CST
Time Difference (FLA minus ECM)	05:00:05 (18005 seconds)
Server Time when Data Package was Uploaded	Thu Aug 27 2015 10:03:18 CST
GPS Sat Time at Last GPS Lock	Wed Aug 26 2015 13:06:36 CST
FLA System Time at Last GPS Lock	Wed Aug 26 2015 13:06:07 CST

GPS Data - lat:36.146057, long:-95.938545

1220, South Jamestown Avenue, Tulsa, Tulsa County, Oklahoma, 74112, United States of America



Leaflet | © OpenStreetMap contributors

Historical Data

Historical data are things that can be counted during the use of the vehicle such as time, mileage, and fuel usage. This also includes logging features and trip information.

Data from Source Address 0 (Engine #1) on the J1939 Network

PGN	PGN Name	SPN	SPN Name	Value	Units	Raw Hex Data
65217	VDHR	917	High Resolution Total Vehicle Distance	1032362940	meters	8C 85 4E 0C FF FF FF FF
		918	High Resolution Trip Distance	not available	meters	
65255	VH	246	Total Vehicle Hours	not available	hours	FF FF FF FF 00 00 00 00
		248	Total Power Takeoff Hours	0.00	hours	
65266	LFE1	185	Engine Average Fuel Economy	0.115	miles/gallon	00 00 00 00 19 00 FF FF

Data from MID 128 (Engine #1) on the J1587 Network

PID	PID Name	Value	Units	Raw Data
185	Average Fuel Economy	0.117	mpg	1E 00
235	Total Idle Hours	4348.55	hours	BB 53 01 00
236	Total Idle Fuel Used	1769.500	gallons	4C 37 00 00
245	Total Vehicle Distance	641480.4	miles	D4 E1 61 00
247	Total Engine Hours	17850.00	hours	88 72 05 00
248	Total PTO Hours	0.00	hours	00 00 00 00
250	Total Fuel Used	104721.125	gallons	89 C8 0C 00

CAT Historical Data

[Download CSV Table](#)

Name	Value
Total fuel	104721.12
Last tool to change customer configuration	ETK07252
Total Max Fuel	244205.75
Trip MPG	0.00
Total idle time	4348:33
trip miles	0.00
trip time	17850:00
Total tattletale	126.00
Total miles	641480.40
Last tool to change system configuration	ET550975

Configuration Data

Configuration data has values that relate to the configuration of various modules on the vehicle.

Data from Source Address 0 (Engine #1) on the J1939 Network

PGN	PGN Name	SPN	SPN Name	Value	Units	Raw Hex Data
65214	EEC4	3671	Crank Attempt Count on Present Start Attempt	not available	count	C0 02 40 38 FF FF FF FF
		166	Engine Rated Power	472.040	hp	
		189	Engine Rated Speed	1800.000	rpm	
		5465	Engine Intake Manifold Pressure Control Mode	not available	binary bit-mapped	
		3669	Engine Rotation Direction	not available	binary bit-mapped	
65251	EC1	1712	Engine Extended Range Requested Speed Control Range	not available	rpm	C0 12 AE 40 38 D5 40 1F DD 80 25 E0 00 32 DF 40

	Upper Limit (Engine configuration)			42 FF FF 64 09 C0 4E FA FF FF FF FF FF FF 90 01
3348	Support TSC1 Control Purpose Group 4	not defined	binary bit-mapped	
3346	Support TSC1 Control Purpose Group 2	not defined	binary bit-mapped	
3347	Support TSC1 Control Purpose Group 3	not defined	binary bit-mapped	
3344	Support Variable Rate TSC1 Message	not defined	binary bit-mapped	
3345	Support TSC1 Control Purpose Group 1	not defined	binary bit-mapped	
542	Engine Percent Torque At Point 4 (Engine Configuration)	99	%	
543	Engine Percent Torque At Point 5 (Engine Configuration)	98	%	
540	Engine Percent Torque At Point 2 (Engine Configuration)	88	%	
541	Engine Percent Torque At Point 3 (Engine Configuration)	96	%	
544	Engine Reference Torque (Engine Configuration)	1773.099	ft lb	
545	Engine Gain (Kp) Of The Endspped Governor (Engine Configuration)	not available	%/rpm	
188	Engine Speed At Idle, Point 1 (Engine Configuration)	600.000	rpm	
528	Engine Speed At Point 2 (Engine Configuration)	1800.000	rpm	
529	Engine Speed At Point 3 (Engine Configuration)	1000.000	rpm	
1794	Engine Moment of Inertia	37.969	lb ft^2	
1846	Engine Default Torque Limit	0.000	ft lbs	
537	Engine Requested Torque Control Range Lower Limit (Engine Configuration)	not available	%	
536	Engine Requested Speed Control Range Upper Limit (Engine Configuration)	not available	rpm	
535	Engine Requested Speed Control Range Lower Limit (Engine Configuration)	not available	rpm	

		534	Engine Maximum Momentary Override Time Limit (Engine Configuration)	25.0	Seconds	
		533	Engine Maximum Momentary Override Speed, Point 7 (Engine Configuration)	2520.000	rpm	
		532	Engine Speed At High Idle, Point 6 (Engine Configuration)	2120.000	rpm	
		531	Engine Speed At Point 5 (Engine Configuration)	1600.000	rpm	
		530	Engine Speed At Point 4 (Engine Configuration)	1200.000	rpm	
		539	Engine Percent Torque At Idle, Point 1 (Engine Configuration)	49	%	
		538	Engine Requested Torque Control Range Upper Limit (Engine Configuration)	not available	%	
65259	CI	586	Make	CTRPL	ASCII	43 54 52 50 4C 2A 43 2D 31 35 20 2A 36 4E 5A 31 38 38 36 36 2A 31 58 50 35 64 42 39 78 36 31 44 35 33 32 32 37 31 2A
		587	Model	C-15	ASCII	
		588	Serial Number	6NZ18866	ASCII	
		233	Unit Number (Power Unit)	1XP5dB9x61D532271	ASCII	

Data from Source Address 15 (Retarder - Engine) on the J1939 Network

PGN	PGN Name	SPN	SPN Name	Value	Units	Raw Hex Data
65249	RC	902	Retarder Location	(primary) engine compression release brake (engine rpm)	binary bit- mapped	03 03 00 19 72 C0 5D 44 A0 28 64 E0 47 44 C0 5D D0 07 44
		901	Retarder Type	compression release (engine retarder)	binary bit- mapped	
		555	Percent Torque At Peak Torque, Point 5 (Retarder Configuration)	-57	%	
		554	Percent Torque At Point 4 (Retarder Configuration)	-57	%	
		557	Retarder Control Method (Retarder Configuration)	3	step	
		556	Reference Retarder Torque (Retarder Configuration)	2000	Nm	
		551	Percent Torque At Idle, Point 1 (Retarder Configuration)	-11	%	
		550	Retarder Speed At Point 4 (Retarder Configuration)	2300.000	rpm	
		553	Percent Torque At Point 3 (Retarder Configuration)	-25	%	
		552	Percent Torque At Maximum Speed, Point 2 (Retarder Configuration)	-57	%	
		546	Retarder Speed At Idle, Point 1 (Retarder Configuration)	800.000	rpm	
		547	Retarder Speed At Peak Torque, Point 5 (Retarder Configuration)	3000.000	rpm	
		548	Maximum Retarder Speed, Point 2 (Retarder Configuration)	3000.000	rpm	
		549	Retarder Speed At Point 3 (Retarder Configuration)	1300.000	rpm	

Data from MID 128 (Engine #1) on the J1587 Network

PID	PID Name	Value	Units	Raw Data
74	Maximum Road Speed Limit	65.0	mph	82
87	Cruise Control High-Set Limit Speed	65.0	mph	82
88	Cruise Control Low-Set Limit Speed	35.0	mph	46
166	Rated Engine Power	472.0	hp	D8 01
187	Power Takeoff Set Speed	0.00	rpm	00 00
188	Idle Engine Speed	600.00	rpm	60 09
189	Rated Engine Speed	2120.00	rpm	20 21
234	Software Identification	2707067-00*MAY05		32 37 30 37 30 36 37 2D 30 30 2A 4D 41 59 30 35
237	Vehicle Identification Number	1XP5dB9x61D532271		31 58 50 35 64 42 39 78 36 31 44 35 33 32 32 37 31
243	Component Identification	CTRPL*C-15 *NZ188		43 54 52 50 4C 2A 43 2D 31 35 20 2A 4E 5A 31 38 38

CAT Configuration Data

[Download CSV Table](#)

Name	Value
Soft Vehicle Speed Limit	0.00
A/C Pressure Switch Fan-On Time	180.00
Gear Down Protection RPM Limit	1900.00
Idle Shutdown Timer Max RPM	2120.00
Idle/PTO RPM Ramp Rate	50.00
Intermediate Gears Turn Off Speed	45.00
Top Gear Ratio	0.740
Vehicle ID	1XP5dB9x61D532271
Personality partnumber	2707067-00
Engine serial number	6NZ18866
Top Gear Minus One Ratio	1.000
Top Engine Limit with Droop	0.00
Lower Gears Turn Off Speed	10.00
FTS (Full torque setting)	-125.00
Idle/PTO Bump RPM	20.00
Lower Gears Engine RPM Limit	1900.00
Vehicle Speed Calibration	29541.00
Intermediate Gears Engine RPM Limit	1900.00
Vehicle Speed Limit	65.00
FLS (Full load setting)	93.00
High Cruise Control Speed Set Limit	65.00
Quick Stop Rate	7.00
Idle Shutdown Time	5.00
Software date code	MAY05
Gear Down Protection Turn On Speed	120.00
Driver Reward Enable	Enabled
Top Gear Minus Two Ratio	1.387
Idle/PTO Vehicle Speed Limit	2.00
Minimum Idle Time	5.00
Tachometer Calibration	113.00
Top Engine Limit	2120.00
Low Cruise Control Speed Set Limit	35.00
Vehicle Speed Limit Protection	1900.00
Two Speed Axle Switch Configuration	140.00
Ecm serial number	21736103IK
Low Idle Engine RPM	600.00
Idle RPM Limit	1400.00

SAE J1587 Fault Trouble Code Data

Fault data from the J1587 network consists of Parameter Identifications (PIDs) 194 (0xC2) and 196 (0xC4). PID 194 lists codes and their statuses, along with the Failure Mode Identification (FMI). PID 196 provides additional information, either an ASCII string or OEM data, for a code. A code is either the Subsystem Identification (SID) or PID related to the issue on the vehicle.

Diagnostic Codes (PID 194) from MID 128 (Engine #1)

Code	Code Name	Failure Mode	Occurance Count	Status
91	Percent Accelerator Pedal Position	Abnormal frequency, pulse width, or period	not available	active
102	Boost Pressure	Voltage above normal or shorted high	not available	active
231	SAE J1939 Data Link	Bad intelligent device or component	not available	active
252	Calibration Module	Failure mode not identifiable	not available	active
253	Calibration Memory	Data erratic, intermittent, or incorrect	not available	active
Raw Data	C2 0A 5B 28 66 23 E7 3C FC 3B FD 32			

SAE J1939 Fault Trouble Code Data

Fault data from the J1939 network consists of Diagnostic Messages (DMs) DM1, DM2, DM4, DM5, DM6, DM21, DM26. The Lamp Status table will always reflect the state of the lamps when the data was collected regardless of what category it is rendered under. i.e. The lamp status under Previously Active Faults (DM2) will reflect the lamp states when the data was collected, not when the faults were active.

Data from Source Address 0 (Engine #1)

Active DTCs: PGN 65226 (DM1)

Amber Warning Lamp	Red Stop Lamp	Malfunction Indication Lamp	Protect Lamp
On, do not flash	Off	Off	Off

SPN	SPN Name	FMI Name	FMI Severity
639	J1939 Network #1, Primary Vehicle Network (previously SAE J1939 Data Link)	Bad Intelligent Device Or Component	N/A
91	Accelerator Pedal Position 1	Abnormal Frequency, Pulse Width or Period	N/A
102	Engine Intake Manifold #1 Pressure	Voltage Above Normal, or Shorted To High Source	N/A
630	Calibration Memory	Data Erratic, Intermittent or Incorrect	N/A
631	Calibration Module	Root Cause Not Known	N/A
Raw Data	04 FF 7F 02 0C 7F 5B 00 08 7F 66 00 03 0F 76 02 02 00 77 02 0B 02		

Live Status Data

Live data is not a part of any other category. It includes things like engine RPM, vehicle speed, and brake status.

Data from Source Address 0 (Engine #1) on the J1939 Network

PGN	PGN Name	SPN	SPN Name	Value	Units	Raw Hex Data
61443	EEC2	1437	Road Speed Limit Status	not available	binary bit-mapped	FF 00 00 FF FF FF FF FF
		974	Remote Accelerator Pedal Position	not available	%	
		559	Accelerator Pedal Kickdown Switch	not available	binary bit-mapped	
		558	Accelerator Pedal 1 Low Idle Switch	not available	binary bit-mapped	
		5400	SCR Thermal Management Active	do not care	binary bit-mapped	
		5021	Momentary Engine Maximum Power Enable Feedback	do not care	binary bit-mapped	
		5399	DPF Thermal Management Active	do not care	binary bit-mapped	
		5398	Estimated Pumping - Percent Torque	not available	%	
		29	Accelerator Pedal Position 2	not available	%	
		3357	Actual Maximum Available Engine - Percent Torque	not available	%	
		2979	Vehicle Acceleration Rate Limit Status	not available	binary bit-mapped	
		91	Accelerator Pedal Position 1	0.0	%	
		2970	Accelerator Pedal 2 Low Idle Switch	not available	binary bit-mapped	
		92	Engine Percent Load At Current Speed	0	%	
61444	EEC1	4154	Actual Engine - Percent Torque High Resolution	out of range	%	F0 7D 7D 00 00 00 FF 9A
		2432	Engine Demand - Percent Torque	29	%	
		190	Engine Speed	0.000	rpm	
		1483	Source Address of Controlling Device for Engine Control	0	SA	
		899	Engine Torque Mode	low idle governor/no request (default mode)	binary bit-mapped	
		1675	Engine Starter Mode	not available	binary bit-mapped	
		513	Actual Engine - Percent Torque	0	%	
		512	Driver's Demand Engine - Percent Torque	0	%	
65262	ET1	52	Engine Intercooler Temperature	not available	deg F	82 46 FF FF FF FF FF FF
		1134	Engine Intercooler Thermostat Opening	not available	%	

		110	Engine Coolant Temperature	194.0	deg F	
		176	Engine Turbocharger Oil Temperature	not available	deg F	
		175	Engine Oil Temperature 1	not available	deg F	
		174	Engine Fuel Temperature 1	86.0	deg F	
65263	EFL/P1	22	Engine Extended Crankcase Blow-by Pressure	not available	psi	FF FF FF 84 FF FF FF FA
		98	Engine Oil Level	not available	%	
		109	Engine Coolant Pressure	not available	psi	
		111	Engine Coolant Level	100.0	%	
		100	Engine Oil Pressure	76.580	psi	
		101	Engine Crankcase Pressure	not available	psi	
		94	Engine Fuel Delivery Pressure	not available	psi	
65265	CCVS1	976	PTO Governor State	off/disabled	binary bit-mapped	CC 00 00 50 00 00 00 FF
		966	Engine Test Mode Switch	not available	binary bit-mapped	
		1633	Cruise Control Pause Switch	off	binary bit-mapped	
		595	Cruise Control Active	cruise control switched off	binary bit-mapped	
		527	Cruise Control States	off / disabled	binary bit-mapped	
		597	Brake Switch	brake pedal depressed	binary bit-mapped	
		596	Cruise Control Enable Switch	cruise control disabled	binary bit-mapped	
		599	Cruise Control Set Switch	cruise control activator not in the position -set-	binary bit-mapped	
		598	Clutch Switch	clutch pedal depressed	binary bit-mapped	
		3807	Park Brake Release Inhibit Request	unavailable	binary bit-mapped	
		602	Cruise Control Accelerate Switch	cruise control activator not in the position -accelerate-	binary bit-mapped	
		968	Engine Idle Increment Switch	not available	binary bit-mapped	
		967	Engine Idle Decrement Switch	not available	binary bit-mapped	
		1237	Engine Shutdown Override Switch	not available	binary bit-mapped	
		70	Parking Brake Switch	not available	binary bit-mapped	
		69	Two Speed Axle Switch	low speed range	binary bit-mapped	
		601	Cruise Control Resume Switch	cruise control activator not in	binary bit-	

				the position -resume-	mapped	
		86	Cruise Control Set Speed	0.000	mph	
		84	Wheel-Based Vehicle Speed	0.000	mph	
		600	Cruise Control Coast (Decelerate) Switch	cruise control activator not in the position -coast-	binary bit-mapped	
65266	LFE1	3673	Engine Throttle Valve 2 Position	not available	%	00 00 00 00
		51	Engine Throttle Valve 1 Position	not available	%	19 00 FF FF
		184	Engine Instantaneous Fuel Economy	0.000	miles/gallon	
		183	Engine Fuel Rate	0.000	gallons/hour	
65270	IC1	173	Engine Exhaust Gas Temperature	not available	deg F	FF 00 7D FF
		112	Engine Coolant Filter Differential Pressure	not available	psi	FF FF FF FF
		102	Engine Intake Manifold #1 Pressure	0.000	psi	
		81	Engine Diesel Particulate Filter Intake Pressure	not available	psi	
		106	Engine Air Intake Pressure	not available	psi	
		107	Engine Air Filter 1 Differential Pressure	not available	psi	
		105	Engine Intake Manifold 1 Temperature	185.0	deg F	
65271	VEP1	115	Alternator Current	not available	amps	FF FF FF FF
		114	Net Battery Current	not available	amps	F6 00 FF FF
		167	Charging System Potential (Voltage)	not available	volts	
		168	Battery Potential / Power Input 1	12.30	volts	
		158	Keyswitch Battery Potential	not available	volts	

Data from MID 128 (Engine #1) on the J1587 Network

PID	PID Name	Value	Units	Raw Data
84	Road Speed	0.0	mph	00
86	Cruise Control Set Speed	0.0	mph	00
91	Percent Accelerator Pedal Position	0.0	%	00
92	Percent Engine Load	0.0	%	00
100	Engine Oil Pressure	76.5	psi	99
102	Boost Pressure	0.000	psi	00
105	Intake Manifold Temperature	185	deg F	B9
108	Barometric Pressure	9.000	psi	90
110	Engine Coolant Temperature	0	deg F	00
168	Battery Potential (Voltage)	12.30	volts	F6 00
171	Ambient Air Temperature	32.00	deg F	80 00
174	Fuel Temperature	86.00	deg F	58 01
175	Engine Oil Temperature	206.00	deg F	38 03
184	Instantaneous Fuel Economy	0.000	mpg	00 00
190	Engine Speed	0.00	rpm	00 00
251	Clock	09:57:25	HH:MM:SS (UTC)	64 39 09
252	Date	2015-08-27	YYYY-MM-DD	6C 08 1E

CAT Live Data

[Download CSV Table](#)

Name	Value
Instantaneous MPG	1769.50
Real Time Clock	2015-08-27T10:01:44+00:00
Diagnostic clock	20182.00

Data Extraction Details

Raw Hex Data from CTRPL Data Pages

[View Raw Data](#)

Nomenclature

RSL

Red Stop Lamp used for trouble code information severe enough to stop the vehicle.

DTC

Diagnostic Trouble Code

AES

Advanced Encryption Standard

MIL

Malfunction Indicator Lamp

SM

Send Message (FLA sends message to ECM)

PGN

Parameter Group Number from SAE J1939

gallons

US Gallons

SID

Subsystem ID

PID

Parameter ID

MID

Message ID

DA

Destination Address

SHA

Secure Hashing Algorithm

AWL

Amber Warning Lamp user for information for problems where the vehicle does not need to be immediately stopped.

?

An ASCII character of '?' represents data that is not an ASCII character, i.e. above 127.

SPN

Suspect Parameter Number from SAE J1939

FMI

Failure Mode Indication

RM

Recieve message (FLA recieves message from ECM)

SA

Source Address from SAE J1939

DIR

Direction of network message, see SM/RM

GPS

Global Positioning Satellite

Network Logs

Network logs are the raw data that existed on the vehicle network during the time of the inspection. The Timestamp refers to the first occurrence of the message. Any duplicate message is recorded by incrementing the count column. Network data is in hex.

J1939 Network Log

[View Network Log](#)[Download Network Log as CSV](#)

Thu Aug 27 2015 9:56:58 CST **duration: 00:00:27 (27 seconds)**

J1587 Network Log

[View Network Log](#)[Download Network Log as CSV](#)

Thu Aug 27 2015 9:56:58 CST **duration: 00:02:17 (137 seconds)**

Passthrough Tue Aug 25 2015 15:57:52 CST

[View Network Log](#)[Download Network Log as CSV](#)

SHA 256 Sums

Secure Hash Algorithms (SHAs) are calculated at the time of the extraction by the FLA and by the Portal when the report is uploaded.

If the two SHA-256 values agree, this shows, with near mathematical certainty, that the files are identical and no bits have been altered.

FaultData.json	8083ff2e728a7a21e5de12ad0978f9e48a0c247a241f319e6aa4743d616e54ff	Verified	
versions.json	9b5818a16bb600358f776c917c70f905fccccca4afa5334f46f210aec4d75f76	Verified	
standards_snapshot.txt	42e3790cd4f9ee9fe70fba8ac0f759d364bb44470690e5a16b7caee4d96fa82c	Verified	
cat_snapshots.syn	ace63d249d9784d996a44b2bdd6c3468930509cdf0f27afe1502607d2d74b08a	Verified	
GPSTData.json	d4a235187836eb3c4507c919105a791e48391ddf7a93962f9fe9a781713db3fd	Verified	
J1939Data.json	bc6d717e518ced127247c806eea6ed00a9ea169d52b78fe14a5fd21381b29eda	Verified	
metaData.json	a556b206253f02a05e54fe59a3c701b666369d1bef77dc7a9a9096b1a9dc52c3	Verified	
J1587Data.json	b62526f1149a385fa9112fb3ab0650de0996aaf8e0c66fc18d249c5ab88d3b26	Verified	
standards_data.json	dd91bc1c33560ed770c1c3c397fa2bdcbbc1192e4d5d3163956301b82f72a05ea	Verified	
cat_traffic_snapshot.txt	de7a00d7dd1338ba5edb7456126aa1123404282a6755442fc2e7c29cc4ac827c	Verified	
detection_snapshot.txt	3121d6a28e8f929e616d84e3c580c02cb05887bf90023052170e544392d89016	Verified	
Quick_Stop_1.csv	Server	c94f7d186e490b0586aecedca8d29c61c44f4785dfd4685301289875f0e6fc56f	SHA 256
	FLA	None	MISMATCH

Access Details

The user logged in as **Amila Perera (amilaperera@utulsa.edu)** requested this report on **Thu Aug 27 2015 10:04:35 CST** from a device with an IP address of **129.244.245.5**

Version Information

FLA System

3.58cross

FLA Upstart

0.92-1

FLA Network Driver

0.91-1

FLA Software

5be5f02

FLA Passthrough

0.8-1

FLA Local Website

3b58c4d

FLA Portal Revision

1.1

