DEPARTMENT OF WORKS

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wrong spelling

TRAFFIC DATA COLLECTION PROCEEDURE

(RSU and Manual Tally)

Abstract

The collection of quality traffic data is one of the basic requirements for traffic management and development of any road infrastructure system in the country. It is important that traffic data is the primary source for any kind of traffic and transportation projects and necessarily the data should be reliable and precise.

The manual method of data collection involves deployment of trained personnel and there are relatively higher chances for errors in data collection. The technological advancements have brought out much advancement in the reign of traffic data collection. The MetroCount device is an available Automatic Data Collection tool. The device is more convenient, reliable, cost effective and operates effectively over a huge range of environments.

This paper attempts to formulate the guidelines in traffic data collection by using two types of traffic data collection techniques namely manual count method, and automatic count (pneumatic tubes) method, which applies the MetroCount devices.

The extraction of data from the device (MetroCount) shall be done using inbuilt software developed for classified volume count and speed measurement. The classified count and speed of the vehicles obtained from two methods shall be compared and traffic flow relationships would be developed to estimate the capacity of the core Road Networks in the country for better planning, design, development and management of the road infrastructure.

DOCUMENT CONTROL

Table 1: Major Version Control Table

Major version No.	Issue date	Due for Review date	Review members	Position	Role	Signature	Date Signed
1-0	27.11.17		R.Nawara	Contractor			27.11.17

Table 2: Minor Version Control Table

Minor version No.	Issue date	Description	Reviewed document owner	Signature

Table 3: Department document administrator verification record

Checked in date	Amendments noted in table 2	Published date	Document administrator

Department of Works & Implementation

PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide a safe and a standard method for Traffic Data Collection by the both the manual and metro count road side unit (RSU).

SKILLS and COMPETENCIES REQUIRED

Competent in the use of the metro-count RSU device and its associated MTE software

Competent with the 13 classes of Road users – Traffic Survey Sheet

Competent with the use of hand held GPS instruments

Can use MS Office Suite (i.e. Excel)

ENVIRONMENTAL ASPECTS AND IMPACTS

Count Site is maintained cleaned and Tidy by the Tally Clerks

All used tapes, nails, cleats, Tubes, fire places, temporary shelters, betelnut husks, empty food packages and drink containers are removed after the count

COMMUNITY ISSUES OR IMPACTS

Making sure there are no unrest in the area/vicinity to be surveyed

Making sure the correct Roadside Hut/Building owner is identified, verified and engaged for the site concern.

HAZARDOUS MATERIALS

Used torch and Lamp Batteries

Camp Fire

RELATED SAFEGUARDS

Data Collection Procedure

Updated Traffic Survey Sheet

National Traffic Monitoring System - Draft Policy - Short 151202-,

DoW_CSP_2015-2019

Road User Classes – Pictures

161215 SafeTraffic Control at WorkSite_Field Guide

The National Policy for Gender Equality and Women's Empowerment 2011-2015

Gender Equity Policy

ADDITIONAL PPE (Site standard PPE and the following additional PPE is required)			
	Hand Gloves		Umbrella or Raincoat
	Knee protectors		Safety Glasses
	Steel Cap boots		Safety Vest or High reflective cloth.

DEFINITIONS	
JSA	Job Safety Analysis
SOP	Standard Operating Procedure
RSU	Road Site Unit
DoW	Department of Works
GPS	Global Positioning System Unit
MTE	Metro Count Executive (Software)
PRO	Public Relation Officer
AMB	Assert Management Branch
TSSP	Transport Sector Support Program
CSP	Corporate Strategic Plan
JSA	Job Safety Analysis
TAKE 5	Instant Simplified 5 steps of Field of Risk Management
RAMS	Road Asset Management Systems
GIS	Geographic Information Systems
QA	Quality Assurance
Metro-Count	Brand of the RSU used
OIC	Officer in Charge(Police)
EC2	MetroCount Executive File Type
Class Bin Chart	Metro-count Executive (MTE) Type of report for exporting data
RR	Risk Residual

TOOLS & EQUIPMENT REQUIRED	
Metro-Count RSU	Traffic Sign Cones
Tape Measure (5m)	White Chalk or Crayon
Large Cable Ties	Small Cable Ties
Sets of Padlock with keys	6 volt Welder battery
Stainless Steel security Strop	Large Road Cleat – 10pack
Tube Vent Plugs	Tool box for storage of all devices
3lbs Hammer	1x Dairy/notebook for each site
Stop & Go Signs	Safety Vest (Enough for Clerks and other crews)
Torch/Battery LED lamps	Pinch Bar
Solar re-chargeable Led lights with Dual bulbs with over 60watts or 200lumens brightness	4mm Ball Driver (screw Driver)
Minimum of 40 Double side Printed Manual Traffic sheets. 30 Sheets for 14days with 10 extra	Pen & Pencils
Raincoats/sweater	Cloth/Masking tapes
Fully charged laptop with MTE V5 installed	Handheld GPS
Mobile Phone with topped up call credits	Basic Food Snack
4x Roadwork ahead Sign – Drive Slowly	4x “Road work End “Sign with 60 km/hr speed sign – Drive Safely
4x “Roadwork Ahead” Sign with 40Km/hr Speed limit – Drive Slowly	Stainless steel washers
Knife/blade	3mx3mTarpaulin/canvas for some ideal sites without huts.
2x double side clip folders for each site	Wall face clock/watch
RSU USB Cable	B2 Size yellow manual Payslips forms
First Aid Field Kit	RSU Field Kits(Cleats, Centre lane Flaps, Bitumen Nails)
USB Power Packs	Digital Camera
Drinking Water	Enough Car Diesel/Fuel

Papua New Guinea

Department of Works & Implementation

JOB SAFETY ANALYSIS IDENTIFIED HAZARDS & CONTROLS		
HAZARD	**CONTROL**	RR
Driving to and from sites	Competent Driver with the full licensed check the tense here Full vehicle prestart check before the road trip Inform the DOW site rep of the trip Informing the Local Police OIC for each site to work from	
Site Identification lower case required need space here	Location is clearly defined from the AMB/RAMS section with maps and GPS files/coordinate loaded When close by, drive slowly to ID the appropriate site Engage with the villages who first showed up at the area and establish the owner of the hut/stall. It would be a bonus if the hut owner is the landowner as well. Do due diligence check on other villages who turned up to confirmed the initial contact claims Seek or ask permission to use the hut for the duration of the counts Specify clearly the needs for tally clerks to be year 10 minimum with 2males and 2 females. Verify if they are grade 10 and females currently attending school. Mothers with small kids will be considered. Casual employment contract should be clearly explained to them on areas of Rates, Penalties for data quality and %error that will affect their pay, method of payment, Time of payment, hours of work required, Tools and equipment provided, Termination, job title and description, date of employment and ending.	

JOB SAFETY ANALYSIS IDENTIFIED HAZARDS & CONTROLS		
HAZARD	**CONTOLS**	**RR**
Road Safety for the RSU Installation	All Personnel working on the road shall wear the reflective safety vest. Set out the 2x workman ahead signs about 500m away from each end the work area Set out the 4x "Roadwork Ahead" Sign with 40Km/hr Speed limit – Drive Slowly at 250m away from the above sign from each end of the work area. Set out the 4x "Road work End "Sign with 60 km/hr speed sign – Drive Safely at 250m away for each end of the work area. Established the Traffic controllers with the STOP and SLOW sign 100m away from each end of the work area. Place the 2 traffic cones together with the traffic controllers from each end with the STOP & SLOW sign. Place another 2 traffic cones on each end of the actual area of placing the tubes. Establish only one controller to work at the installation site to communicate with the controllers on which sides to close and open with respect to the work progress After work is complete remove the signs starting from the STOP and SLOW signs and progress in the reverse order from when putting out the signs.	

JOB SAFETY ANALYSIS IDENTIFIED HAZARDS & CONTROLS		
HAZARD	**CONTOLS**	**RR**
QA Checks during the counts	Repeat the controls above for working on the road. As per the QA Checklist Check the 1m distances between the laid tubes (A & B) Check the RSU lights (A&B) are blinking RED when a vehicle passes over the tubes Inspect the Tubes for any cracks Inspect the tubes for being loose, if loose then tighten Unlock the RSU and download the data without stopping the RSU. DO NOT CHECK/TICK THE STOP RSU when prompted from the MTE software just before downloading.	
Road Safety for the Removal of the RSU	Repeat the traffic controls above for working on the road to remove the RSU to demobilise from the site.	
Cash Handling – Payment for Tally Clerks	Arrange Police escort when transporting cash payments for tally clerks to each site Use a Cash payment forms and repack the cash from the office prior to each trip. Turn up a day late or early for the cash payments agreed date. Refer back to the agreed employment contract starting the payment for each clerks If Payments are to be docked due to missing items, poor recording as compared to the RSU then it has to be explained very clearly as per the agreed contract from the commencement of the counts. Arrange a receipt book to sign on to confirm and accept the payment when handing out cash payments.	
Rainfall/Natural Event	If rainfall commences on the day of establishing the sties, postponed till later.	
Intended Tally sites Unrest	Check with local DoW staff, Police, and employed Tally Clerks for local knowledge of the area.	

RESPONSIBILITES	
ROLE RESPONSIBLE	**TASKS**
Survey Supervisor	Supervise the entire sites setup per province. Responsibilities involves the following but not limited to; • Establishing contacts with the sites DOW rep • Informing and arranging the area police/security personnel • Liaise with the villagers upon selection of the suitable site • Supervise the installations • Identify and engage with the suitable villagers as per DOW requirements (year 10 minimum) • Agree on the rate for payment and the employment terms and Conditions of being employed as a Tally Clerk • Train the Tally Clerks on identifying the road user classes and how to fill up the Traffic Survey Sheets and the dairy • Secure the RSU • Monitor the Tally Clerks for a 40min duration to ascertain their competency • Organise QA checks and field trips • Employ a PRO where necessary.
Traffic Controllers	Provide Traffic Controls during the setup and removing of the RSU
Tally Clerks	Complete the Traffic Tally Sheets and Provide Security to the RSU during the counting period.
PRO	Public Relation officer - A local with PR attributes from areas within the count area

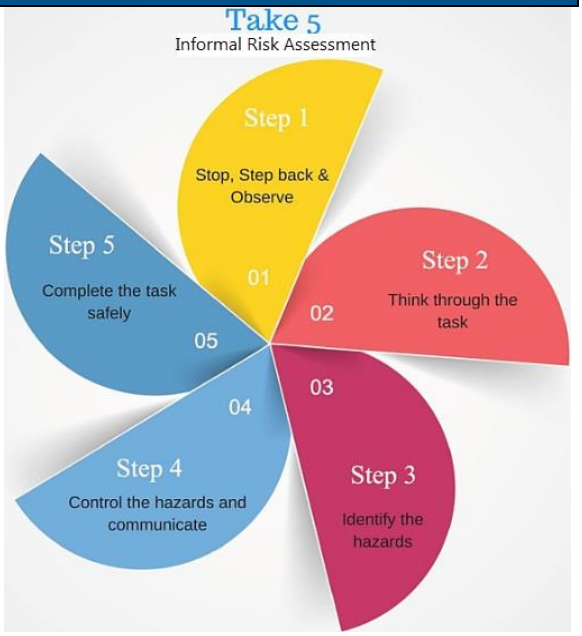
STANDARD OPERATING PROCEDURE

STEP 1. PLAN THE JOB – TAKE 5 / JSA

1.1 Assemble all assigned work team members and do TAKE 5.

1.2 If triggered, do or review the related Job Safety Analysis (JSA).

1.3 Once the JSA has been completed repeat the TAKE 5.



STEP 2. PREPARATION AND PLANNING

2.1 Details of the required sites to be made clearly known by the AMB/RAMS officer using printed maps and uploaded GIS files

2.2 Contacts with the Provincial DOW staff be made

2.3 Contacts with the OIC- Police officer in charge for each district concern has to be established

Key Point:

- Where the team are heading for each site should be clear to all
- For each sites the aim is to establish the site and make contact with correct owners hut/owners and setting the expectations (year 10 minimum and 2x males and 2x females.)
- Brief all members of the trip including the team from the 2nd vehicle should there be any.
- In case of a contractor, make sure the AMB/TSSP staff accompanied them to each site as well.

STEP 3. DRIVE TO SITE

3.1 Morning Prestart checks on the Vehicle

3.2 Drive to Condition

3.3 When approaching the vicinity of the area, must slow down to lookout for the appropriate area within the site of interest.

3.4 Use the Odometer to start measuring from the LRP

Key Point:

- Competent 4DW driver
- Prestart checks done on the Vehicle
- Know about the local road condition report
- Know how to operate the odometer of the car

STEP 4. SITE INDENTIFCATION

4.1 When entering the count site – slow down to ID the suitable location as per the checklist on 2.7 – Site Selection Checklist or key Points Below

Key Point:

- Area where there is an existing hut/small markets. Preferably old or un-used market that is close to the road with clear view to both approach of the road.
- Avoid areas where overtaking is prevalent
- lane discipline within the survey area
- Avoid areas where acceleration or deceleration is common
- Do not place sensors across parking lanes.
- Avoid placing sensors near sharp pavement edges or curves.
- Deploy sensors at right angles to traffic flow.
- For directional counts keep at least 1/2 a metre of space from the centreline.
- Do not place sensors in transition areas.
- Fasten counting sensors securely to pavement with nails and clamps.
- Avoid locations close to driveways or intersections where turning vehicles may cause inaccurate counts.
- Select areas with uniform speeds.

Warning:

- Engage with the villages who first showed up at the area and establish the owner of the hut/stall. It would be a bonus if the hut owner is the landowner as well.
- Do due diligence check on other villages who turned up to confirmed the initial contact claims
- Seek or ask permission to use the hut for the duration of the counts
- Specify clearly the needs for tally clerks to be year 10 minimum with 2xmales and 2x females. Verify if they are or will be grade 10 the list and single for females.

STEP 5. EMPLOY TALLY CLERKS

5.1 Formally get the consent from the suitable persons for each site by getting them to signed formal contract

Key Point:

- Casual employment contract should be clearly explained to them on areas of Rates,
- Penalties for data quality and %error that will affect their pay,
- Method of payment,
- Time of payment,
- hours or work required,
- Tools and equipment provided,
- Termination,
- Job title and description,
- Date of employment and ending.
- Stress the point that it will be a police matter if the RSU is lost/damaged within their care
- Their Pay can be forfeited if the RSU and damaged or lost whilst in their care.

STEP 6. PREPARING THE TUBE

6.1 If it's a new tube, split the 30m tube into 2x equal 15m lengths by finding the mid-point

6.2 Do a figure eight (8) with the each cleats to be used.

6.3 Find a midpoint (7m mark) of the now 15m tubes and place the first sets of cleats by inserting from each end of the Tubes

6.4 Place the second of cleats towards the end of the tubes.

6.5 Use a tube vent Plug or a cable tie to terminate the ends.

6.6 Use the marking tape to mark/indicate a single set of tube

Key Point:

- If it's a used tube, make sure you are certain the used tube was not damaged from the last use.
- Confirm the both tubes are still of equal lengths (i.e. 15m each)
- Make sure all the cleats are still in place
- Use a very sharp blade to make fine straight cuts.
- Can use 2x Cleats
- Can use a Cable tie to terminate the ends of the tube

STEP 7. EXECUTE THE TMP-TRAFFIC MANAGEMENT PLAN

7.1 Set out the 2x workman ahead signs about 500m away from each end the work area

7.2 Set out the 4x “Roadwork Ahead” Sign with 40Km/hr Speed limit – Drive Slowly at 250m away from the above sign from each end of the work area

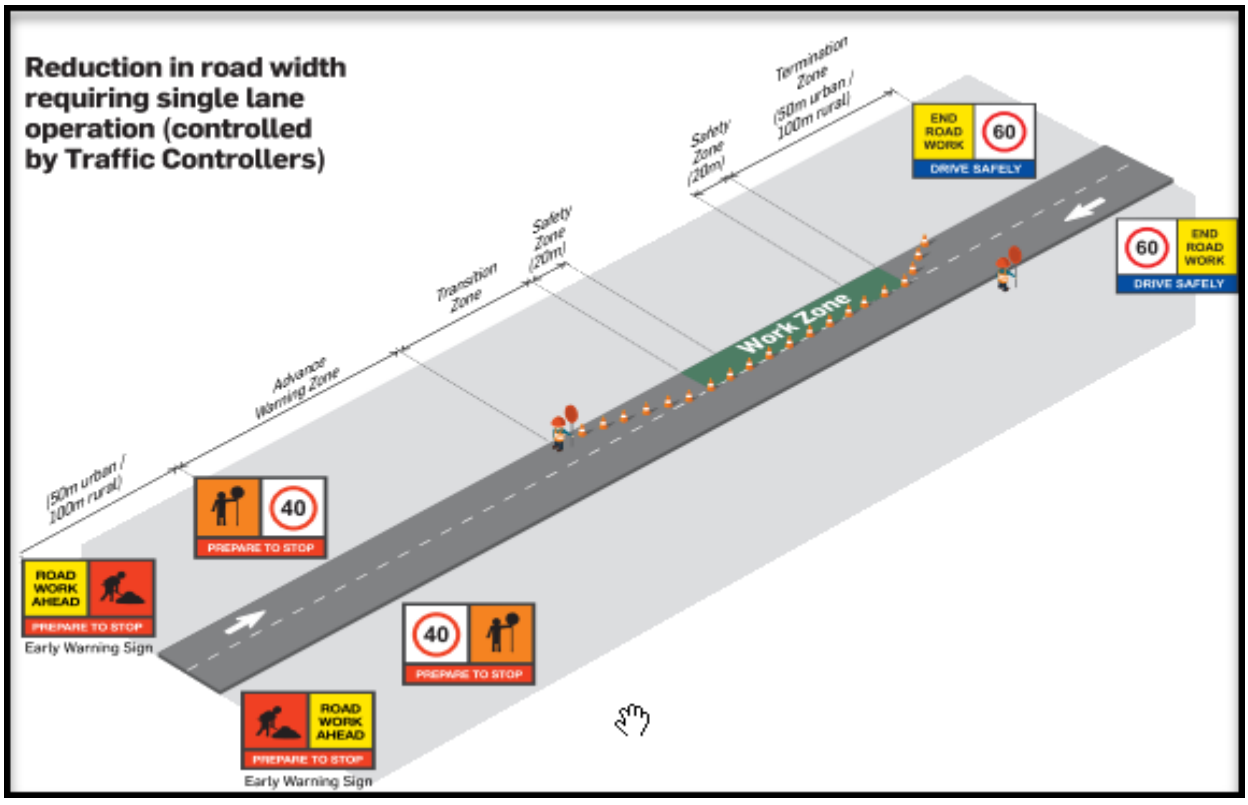
7.3 Set out the 4x “Road work End “Sign with 60 km/hr speed sign – Drive Safely at 250m away for each end of the work area.

7.4 Established the Traffic controllers with the STOP and SLOW sign 100m away from each end of the work area.

7.5 Place the 2 traffic cones together with the traffic controllers from each end with the STOP & SLOW sign.

7.6 Place another 2 traffic cones on each end of the actual work area where placing the tubes will occur.

7.7 Establish only one controller to work at the installation site to communicate with the controllers on which sides to close and open with respect to the work progress



Warning:

- Only trained or experienced personnel with TMPs and traffic controllers must carry out this step
- The Survey Supervisor must be fully competent and understood the published **SafeTraffic Control at WorkSite_Field Guide** document.

- Only a single person should at the work area giving out instruction or communicating with clear instructions to the 2x traffic controllers from both ends of the road
- When Vehicle are approaching the work area from the single lane during the installations, the controller with the tube installers should be communicating about the slow passing vehicle proximity.
- Both Lane of the roads should be open when larger trucks, Class 4 - 10 are approaching.

STEP 8. LAYOUT THE TUBE ON THE ROAD – INITIAL TUBE

8.1 Execute the Traffic Management plan

8.2 Throw the first tube across the road

8.3 Place the nail with the washer through the O-ring end of the initial cleats

8.4 Hammer in the initial nail

8.5 Repeat step 7.3 for the second end of the cleat from the same side of the road

8.6 Move to the opposite side of the road

8.7 With the same tube, repeat steps 7.3

Key Point:

- Traffic Controllers **must be** in placed before starting this step
- The initial Tube must be perpendicular to the edges of the road

STEP 9. LAYOUT THE TUBE ON THE ROAD – SECOND TUBE

9.1 Use the tape measure to measure off the 1m distance apart from the first installed tube

9.2 Use a crayon or chalk and place the 1m mark from the first tube.

9.3 Nail in the 2nd tube by repeating steps 7.3

9.4 Locate the Tube A from the label from placed from step 6.6

9.5 Confirm the 1m spacing between the tubes from both ends of the tube and the centre

9.6 Place the centre lane flap on the road centre line and nail both in.

9.7 Apply the bitumen tape where required

Key Point:

- Traffic Controllers **must still be** in placed before starting this step
- The Cleats must not be tangled with each other if you decide to use 2 for each end
- Use the white road lane marking as a guide for the centre line. If the white road marking is not visible, use the tape measure to locate the centre by measuring from the edge of seal from each sides.
- Apply tensions to each tube.
- General Rule for applying tension is to pull or extend a third of what was laid. i.e. approx. 3m stretch from the 7m tubes being laid.
- Make sure the tubes remain equal when applying tensions.
- Use washers with the centre lane flap to protect it from damage when removing.
- Avoid placing the centre lane flap on the wheel path
- Place tapes on an even road surfaces to secure the tube to the road surface so that there are no spaces/gap between tube and the top of the road.
- Do checks again on the 1m distance apart from Tube A and B.
- Check both Tube tensions
- Check both tubes are parallel to each other
- Check both tubes are perpendicular to each other.

STEP 10. SETUP RSU (METRO COUNT 5600 & 5900)

10.1 Open the case and remove the counter

10.2 Locate the labelled tube from step 6.6

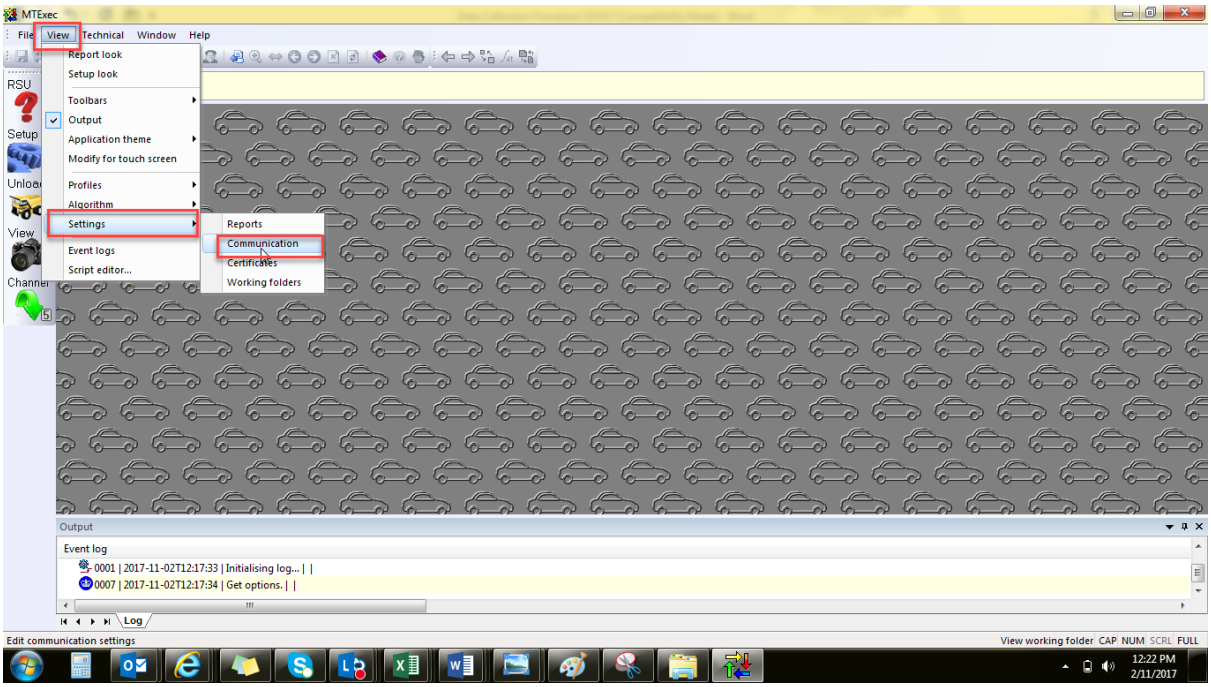
10.3 Place both tube through the bottom of the handle of the RSU cover

10.4 Pick the “A” tube as the North bound and the other as the south bound.

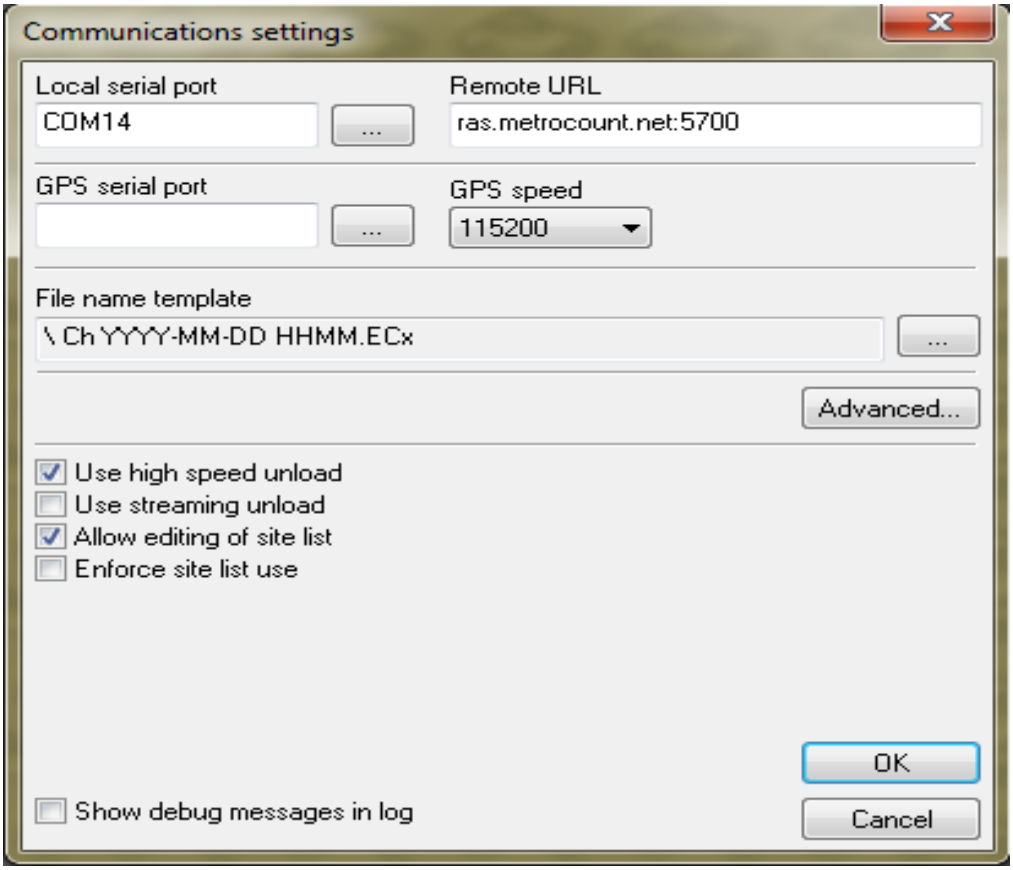
10.5 Plug the USB cable from RSU counter to the field laptop with registered MTE software

10.6 Start the MTE software

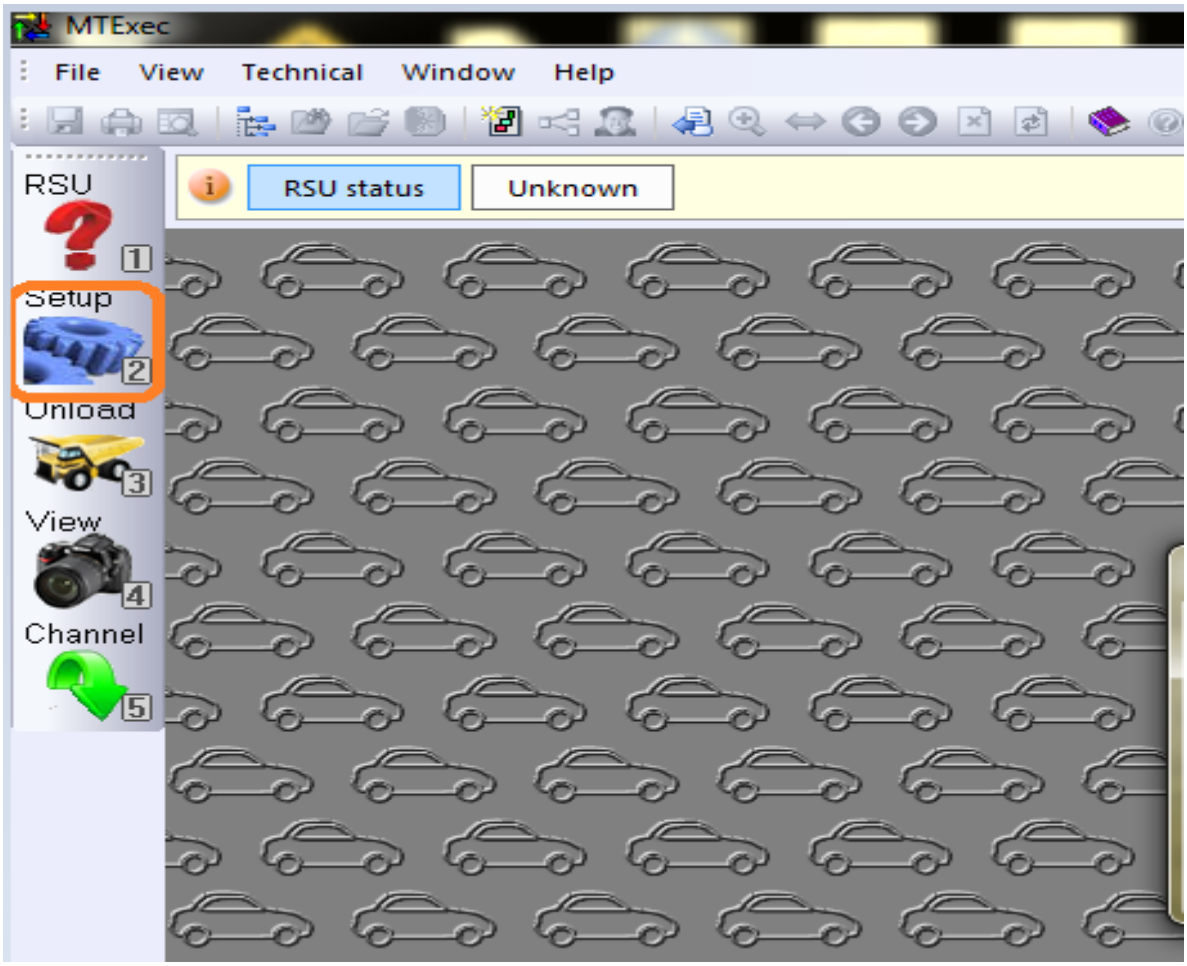
10.7 If MTE is recently installed on the field laptop then the communication settings has to be setup first from the pull down menu under VIEW and SETTINGS and COMMUNICATIONS.



10.8 Change the “Local serial port” to COM14 as per below. Other Laptops might prompt for other coms port so take note of that.

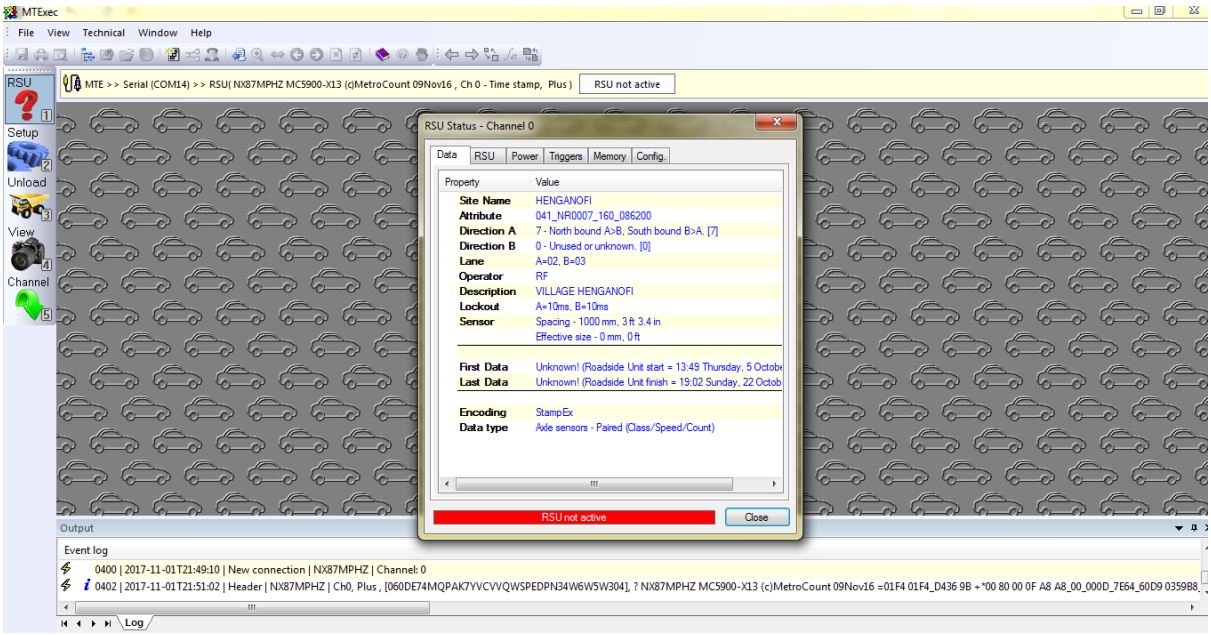


10.9 Select the RSU setup option

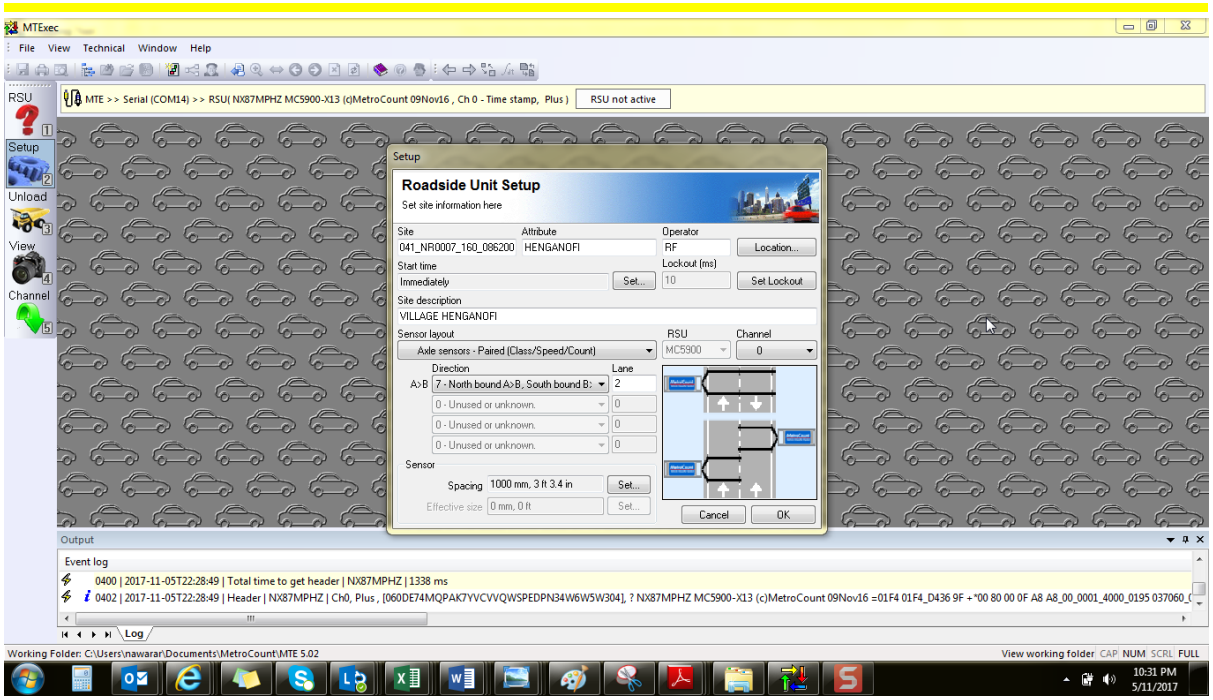


10.10 Select the OK

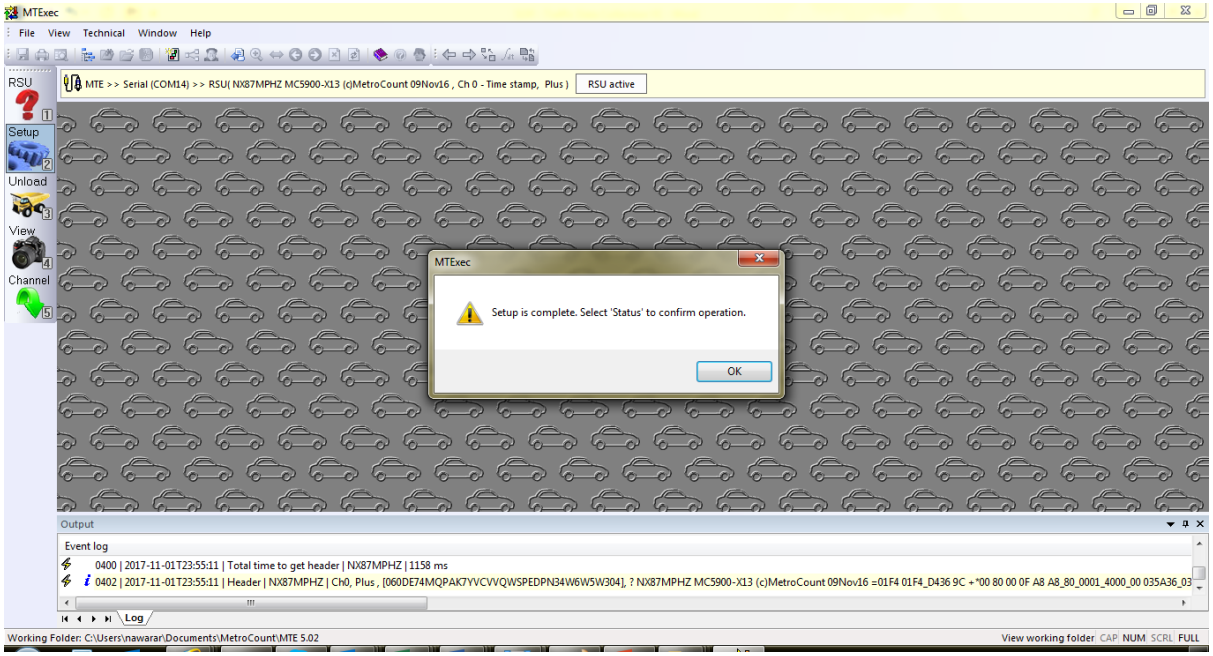
10.11 The NOT ACTIVE screen appears as below with the last job



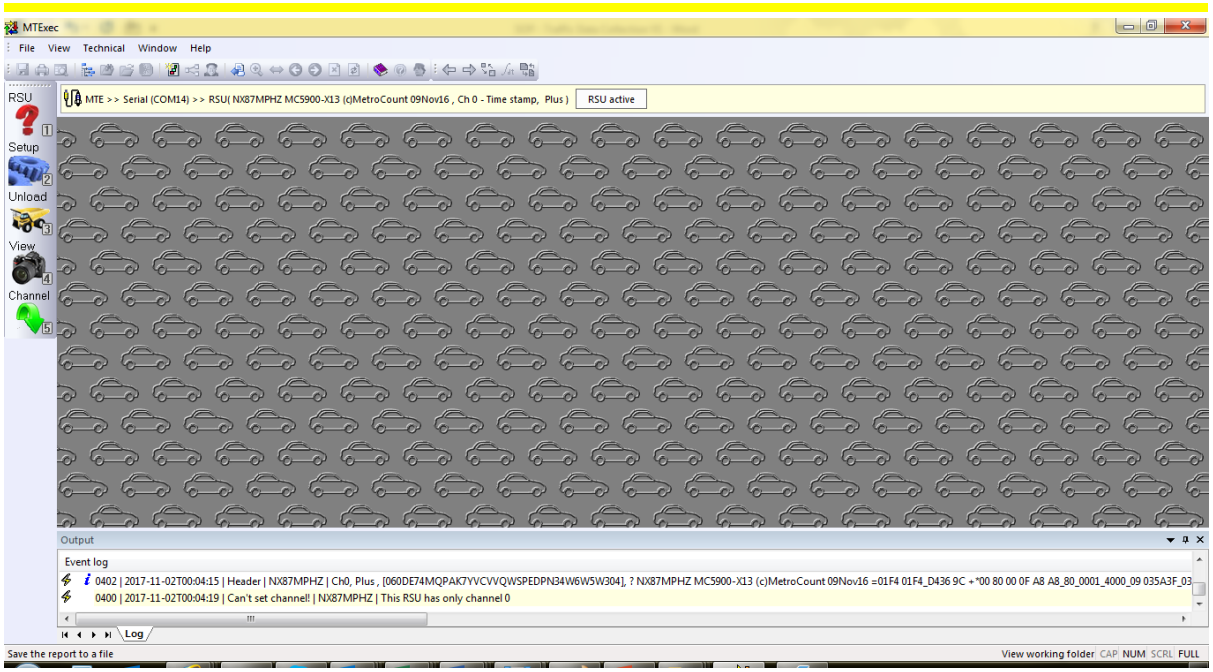
10.12 Set up the SITE ID and other information as required.



10.13 Click ok



10.14 ACTIVE SCREEN. The counter is active and collecting data



10.15 EXIT the MTE from the Pull down menu or the X from the top right

10.16 Remove the USB cable

10.17 Place back the RSU into its hard case

10.18 Close the hard case Lid

10.19 Secure the RSU to a permanent structure with the provided security strop or chains and lock as per the image below.

Key Point:

- Use a map or compass to determine the directions of the approaching and departing vehicle
- MTE V5.0 + must be registered or activated
- If MTE is newly installed and activated the
- Check the connection/Software/settings for a RSU device that is new and has not been used with the laptop
- Make sure the full installations of MTE plus the USB driver is installed
- Place MetroCount device near signpost, utility pole or large tree so that it can be properly secured with a lock and chain to avoid theft of equipment and vandalism.
- Roll the extra tubing next to the counter. While it is advisable to have some extra tubing length, avoid having too much extra tubing that would reduce the pulse sent to the sensor. (over 7m extra is too much)

STEP 11. TRAIN THE TALLY CLERK

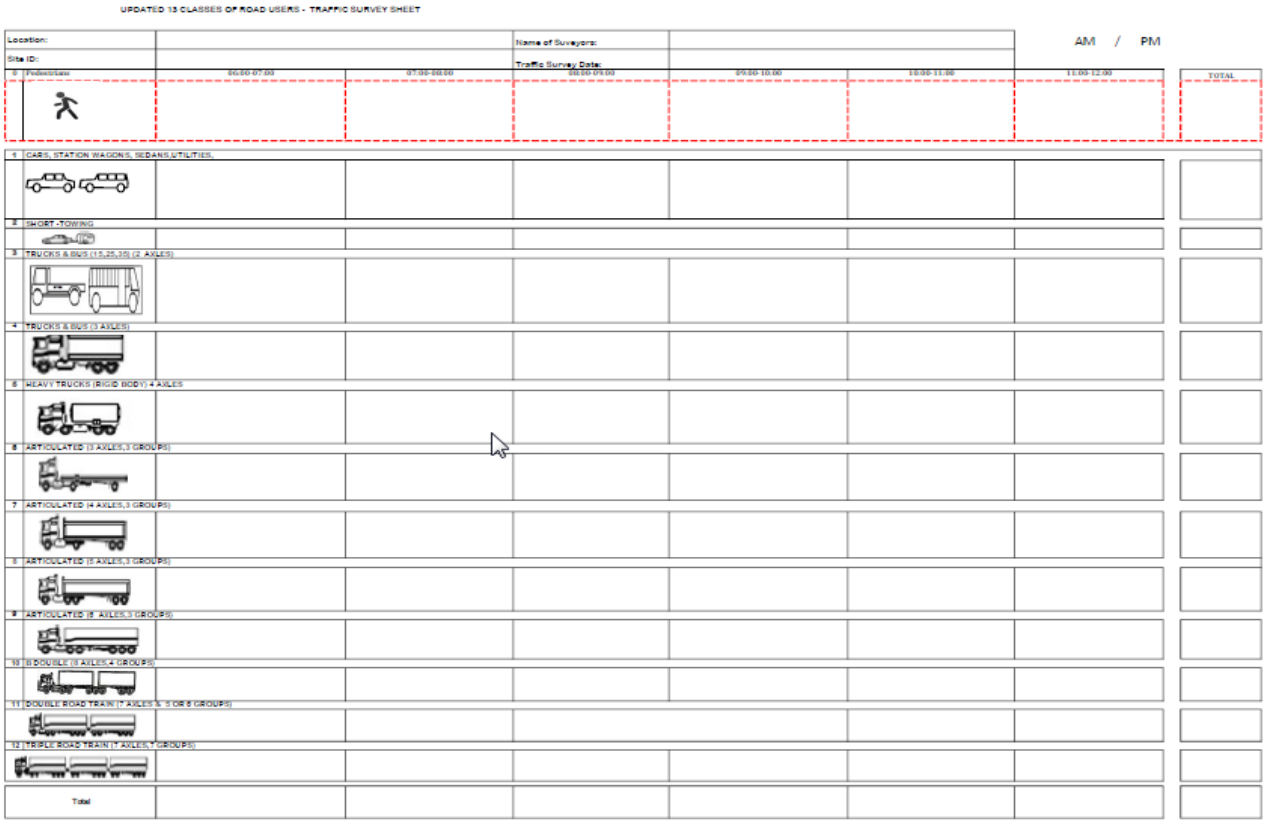
11.1 Introduce the clerks to the forms

11.2 Explain the concept of Axels and its relation to the classes as per the forms

11.3 Use the **"Road User Classes – Pictures.pdf**" to explain well.

11.4 Once the understanding of the classes is understood, use the **Manual Tally Sheet** to be used and go over the form and explain how it should be filled.

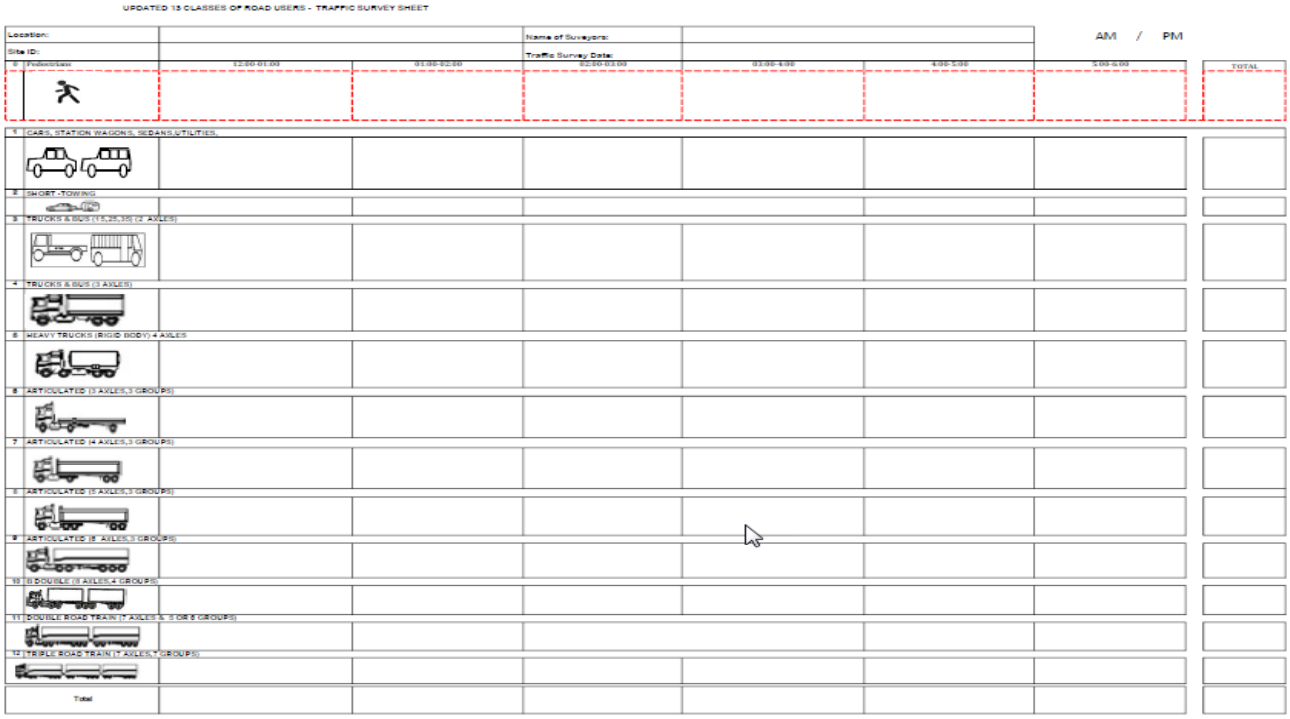
11.5 Go over the **AM** form



UPDATED 13 CLASSES OF ROAD USERS - TRAFFIC SURVEY SHEET

Location:		Name of Surveyors:			AM / PM	
Site ID:		Traffic Survey Date:				
0 Pedestrian	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	TOTAL
1 CARS, STATION WAGONS, SEDANS,UTILITIES,							
2 SHORT -TOWING							
3 TRUCKS & BUS (1S,2S,3S) (2 AXLES)							
4 TRUCKS & BUS (3 AXLES)							
5 HEAVY TRUCKS (RIGID BODY) 4 AXLES							
6 ARTICULATED (3 AXLES,3 GROUPS)							
7 ARTICULATED (4 AXLES,3 GROUPS)							
8 ARTICULATED (5 AXLES,3 GROUPS)							
9 ARTICULATED (6 AXLES,3 GROUPS)							
10 B DOUBLE (8 AXLES,4 GROUPS)							
11 DOUBLE ROAD TRAIN (7 AXLES & 5 OR 6 GROUPS)							
12 TRIPLE ROAD TRAIN (7 AXLES,7 GROUPS)							
Total							

11.6 Go over the **PM** form



UPDATED 13 CLASSES OF ROAD USERS - TRAFFIC SURVEY SHEET

Location:		Name of Surveyors:			AM / PM	
Site ID:		Traffic Survey Date:				
0 Pedestrian	12:00-01:00	01:00-02:00	02:00-03:00	03:00-4:00	4:00-5:00	5:00-6:00	TOTAL
1 CARS, STATION WAGONS, SEDANS,UTILITIES,							
2 SHORT -TOWING							
3 TRUCKS & BUS (1S,2S,3S) (2 AXLES)							
4 TRUCKS & BUS (3 AXLES)							
5 HEAVY TRUCKS (RIGID BODY) 4 AXLES							
6 ARTICULATED (3 AXLES,3 GROUPS)							
7 ARTICULATED (4 AXLES,3 GROUPS)							
8 ARTICULATED (5 AXLES,3 GROUPS)							
9 ARTICULATED (6 AXLES,3 GROUPS)							
10 B DOUBLE (8 AXLES,4 GROUPS)							
11 DOUBLE ROAD TRAIN (7 AXLES & 5 OR 6 GROUPS)							
12 TRIPLE ROAD TRAIN (7 AXLES,7 GROUPS)							
Total							

11.7 Explain the totals from each hour downwards and total across

11.8 Explain why Class 0 (pedestrian) is not included in the total.

11.9 Use the full page A4 colour prints to test them all out by showing them the pictures and have them identify its class. This is where you can simply get a feel of the competency from the tally clerks of their understanding of the different vehicles and their classes of how to enter into the tally sheets.

Key Point:

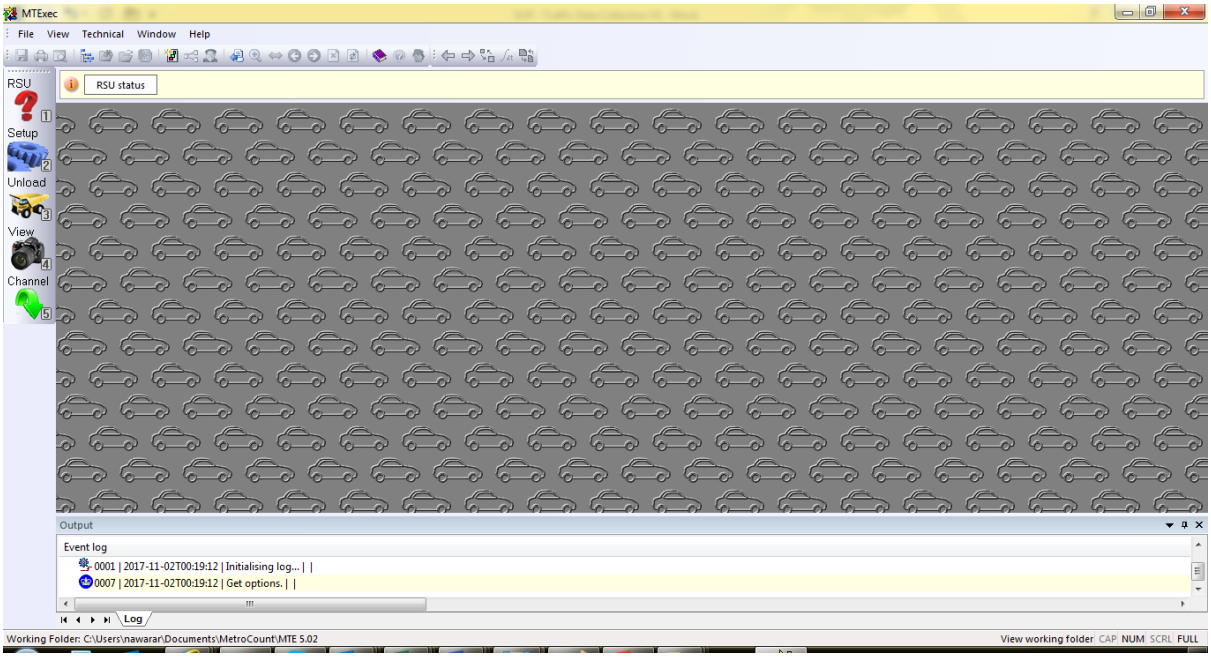
- **Make sure the main difference between class 5 and 7 is understood well. Class 5 and 7 both has 4 axles. Class 5 has 2 single and 2 double whilst class7 has a 1 single and 3 sets of double axel. The main difference also is that class 5 has a rear body attached permanently to the front cabin whilst class 7 has a non-permanent trailer attached.**
- Copies of the sheet must be a double sided copy as per the original
- PM sheet is the shift to start with.
- AM Shift starts from **12midnight to 11:59am (1min before 12:00 O'clock lunch/midday)**
- PM Shift Starts from 12:00 Noon till 11:59 midnight (23:59 hrs)
- Each Page of the Tally sheet is for half the shift. I.e. 6hrs.
- 12 Hours per shift thus every new shift uses 2 forms
- Different colour papers is recommended for each site if available
- Whilst testing them out, also test them using real time vehicles passing by
- Stress the need to whilst tallying doing small strokes neatly on the forms so that in busy areas, the hour sections will not be filled up.
- If there is a need, advice tally clerks to use a second sheet and making sure the survey particulars are the same. This is mainly in areas where traffic is excessively high.
- Make sure women Tally clerks works on dayshift only.

STEP 12. DOWNLOAD THE QA DATA - MID WAY INTO THE COUNT DURATION.

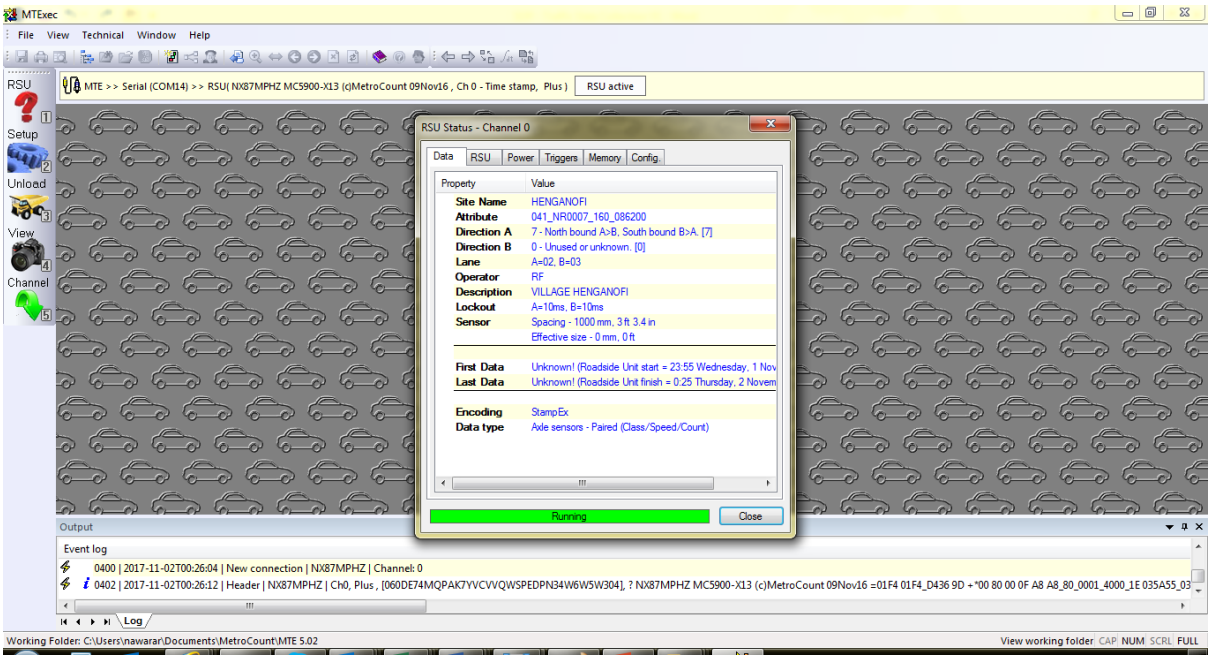
12.1 Connect USB .Refer to steps 10.5 on how to connect USB.

12.2 Start the MTE software again

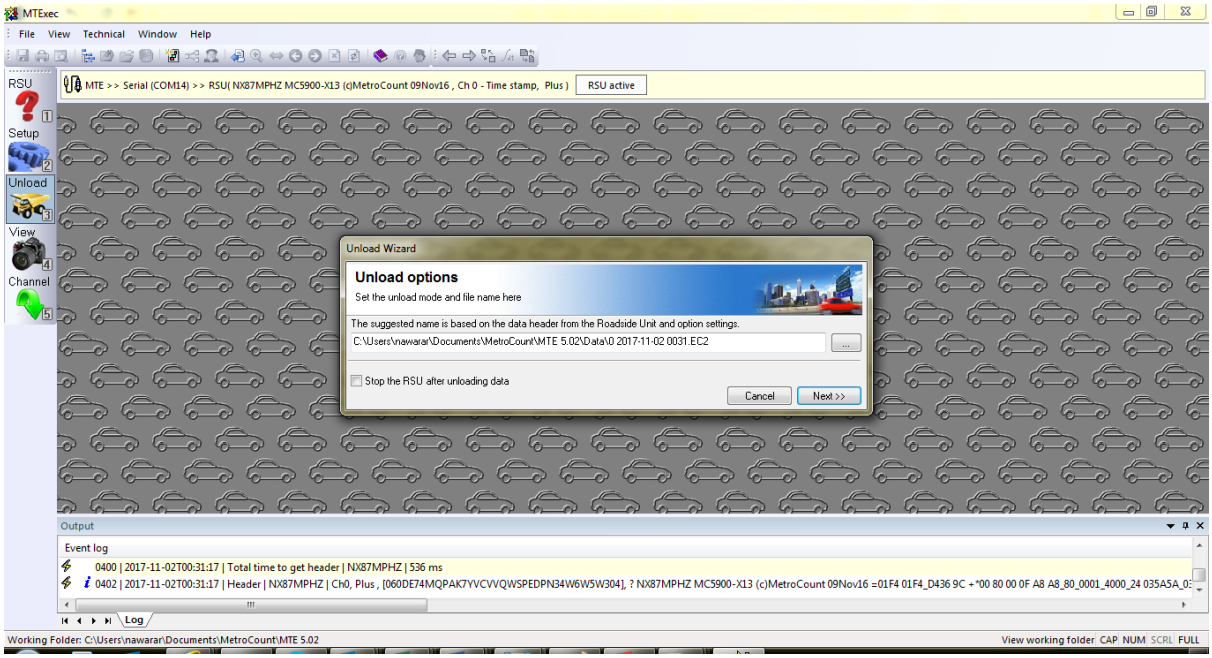
12.3 Click on the RSU (? to make the connection with the RSU)



12.4 CLOSE THE SETUP SCREEN



12.5 CLICK ON THE UPLOAD

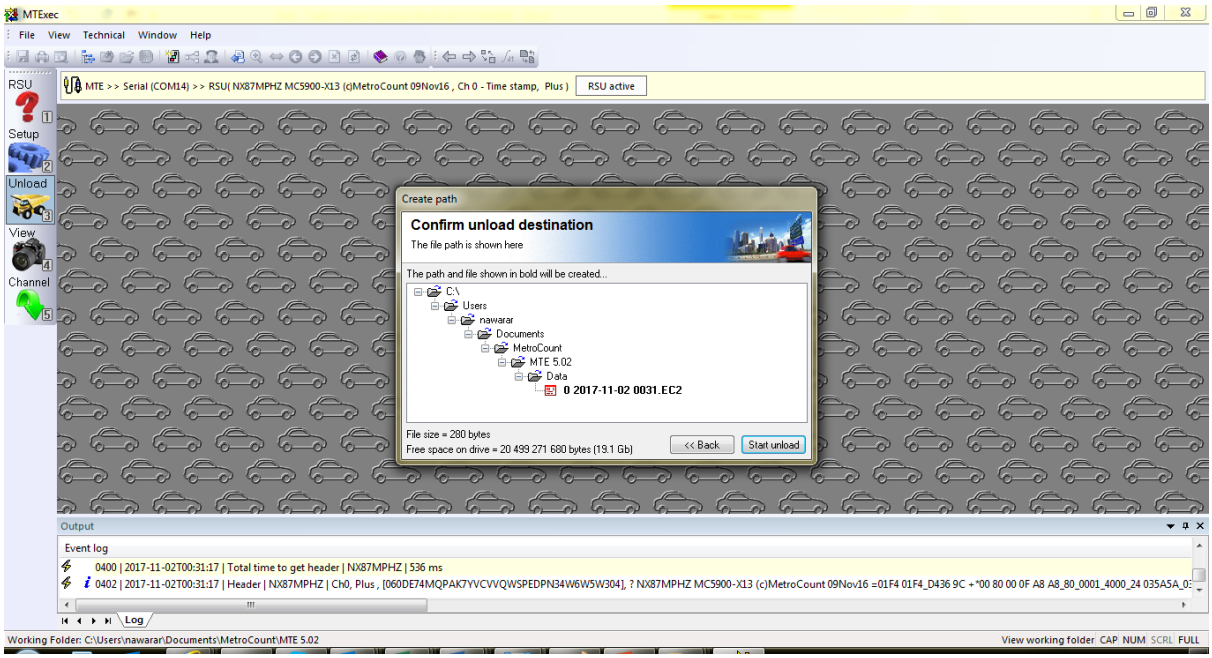


12.6 Select where to store the downloaded files to.

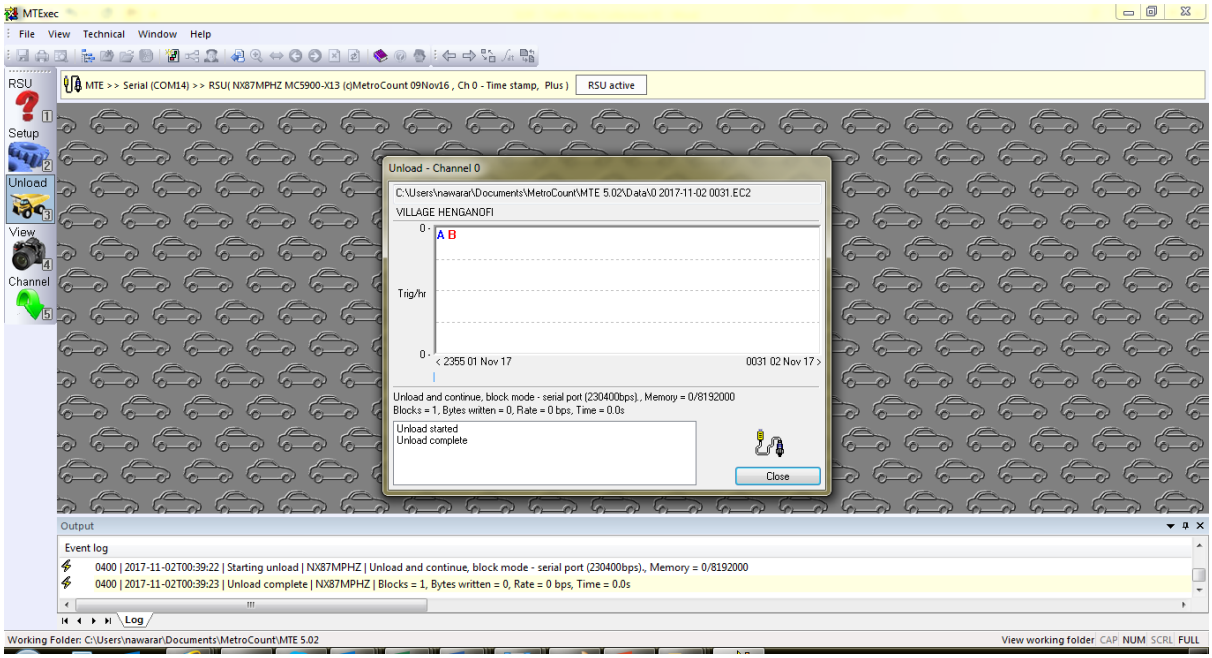
12.7 DO NOT CHECK /SELECT the “Stop the RSU after downloading data”

12.8 Select NEXT and confirm the path as below

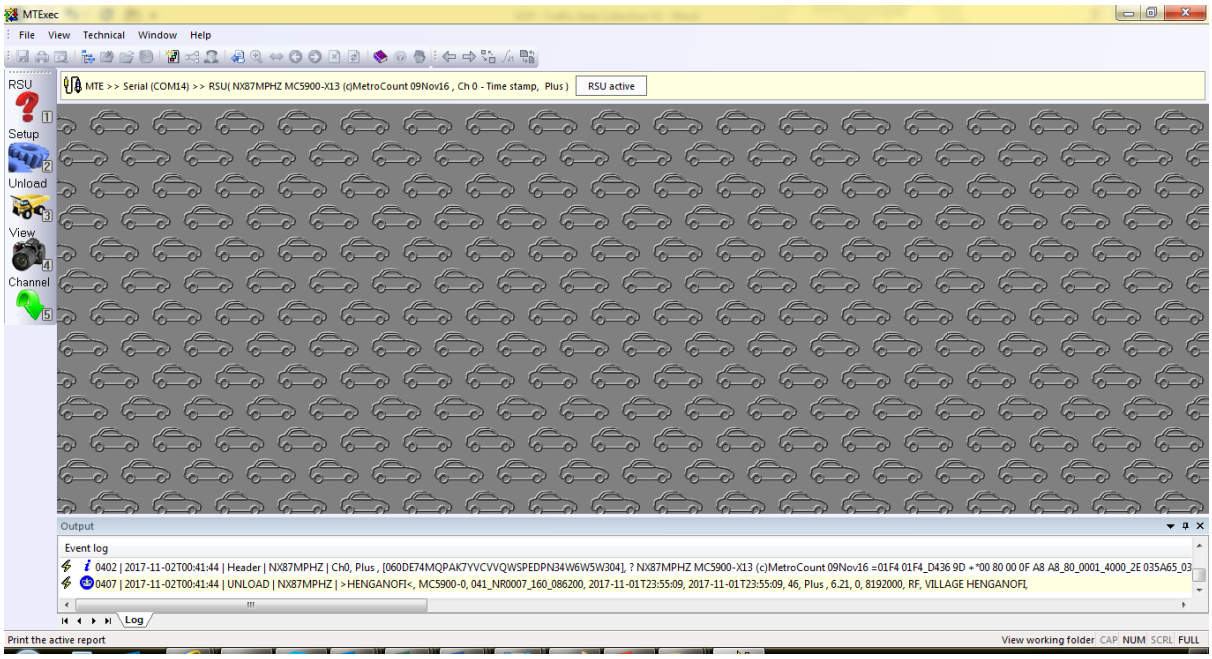
12.9 Select “Start UNLOAD”



12.10 After download, select Close



12.11 The RSU will return to the active screen



12.12 Close or exit the MTE as it is.

12.13 Unplug/disconnect the USB and secure the cover and use the padlock to lock it with the security strop or chain against the permanent pole/structure.

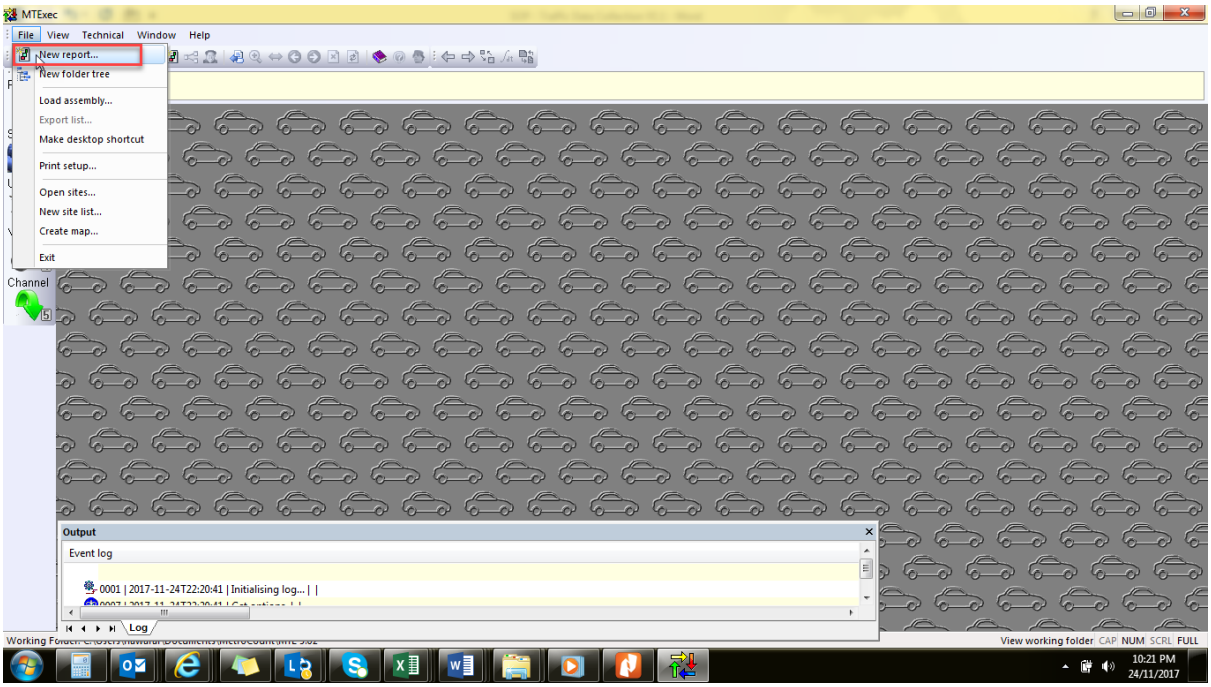
Key Point:

- QA is recommended in the middle of the count period. On the 7th day for a 14 days count and the 3rd day for 7 day.
- Downloaded QA data must treated as the real data with all the correct attributes like the road IDs and etc.

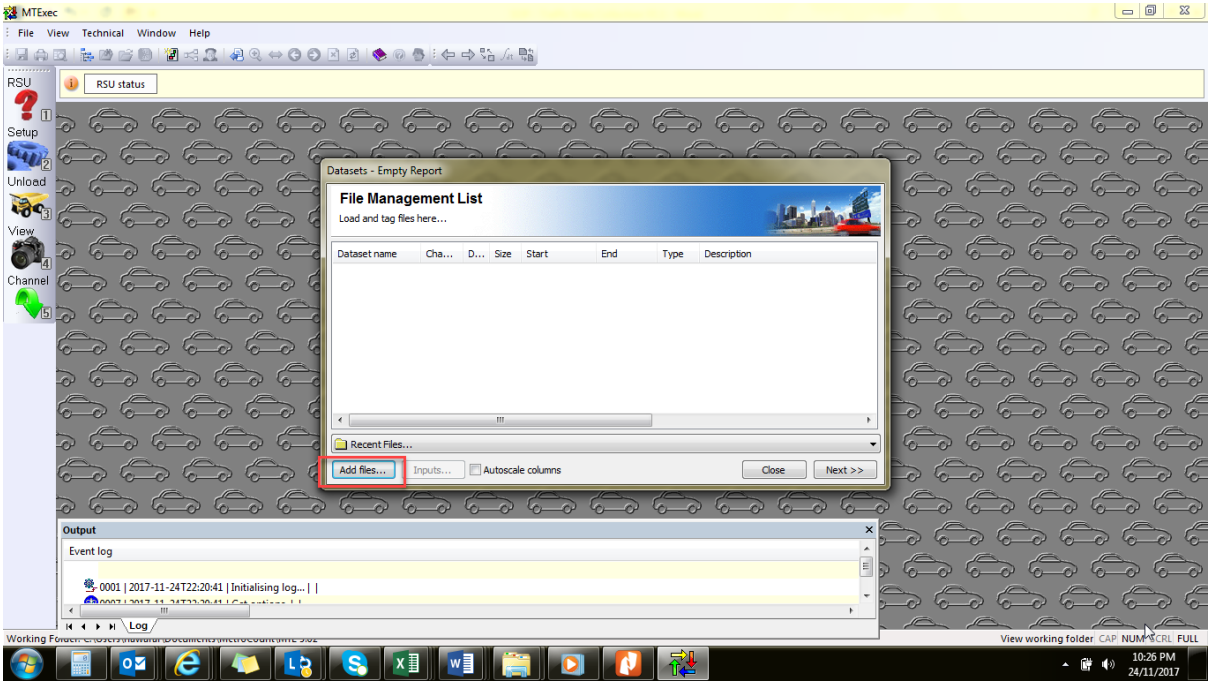
STEP 13. BRIEF QA CHECK WITHIN MTE

13.1 Open MTE

13.2 From the Pull down menu, Select file and New report

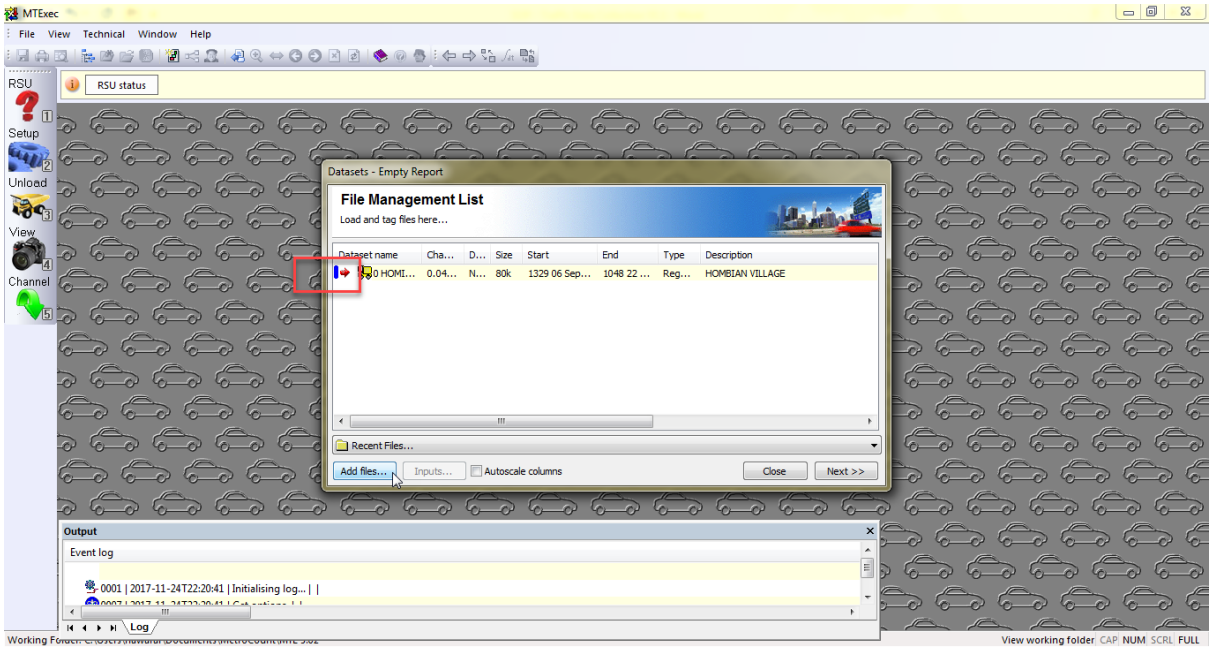


13.3 Select Add file.



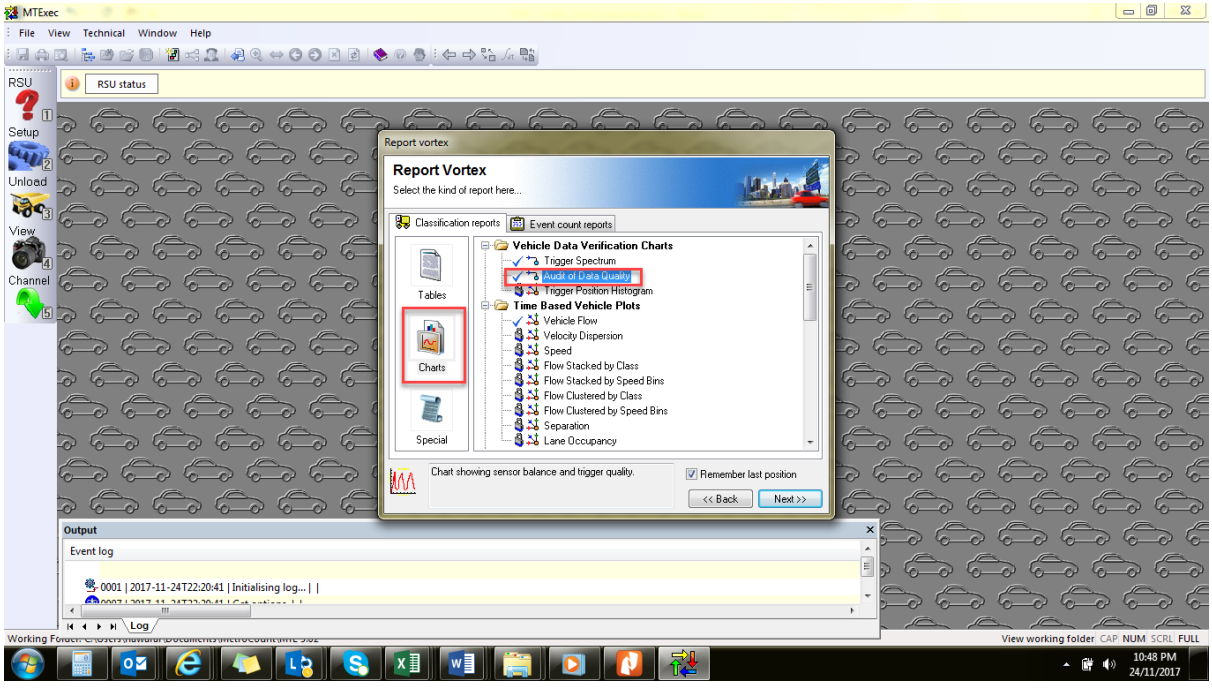
13.4 Browse to the stored location from step 11

13.5 Select the EC2 file to do the QA and open

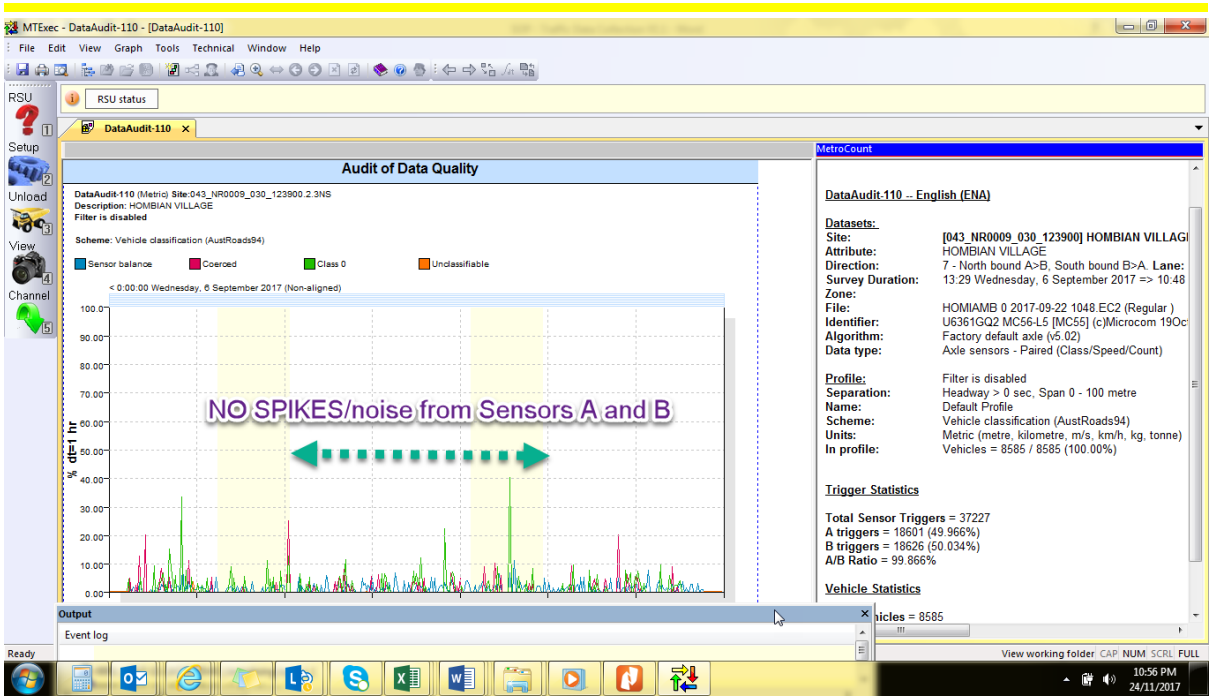


13.6 Double click on the file name as above to tag the file .It will turn red when selected and select NEXT

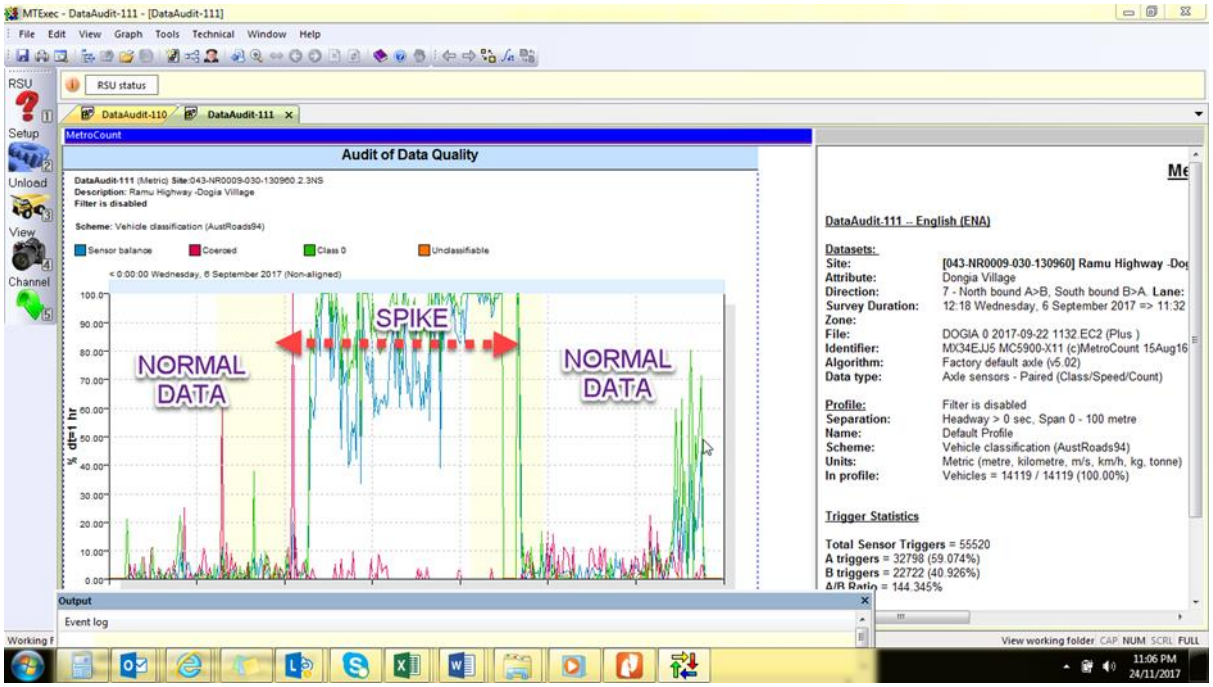
13.7 Select the file CHART from the classification report options then and select "audit of data quality" and select Next



13.8 The report will be generated as below for a site with no issues as below;



13.9 This Report will be generated with a site with Issues or concerns as below;



Key Point:

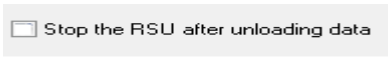
- This quick QA can be done in the field after the download to check the quality of the RSU data being logged.
- Imbalance sensors could mean one of the tubes is not registering the HITS from the passing traffic.
- Export Report under **Charts** and **Class Bin Chart**. This report is the format used to do quality checks against the manual counts. The exported data is imported to a controlled spreadsheet to be issued by AMB/TSSP.
- AMB/TSSP team will assist with how to run the class bin Report, export within MTE and import into the Spreadsheet.
- The earlier the faults are found the earlier it will be fixed thus more days of full quality data is recorded.

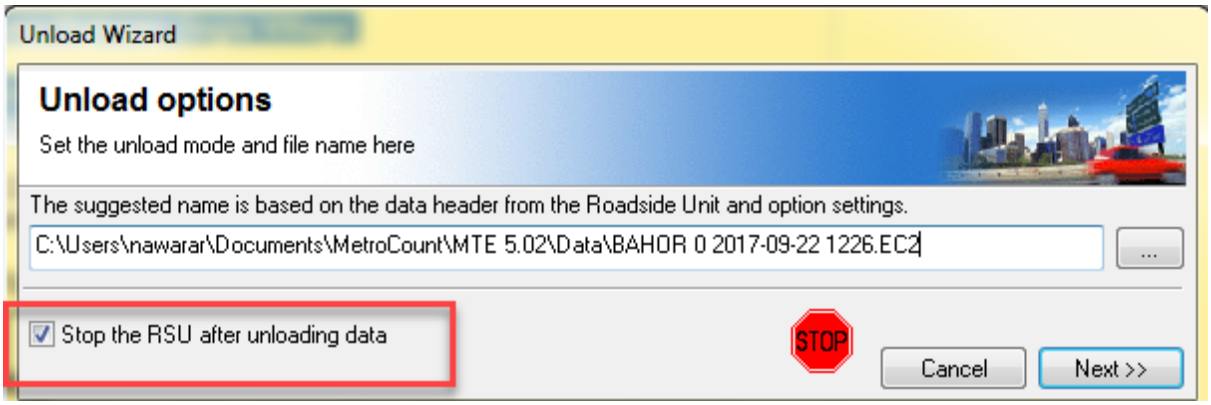
STEP 14. DOWNLOAD THE FINAL DATA

14.1 Repeat the entire STEP 10

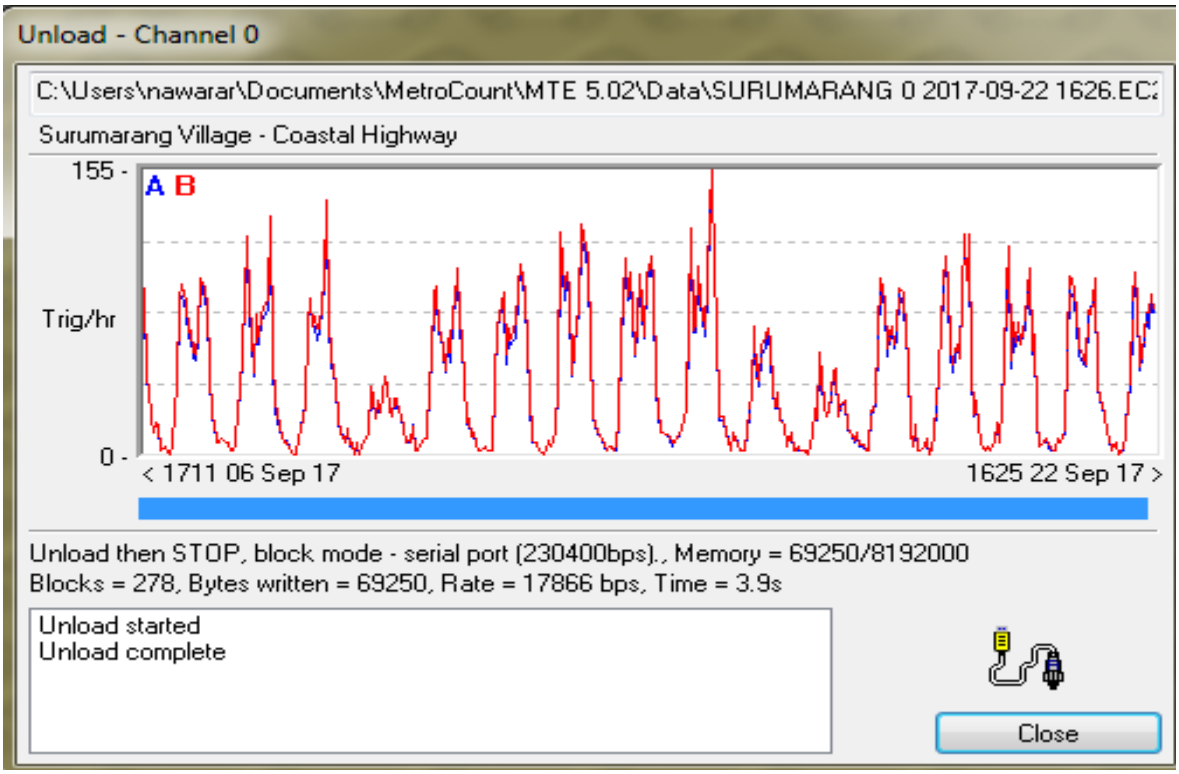
14.2 CHECK THE STOP

14.3 Repeat steps 11 to 11.5

14.4 Check/Select the 



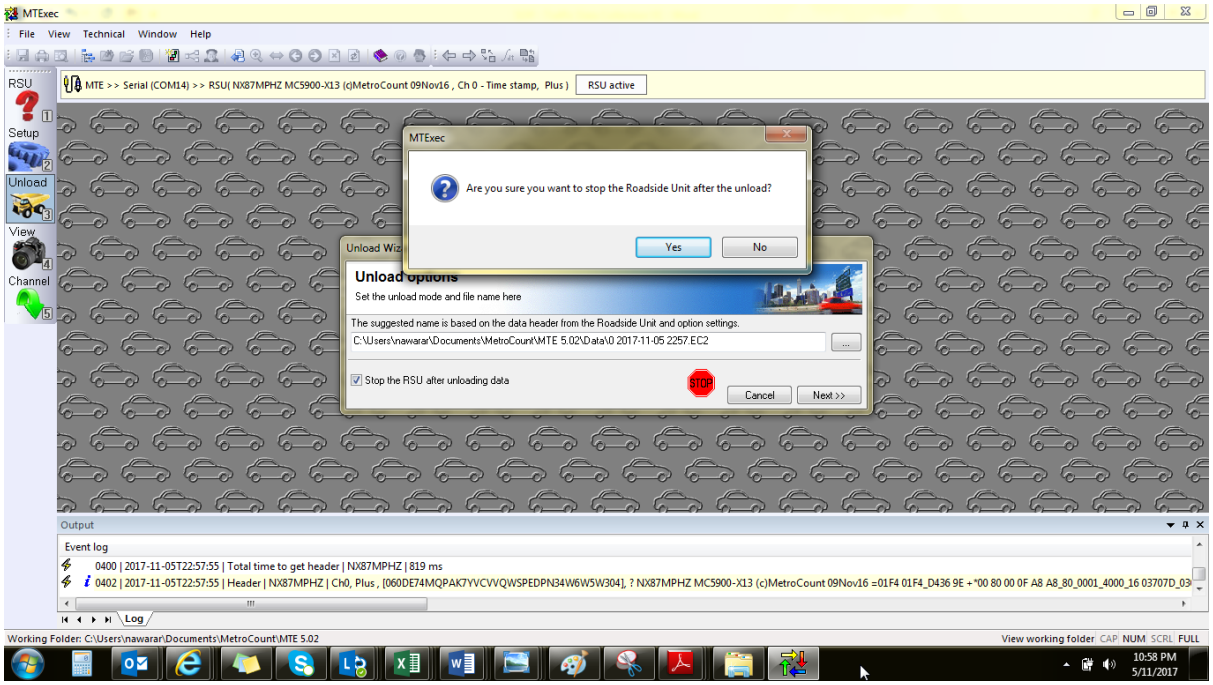
14.5 Watch the data being downloaded progressing from left to right as below. Sensor A or B (RED and BLUE Lines) will form the same parabolic curves. If RED and BLUE line does not match each other than one of your sensors/tubes is faulty.



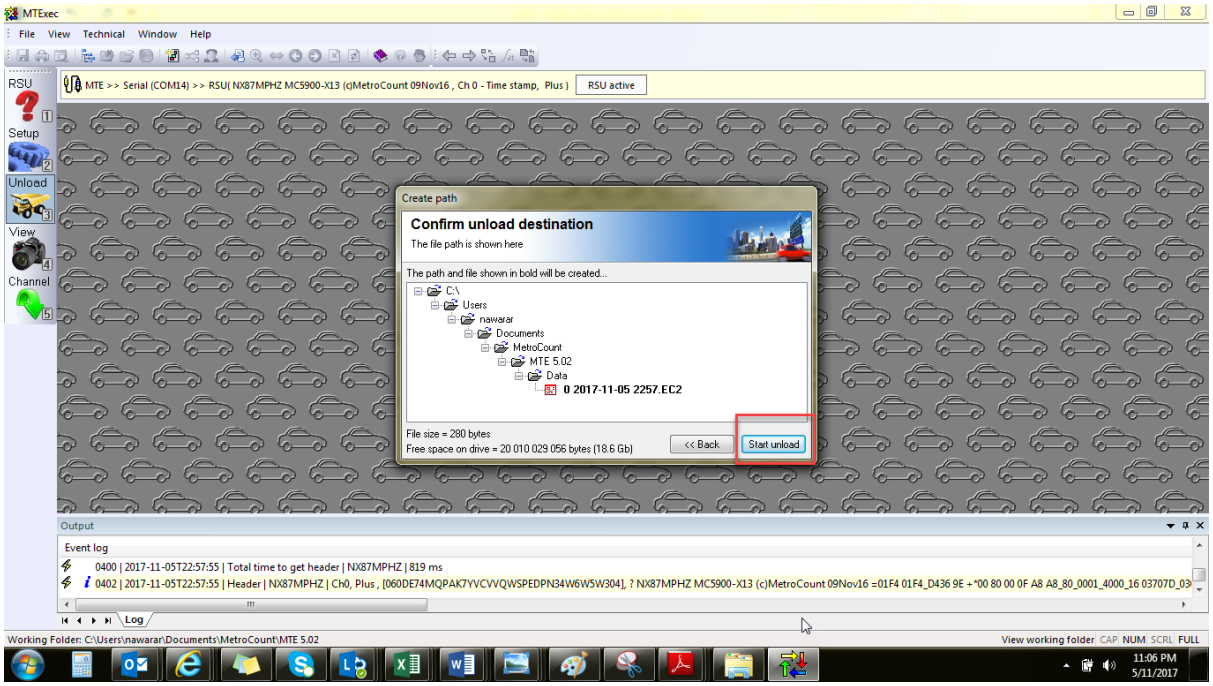
Key Point:

- Make you take note of where the file is downloaded to. The default for windows is the download folder
- Note that the final downloaded file is ALL the dataset from the start to the end of the survey
- Take note of the download indicator. The lines A (Red) and B (Blue) should run up and down together from the start to finish. The image below shows a complete file with no issues with the each tube. There will be a prompt of "**sensor imbalance**" if that is an issue with one or both of the tubes during the survey.

14.6 Select YES to stop/end the survey after the download.



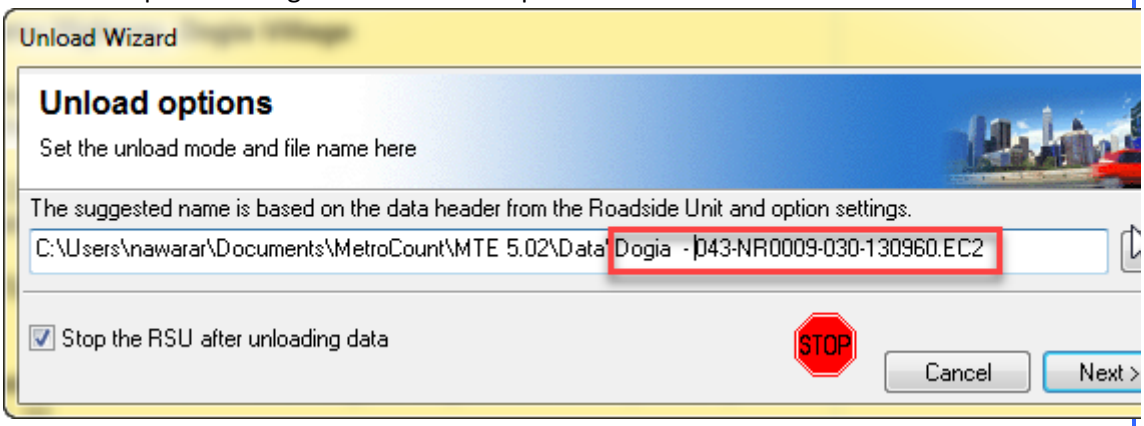
14.7 Confirm the download path and select Start Unload



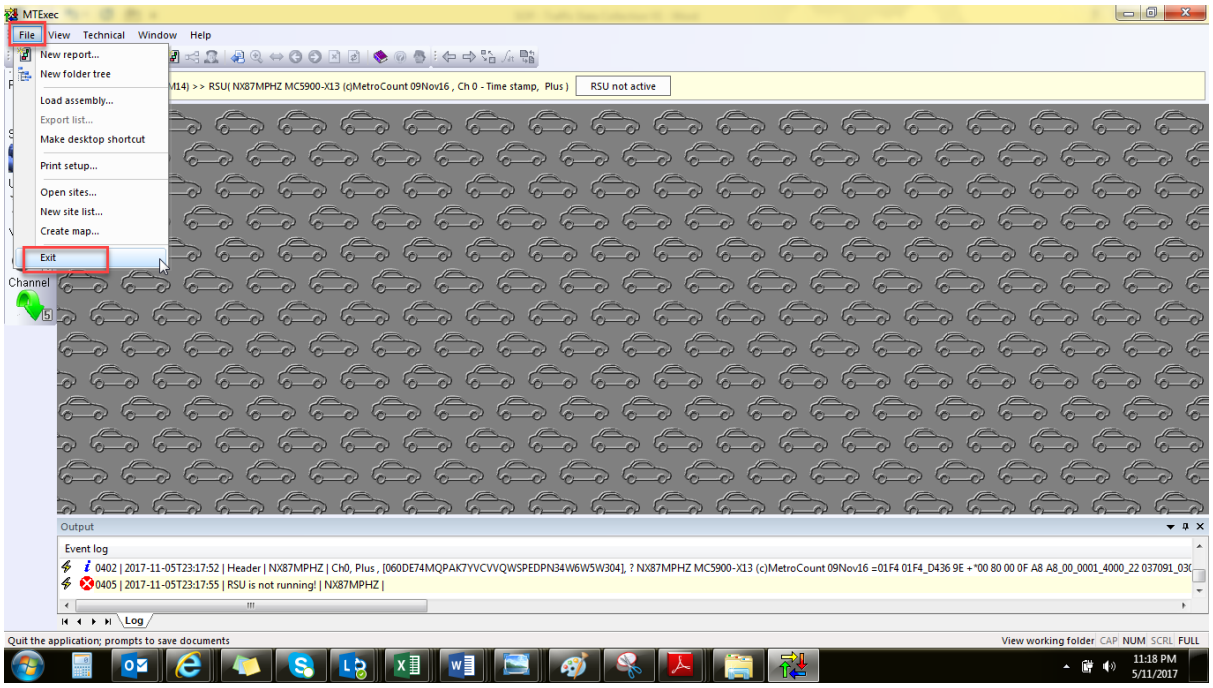
14.8 Select CLOSE to end the survey

Key Point:

- Make sure the download path is taken note of to locate the final MTE file later.
- The File naming from your last download will appear.
- Keep the naming of the MTE file as per the Site ID format as below.



14.9 The RSU will return to the main screen with the RSU not Active. Select the file and Exit the MTE software from the pull down menu.



Key Point:

- A good tip to make sure the tally clerks are payed before downloading the final data and demobilising from the site.
- A good practise is to NOT to overwrite the initial downloaded files that was done for QA from Step 11
- Make a different file so that you have backups. MTE/RSU adds a default date as the file name when downloading

STEP 15. REMOVE THE TUBES AND RSU

15.1 Establish the Traffic Management plan.

15.2 Take Photos of the final setup before removing

15.3 Remove the safety strops/chains that secures the RSU to a permanent structure

15.4 Remove the nails ,cleats and centre lane flaps

15.5 Remove the tubes

15.6 Remove the traffic controllers

15.7 GPS Survey the Sites for its Position

Key Point:

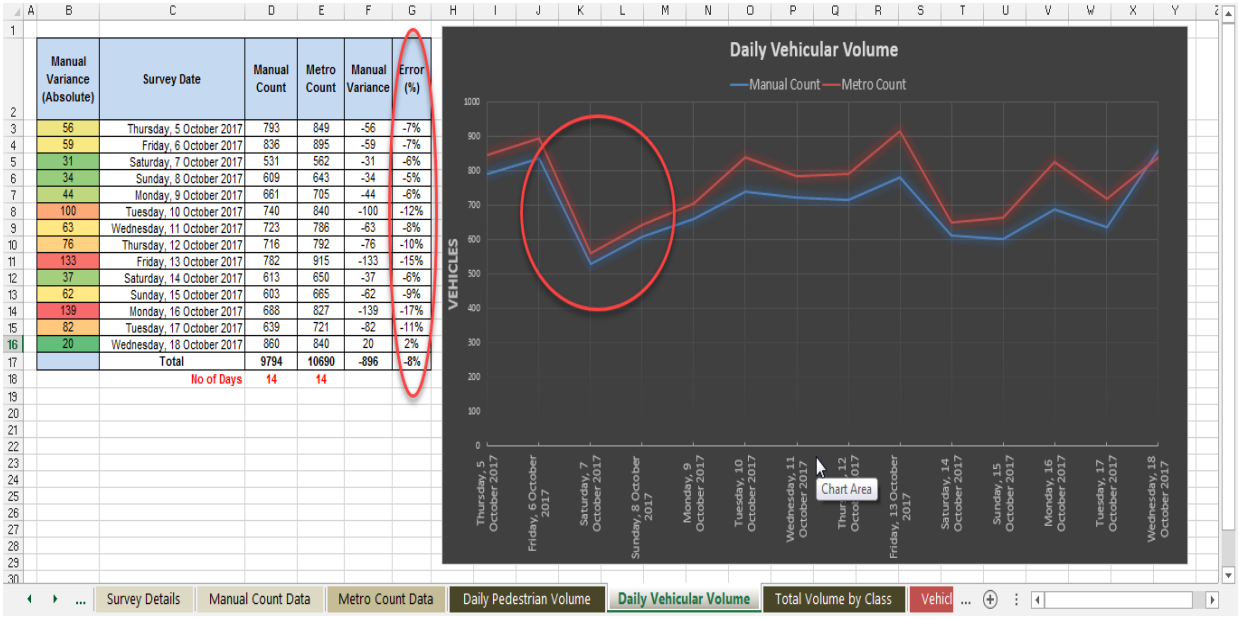
- Use the pinch bar to safely remove the nails, cleats and the centre lane flaps
- Use the keys to unlock the RSU safety
- Check the quality and the integrity of the tube
- Roll up the tube and fold it in a manner it will not be tangled
- Take Photos of the tally clerks
- GPS survey of the sites can happen from the initial setup
- Any GPS locations from smart phones or any other means other than a proper GPS unit introduces and error of + or – 10m to 30m inaccuracies

STEP 16. COMPLETE SURVEY/PAY THE TALLY CLERKS

16.1 Pack up all the instruments and tools

16.2 Show the clerks the QA sheet and the difference with their manual count. The spreadsheet is a controlled document the AMB/TSSP team will provide and train.

16.3 If they are to be penalised, the actual report of the variations has to be showed to them as below.

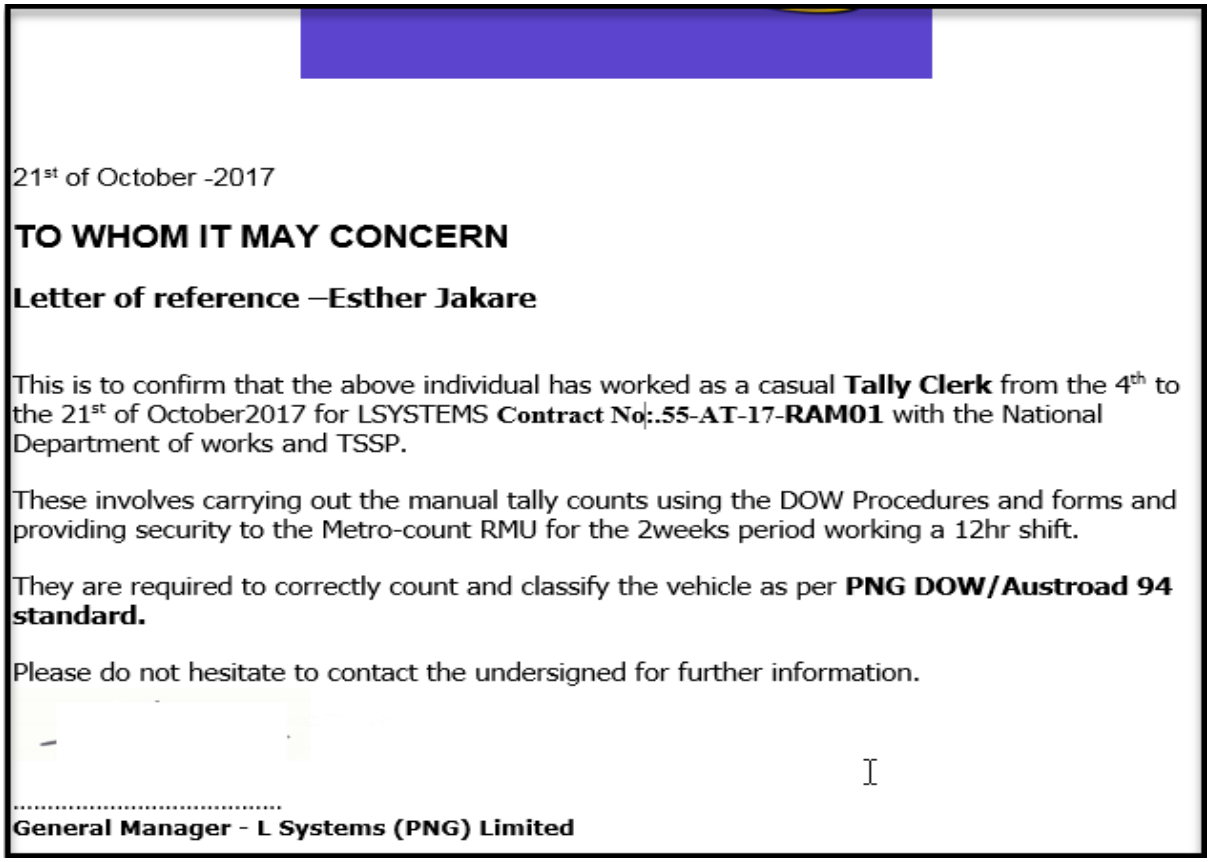


Manual Variance (Absolute)	Survey Date	Manual Count	Metro Count	Manual Variance	Error (%)
56	Thursday, 5 October 2017	793	849	-56	-7%
59	Friday, 6 October 2017	836	895	-59	-7%
31	Saturday, 7 October 2017	531	562	-31	-6%
34	Sunday, 8 October 2017	609	643	-34	-5%
44	Monday, 9 October 2017	661	705	-44	-6%
100	Tuesday, 10 October 2017	740	840	-100	-12%
63	Wednesday, 11 October 2017	723	786	-63	-8%
76	Thursday, 12 October 2017	716	792	-76	-10%
133	Friday, 13 October 2017	782	915	-133	-15%
37	Saturday, 14 October 2017	613	650	-37	-6%
62	Sunday, 15 October 2017	603	665	-62	-9%
139	Monday, 16 October 2017	688	827	-139	-17%
82	Tuesday, 17 October 2017	639	721	-82	-11%
20	Wednesday, 18 October 2017	860	840	20	2%
	Total	9794	10690	-896	-8%
	No of Days	14	14		

16.4 Pay the clerks with their pre packed cash

16.5 Get them to sign on the payment receipt.

16.6 Issue them with a reference document/letter as on the nature of their work. E.g.



21st of October -2017

TO WHOM IT MAY CONCERN

Letter of reference –Esther Jakare

This is to confirm that the above individual has worked as a casual **Tally Clerk** from the 4th to the 21st of October2017 for LSYSTEMS **Contract No:.55-AT-17-RAM01** with the National Department of works and TSSP.

These involves carrying out the manual tally counts using the DOW Procedures and forms and providing security to the Metro-count RMU for the 2weeks period working a 12hr shift.

They are required to correctly count and classify the vehicle as per **PNG DOW/Austroad 94 standard.**

Please do not hesitate to contact the undersigned for further information.

.....

General Manager - L Systems (PNG) Limited

16.7 Get a group photo for the record

Key Point:

- Similar to KEY POINTS in Step 13. The spreadsheet is a controlled document and will be issue and the surveyor will be trained to make use or make entries.
- Make police escort is present.
- Check that no equipment or rubbish is left behind.
- Contact client to inform them of the site demobilisation.
- If any new hazards have been identified notify relevant supervisor.
- **Leave in good faith by handing out each of the tally clerks a reference in token of appreciation for their input.**

STEP 17. JOB COMPLETION NOTIFICATION

17.1 Ensure that all appropriate people are notified & have acknowledged that job is completed

17.2 Remove any hut or tents or camping gears if applicable.

Key Point:

- Inform DOW/AMB team of when the report and the Tally sheets will be provided
- Inform the Local Police
- Inform the local village leaders

STEP 18. COMPLETE THE JOB/HOUSEKEEPING

18.1 Maintain the area housekeeping standard:

- Clean up the work area.
- Pack up and store all tools and equipment used.

18.2 Take 5 and make sure that the work/tally site has been left in a safe condition.

Warning:

Use Take 5 to make sure that hazards have not been introduced as a result of this procedure.

18.3 Review the documents used to do the job:

- Review the related Job Safety Analysis (JSA).
- Review this Standard Operating Procedure.

If you have updates or suggestions for improvement to the SOP complete: -

Request for Document Change Form.

- Follow your normal Document control process.
- Write the updates and / or suggestions for improvement clearly on the form and obtain the document owners signature.
- Give completed form to document administrator.

Key Point:

Our JSA's and SOP's are reviewed every time we use them so that they get better and better.

Our goal is to improve our documents so that we can do the job even more safely next time.