ERT

USER MANUAL
for

# SAMSARA VIPER CAP APP

CONTENTS

DESCRIPTION

The ERT Samsara meter application allows you to obtain air monitoring data being pushed to Samsara's web platform. The meter application can obtain readings "real-time" as readings are being pushed to their Web Platform, or historic readings can be loaded after the fact, if so desired.

Cloud.Samsara.Com

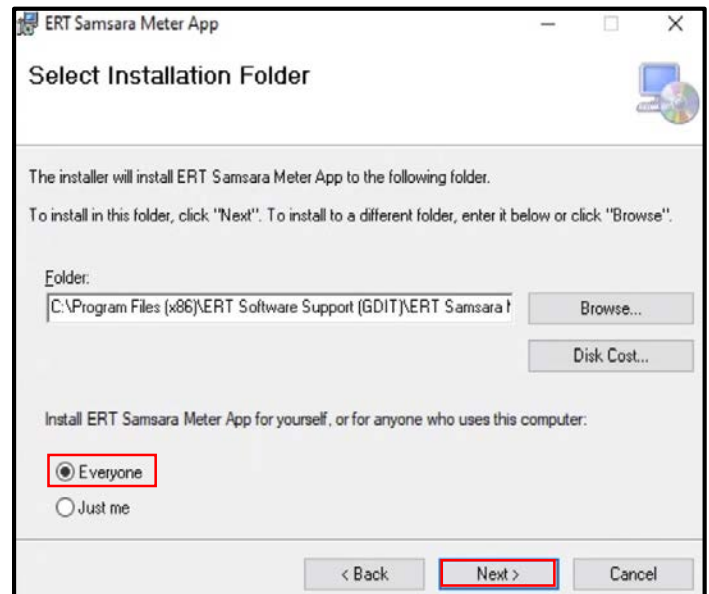**Note: Samsara is a third-party site that has no affiliation with EPA ERT Support.**

INSTALLATION

The ERT Samsara Meter Application is available for download from the documents section of https://response.epa.gov/viper. This MeterApp connects to Samsara and sends data to Viper Survey Controller.

NOTE: The Samsara Meter application must be installed on the computer running Viper Field Survey Controller
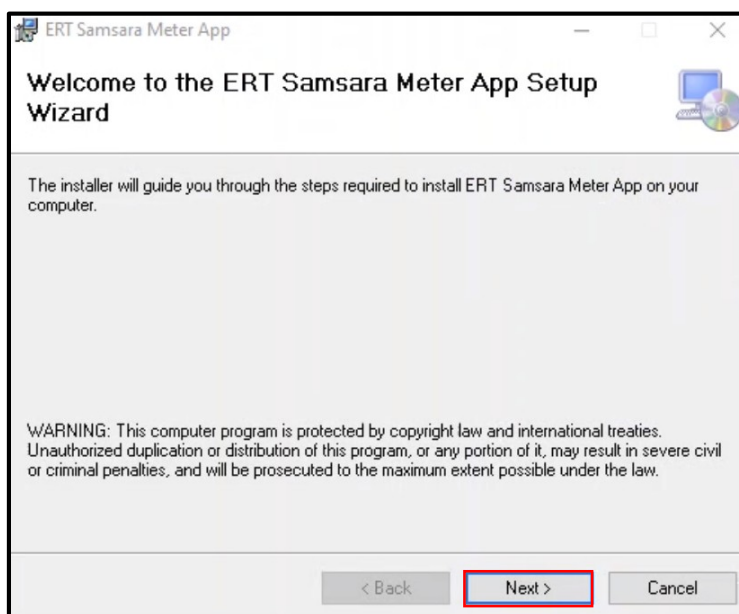
1. Follow the installation prompts.

2. When you are prompted to 'Select Installation Folder', select **Everyone** on the bottom left and click Next.

3. Continue through the installation prompts to finish the installation.

ERT Samsara Meter App

Select Installation Folder

The installer will install ERT Samsara Meter App to the following folder.

To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".

Folder:

C:\Program Files (x86)\ERT Software Support (GDIT)\ERT Samsara | [Browse...]

[Disk Cost...]

Install ERT Samsara Meter App for yourself, or for anyone who uses this computer:

◉ Everyone
○ Just me

[< Back] [Next >] [Cancel]

Samsara Configuration - Overview

Before data can flow from Samsara to Viper, the instruments must be active in Samsara and they must be configured appropriately for the ERT MeterApp to pull data and for Viper Deployment Manager to properly display the information. Below is an overview of the configuration preparation that needs to be done in Samsara. These instructions may change without notice as Samsara is a third-party website.

- Obtain login credentials for https://cloud.samsara.com/
- Verify that expected instruments are active in Samsara
  - Samsara lists the instruments as an "Asset"
- Tune-up the Samsara Asset/Sensor fields so data is properly displayed when it reaches Deployment Manager
  - Modify a sensor's "**Name**" field to apply the Sensor Name that will be displayed in Deployment Manager. For example, if an instrument shows "Mass Conc Total" for a sensor and you prefer to see "Total Particulates", Modify the Sensor name to show "Total Particulates". When using "Data Groups" (discussed below), it is important to name the sensor in a particular way. See the section below for additional details.

  - Use "**Data Groups**" to group like instruments in Deployment Manager.
    - Each Asset's sensors (instrument) can be modified in Samsara to include a custom Data Groups name. This data group name can be considered equivalent to an "Instrument Type". Deployment Manager groups instruments by "Type" – for example, all DustTraks will group together and all AreaRAEs will group together, etc. There are special naming considerations for instruments that output multiple sensors. See the section below for additional details.
  - Assign "**Units**" for each Sensor. Sensors without Units will not be available to Viper Deployment Manager

- Retrieve the API Key/Token
  - If they API Key is not visible in the "Developer" section of the "Organization Settings" in Samsara, contact your Samsara Rep to obtain the API Key/Token. This information will need to be entered into the ERT Samsara Meter App.

Samsara Configuration - Details

The section below discusses how to customize Asset (Instrument) Sensor Name/s and how to use Data Groups in Samsara.

As shown in the screenshot below, when logged in to the "Dashboard" view in Samsara, instruments will be listed as Assets in the left navigation pane. When you select an "Asset", the **sensor information** will be displayed for that instrument.
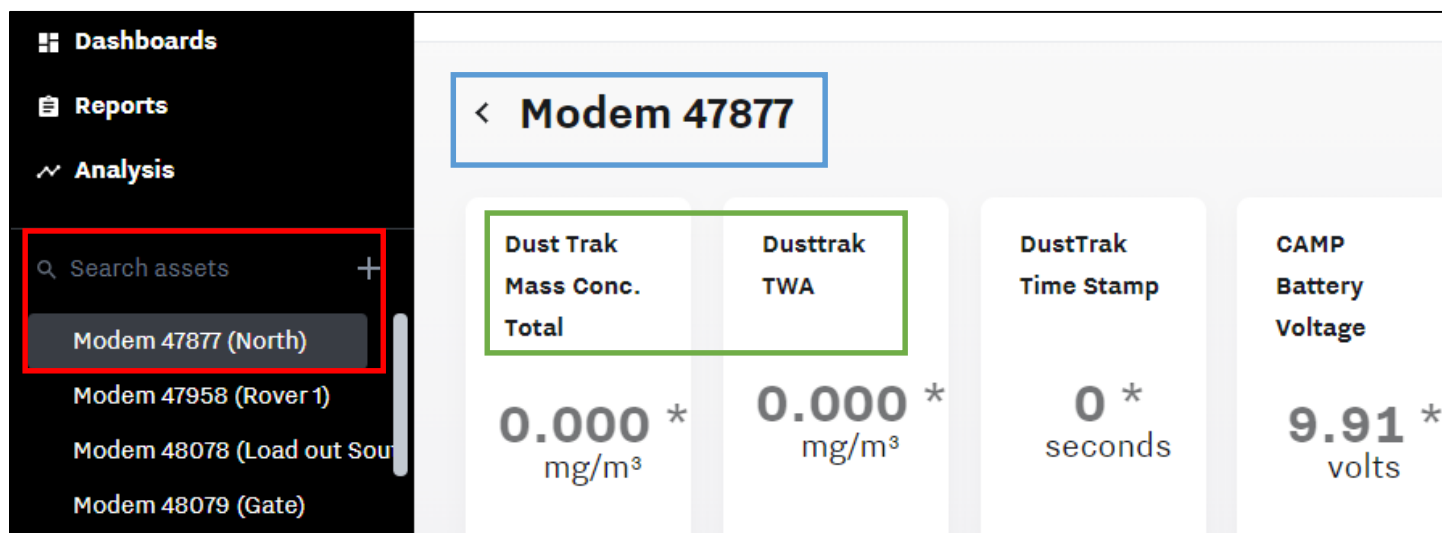

- To verify/modify the Sensor Name and Data Group, click the "**I/O**" menu above the sensors
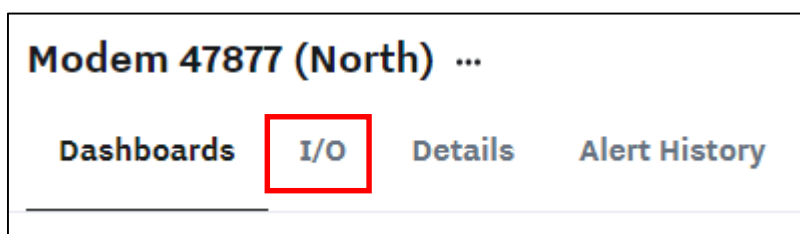
- Scroll the list to find the Sensor/s of interest to be captured in Viper Deployment Manager.
  - One Asset/instrument can have multiple sensors. Only configure the sensors of interest to have appropriate sensor names and data groups. Doing so will limit the sensors to be selected later in the MeterApp to include only those of interest.

    The screenshot to the right shows multiple sensors for the same instrument. Only "Mass Conc. Total" and "TWA" will be sent to Viper Deployment Manager so those sensors will be configured as discussed below.
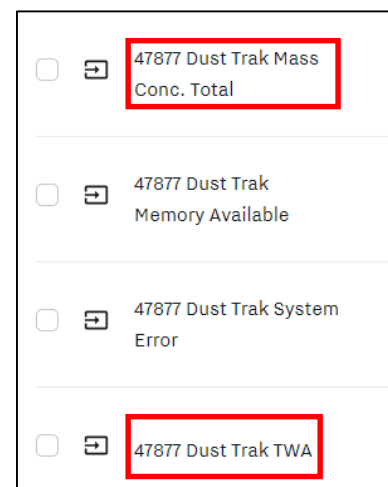
- Click a sensor name to see the configuration details. There are three critical fields for the sensor to be accessible to the ERT Samsara MeterApp and to display properly in Deployment Manager.

Name: The name field should start with the Asset/Modem number followed by a space and then include the first part of the Data Group (==must match the Data Group name before the hyphen in the Data Group==) and then the Sensor name to be displayed in Viper Deployment Manager. As shown to the right, Viper Deployment Manager will list this sensor as "**Mass Conc. Total**". If something other than "Mass Conc. Total" should be displayed in Viper Deployment Manager, make that change in the Name Field (after the matching Data Group info)

Data Group: The first part of the Data Group name determines how Deployment Manager will group multiple instruments. Anything after the hyphen is ignored by Deployment Manager.
  - Samsara requires each sensor for an instrument to have a unique Data Group name when using Data Groups. Since we want to capture both the Mass Conc. Total and TWA for this instrument, each needs a unique Data Group Name to save the record in Samsara. We use the information after the hyphen to satisfy that uniqueness for Samsara but we ignore that information in Viper. ***DO NOT use spaces before or after the hyphen***.

  - If the Data Group Name is being entered for the first time, a prompt will appear to enter the units for that sensor. After the initial entry, use the drop-down box to configure sensors for the remaining Assets/Instruments.
    - Tip – to enter a new Data Group name, begin typing in the Data Group field and an option will be displayed to "create" the new Data Group.

Name *
47877 Dust Trak Mass Conc. Total

Source *
Third Party Pin

Pin *
47877 Dusttrak II - Mass Conc. Total

Smoothing Range (seconds) ⓘ
0

Data Group ⓘ
Dust Trak - MCT

Tags
Select tags...

Asset
Modem 47877 (North)

Transform data *
○ Min/Max ● Formula ○ Map ranges to values ⓘ

Formula ⓘ
x

Units ⓘ
mg/m3

Units: Units must be entered for data to flow to Viper.

  - Click the "Update" button at the bottom of the sensor details window to save the changes.

For illustration purposes, this screenshot shows how the "TWA" sensor is configured for instrument 47877.

- Looking at the "**Name**" field, we see that it follows the requirements outlined in the section above. Notice that Viper Deployment Manager will display the sensor as "TWA"
- Although the **Data Group** also contains "TWA", Viper ignores everything after the hyphen in a Data Group. TWA is used only to make a unique name to satisfy Samsara's requirement.

Name *

47877 Dust Trak TWA

Source *

Third Party Pin

Pin *

47877 Dusttrak II - TWA

Smoothing Range (seconds) ⓘ

0

Data Group ⓘ

Dust Trak -TWA

The screenshot to the right shows 6 Dust Trak's from Samsara that were configured as discussed above. Notice how they are grouped by the Data Group name of "Dust Trak" and each of the sensors is listed as configured in the last part of the asset "Name" field (i.e., Mass Conc Total and TWA)

Samsara Dust Trak(s):

~	Instrument ID	Connection	Location	Mass Conc. Total	TWA
🔘	(.3007) Samsara - Dust Trak Dust Trak - Modem 47877 (North)	Down	40.4744423, -86.1625575	0 mg/m³	0 mg/m³
🔘	(.3012) Samsara - Dust Trak Dust Trak - Modem 47958 (Rover 1)	Down	39.8532460, -86.1054538		0.001 mg/m³
🔘	(.3001) Samsara - Dust Trak Dust Trak - Modem 48078 (Load out South)	Down	40.4740124, -86.1628060	0.041 mg/m³	
🔘	(.3002) Samsara - Dust Trak Dust Trak - Modem 48079 (Gate)	Down	40.4742662, -86.1644388	0.001 mg/m³	
🔘	(.3005) Samsara - Dust Trak Dust Trak - Modem 48080 (Back East)	Down	40.4743230, -86.1614611	0.016 mg/m³	
🔘	(.3008) Samsara - Dust Trak Dust Trak - Modem 48081 (Rover 2)	Down	40.4741287, -86.1642312	0.014 mg/m³	

After configuring Assets/Instruments and Sensors, obtain the **Samsara API**:

A Samsara API Token is required to pass data from the Samsara website to the Samsara Meter App. The API Token is associated with the user account credentials provided by Samsara. Once an API Token is entered in the ERT Samsara Meter App, it will remain in the API Token field and can be updated as needed. Visit cloud.samsara.com and enter your login credentials.

- If they API Key is not visible in the "Developer" section of the "Organization Settings" in Samsara, contact your Samsara Rep to obtain the API Key/Token.

Configure the ERT Samsara MeterApp

1. Launch the ERT Samsara Meter application by double clicking the desktop icon.

2. Enter or paste the API Token in the API Token field.

   a. Note: The first time the application is launched, the Samsara API tab will be displayed and the API Token field will be empty.

3. After entering the API Token, click Save and Close.
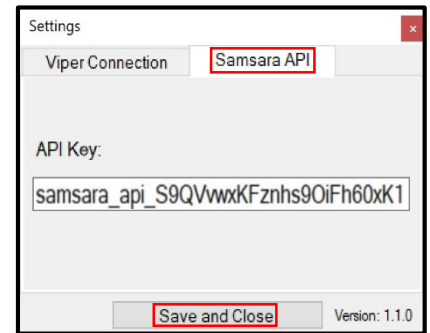
4. Put a checkmark in "Use Data Groups"

5. Put checkmarks in all of the Samsara Instruments for that deployment.
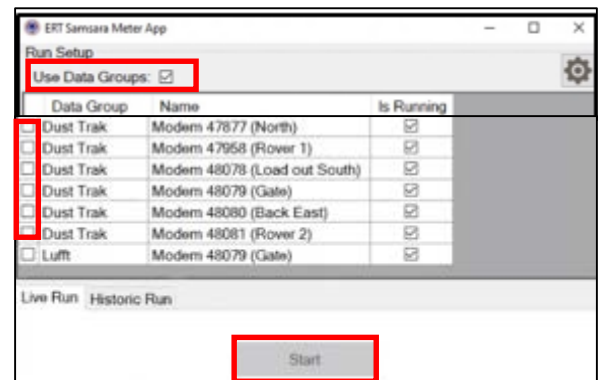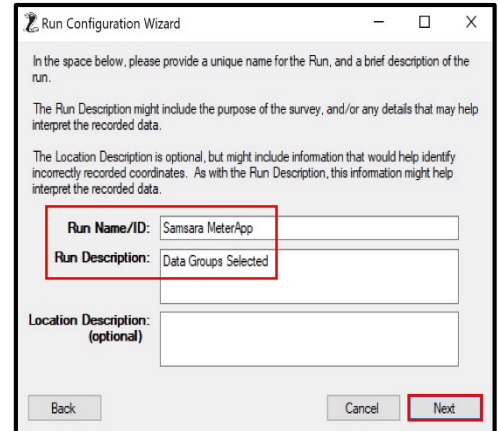
6. Click **Start. Do not click OK** until Viper Survey Controller is opened, completed and recording.
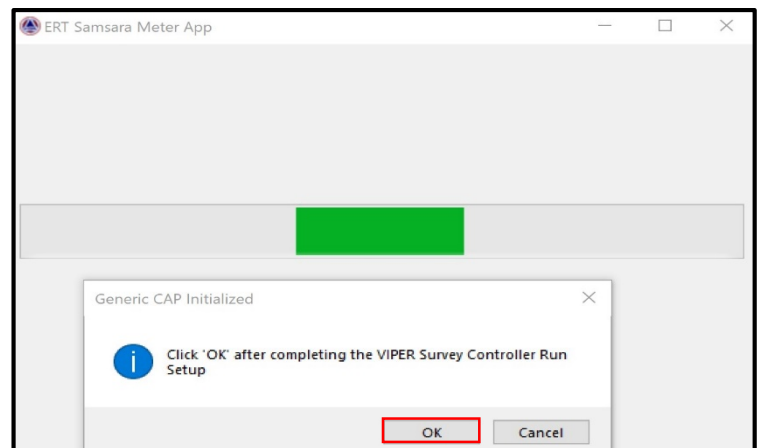
1. After launching the Samsara MeterApp, open Survey Controller and **Start a Run**

2. In the LINC Setup Window, click '**Add'**
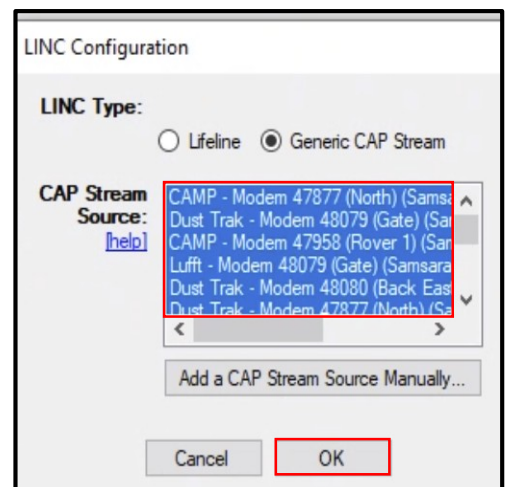
3. Click the Radio Button for **Generic CAP Stream**
    o   If the Generic CAP Stream radio button is not available
        ▪   From the RUN menu in Survey Controller, Select Preferences
        ▪   Check "Generic Cap"
4. In the Cap Stream Source box, select all desired Samsara instruments.
    o   Note: To select multiple lines at once, hold Ctrl and select (click) each desired Source (or select the first line, then hold down Shift while selecting the last line to select all sources.)
5. Click OK after selecting the instruments.

6. Click Next.

7. Click Next at the 'Cluster Screen'.
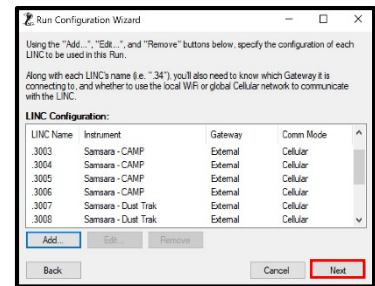
8. Each instrument can be edited to add a comment that appears in Deployment Manager, select reading intervals or enter fixed latitude or longitude. Select the instrument and click the 'Edit' button to make customizations. Click OK and Next when finished.
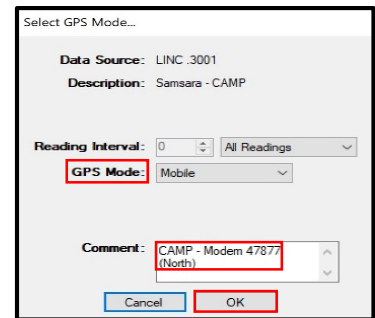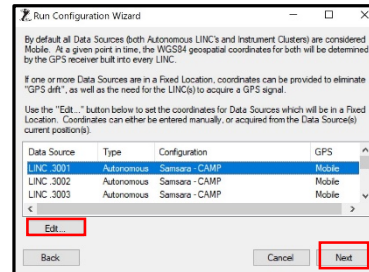
9. Begin recording data and click OK on the Samsara MeterApp. You should receive a green **'Success'** after the 'Fetch' process.
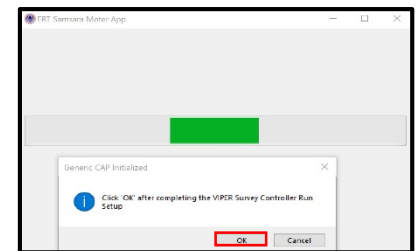
Note: Contact ERT Support if you receive an **error** during the 'Fetch' process.
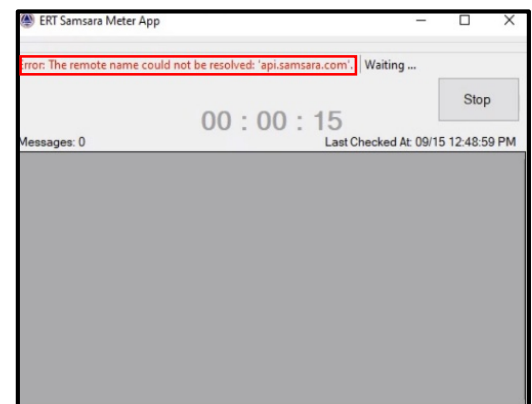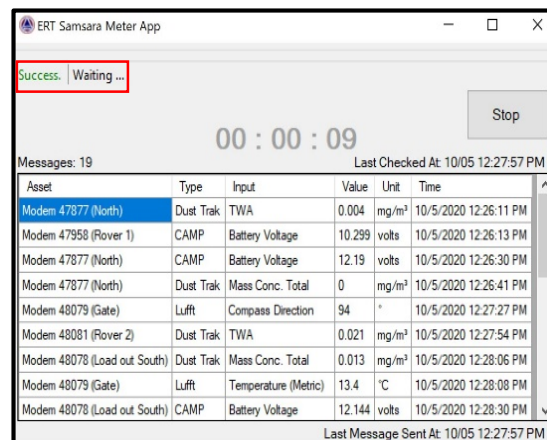
10. Login to Deployment Manager to verify that data is flowing to the Viper Server.

Example with Data Groups Selected

Example with Data Groups Not Selected

# UPDATING INITIAL SETTINGS

Click the Settings Icon in the MeterApp to make changes.

- **Change Port or Host**
    - By default, the Port is set to "6991" and the Host Name is set to "localhost." Changing this information is an advanced feature and you should consult ERT Support prior to making changes.
    - To change the Port or Host Name, click the Settings button. Select the "Viper Connection" tab. Enter new values as needed. When finished, click Save and Close.

- **Change API Key**
    - The Meter App will save your API Token until you manually change it. To enter a new API Token, click the Setting icon, switch to the Samsara API tab.
    - Enter your new API Key, and Save and Close.
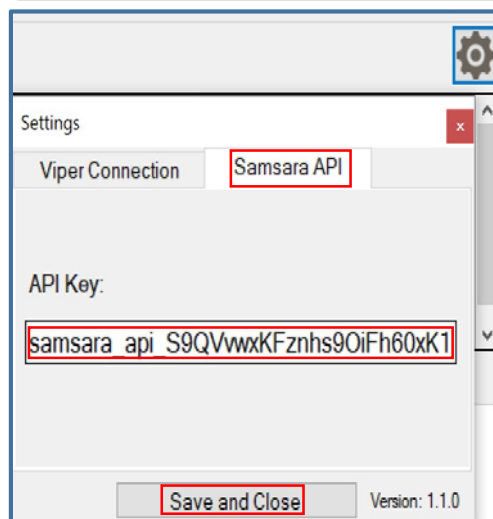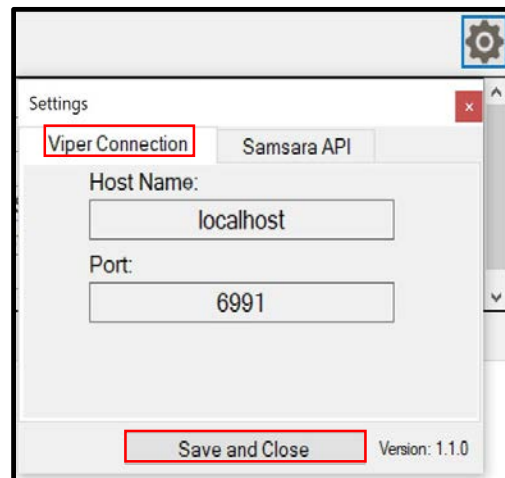
PROCESSING HISTORIC DATA

Historic data can be pulled from the Samsara server and added to Viper Deployment Manager. **CAUTION**: Acquiring Live and Historic data for a site poses issues if records are not processed in chronological order. If historic data will be acquired, the best practice is to use a separate instance of Survey Controller (different

laptop or different VM) when historic data needs to be brought in to a deployment. In addition, before each historic data pull on the separate Survey Controller, make sure to re-register Survey controller.

API TOKEN

Similar to processing live data, a Samsara API Token is required to process historic data. Refer to the Initial Configuration section in this guide for additional details on API Tokens.

HISTORIC RUN CONFIGURATION

The instruments associated with the token entered above will be displayed in the Run Setup window of the Meter App.

1. Place a checkmark in the "Add" column for each instrument to be added to Viper Survey Controller.

2. Switch to the Historic Run tab

3. Enter the earliest and latest date that historic data was captured

4. **DO NOT** click Start. Continue to Survey Controller. See details below.

5. In Survey Controller, Click on Run – Preferences - and verify that there is a checkmark in the option to "Allow Historic Data". Click Save to close the preferences window.

6. Re-Register Survey Controller by clicking the Viper Server – Re-Register option.

   a. If a subsequent pull of historic data needs to be done for a deployment (for example, if you entered wrong dates/times, etc), it is important to re-register survey controller before each new historic data run. This will assign a new Survey Controller ID to each run which is important to properly process historic data.
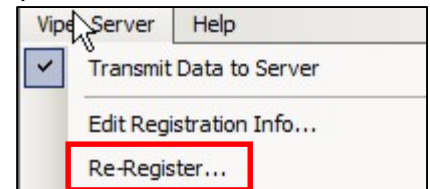
7. Start a new Run from Scratch in Survey Controller and

   a. Run
   b. New Run
   c. From Scratch
   d. Next
   e. Name the Run and add a Description
   f. Next

8. Select the option to capture Historical Data and enter a Start Time BEFORE the first set of readings was captured. Click next to continue
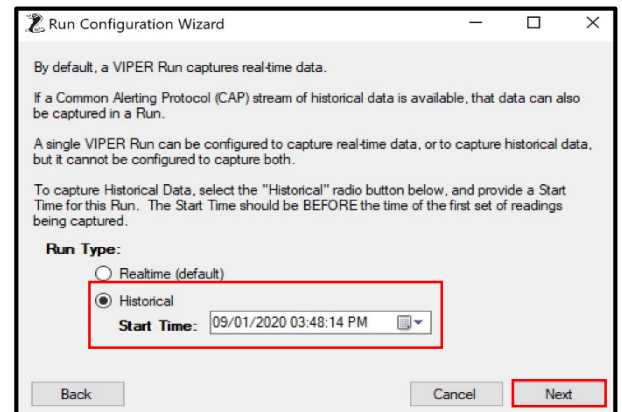
9. On the LINC Configuration window, select the Generic Cap Stream for the "LINC type". Initially this box will be empty.
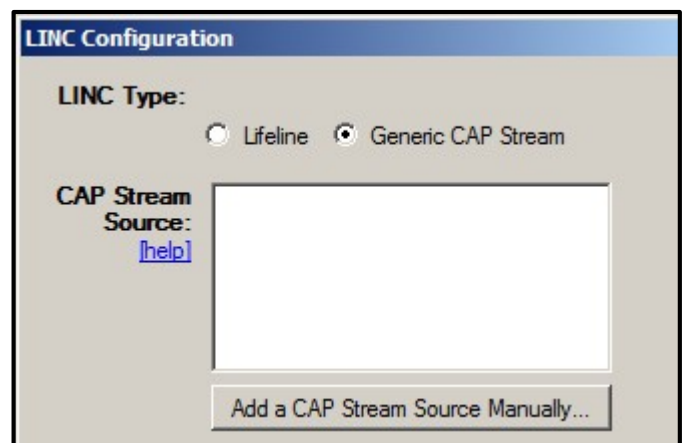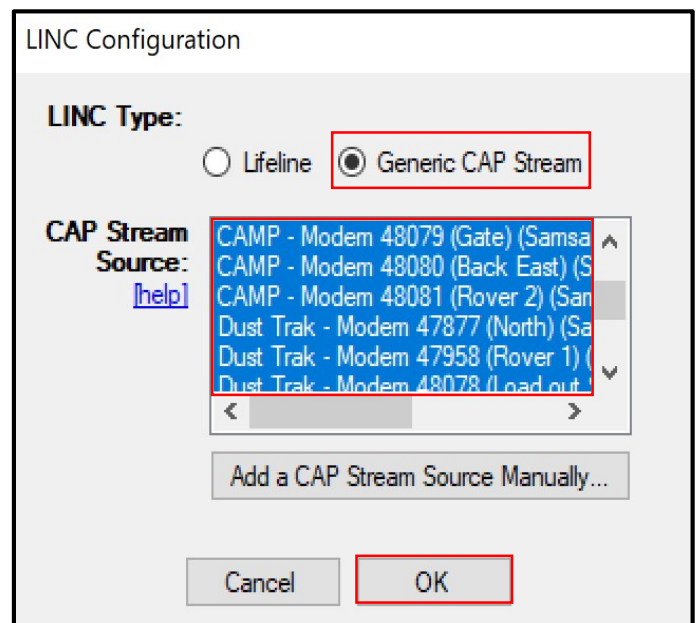
10. Switch to the Samsara Meter App and Click Start. The time on the MeterApp will begin to increment.
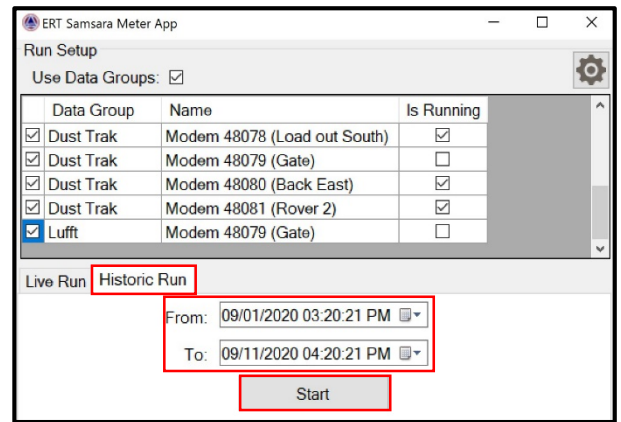
a. A new window will appear letting you know that Generic CAP has been initialized. **DO NOT** click 'OK' on the "Generic CAP Initialized" prompt. Leave this window as-is until step 12 below.
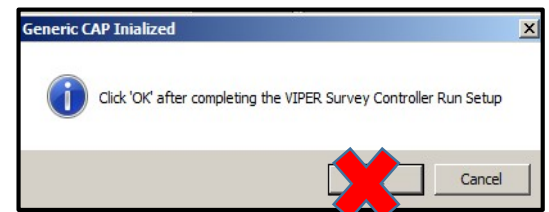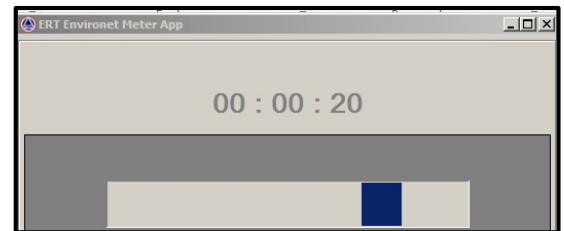
11. Switch back to Survey Controller. After several seconds, the instruments will appear in the list of Cap Stream Sources. Select the instruments and click OK to continue

12. Continue through the remaining windows in Survey Controller, **Finish the Run** and start collecting data (as described in an 'Active' run)
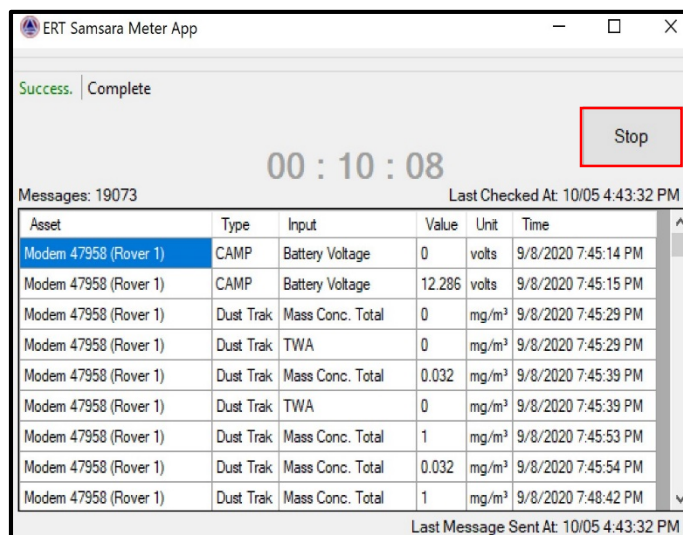
13. Switch back to the "Generic CAP Initialized window and Click OK
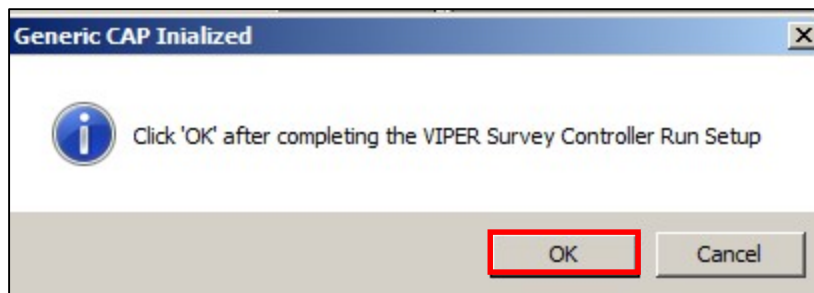
The Samsara MeterApp will begin to increment time and the instruments in Survey Controller will switch to green

ENDING A HISTORIC RUN

1. When the instruments appear in the Samsara MeterApp, the MeterApp is done collecting historic data. You can stop the MeterApp by clicking the Stop button

2. Do not stop Survey Controller until you see the words "**No Compiled Run Data to Send**" displayed next to "Server Connection:" at the bottom of the Survey Controller window.

   a. Survey Controller collects readings for one minute – indicated by the word "Sleeping" next to the *Server Connection* section at the bottom of Survey Controller

   b. After sleeping for one minute, survey controller prepares to transmit data and then sends data to Deployment Manager. The Server Connection section at the bottom of Survey Controller shows each of these steps as they happen.

   c. When Survey Controller indicates that there is 'No Compiled Run Data to Send', all historic data has been sent to Deployment has been sent to Deployment Manager and the Survey Controller Run can now be stopped.