TELEDYNE
INSTRUMENTS
Advanced Pollution Instrumentation
A Teledyne Technologies Company
9480 Carroll Park Dr., San Diego, CA 92121-5201
Phone (858) 657-9800 Fax: (858) 657-9818 Toll Free 1800 324-5190
E-mail: api-customerservice@teledyne.com http://www.teledyne-api.com

Service Note

05-023A
21 February, 2006

APICOM and IDAS Procedure Tutorial

I. PURPOSE:

To give instructions on how to install, setup, and run APICOM Graphical Interface to remotely operate a Teledyne API Instrument, and how to Use the APICOM Graphical Interface to setup the Internal Data Acquisition System (IDAS).

II. TOOLS:

APICOM.exe file (available through Teledyne API web site or the Customer service CD):
http://www.teledyne-api.com/software/apicom/apicom_download.asp

III. PARTS:

Direct Connect, Network, Network Crossover, or Modem cables to communicate with analyzer.
Computer

IV. REFERENCES:

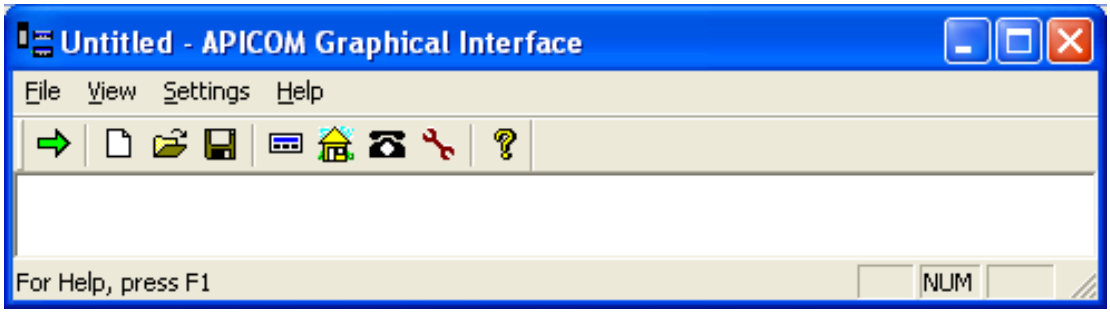
For detailed APICOM functions, refer to APICOM manual (available through Teledyne API web site or the Customer service CD):
http://www.teledyne-api.com/manuals/03945A.APICOM.Manual.35.pdf

For detailed DAS functions refer, to DAS Manual (available through Teledyne API web site or the Customer service CD):
http://www.teledyne-api.com/manuals/02837A.DAS.Manual.pdf

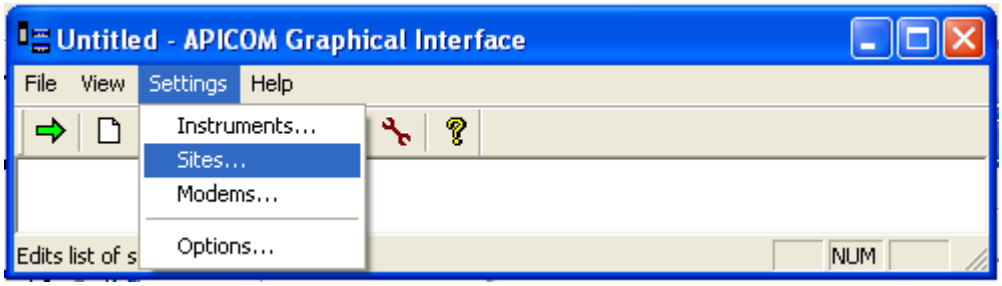
IV. PROCEDURE:

Connecting to the analyzer from a computer

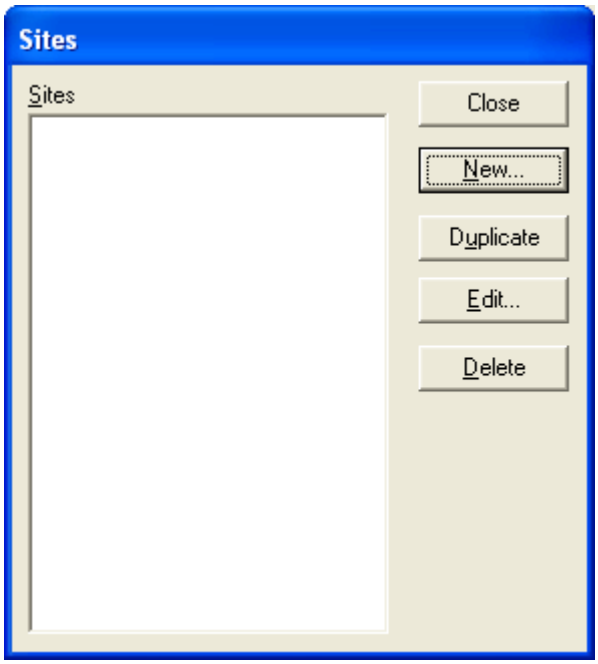
1. **Install APICOM or copy the APICOM.EXE** file to the computer that is connecting to the Teledyne API instrument.
2. Connect the instrument to the computer with the desired cables. If connecting with Ethernet, refer to service notes 05-006 or 05-007. If connecting direct refer to service notes 95-001, 98-049. If connecting with a phone line modem refer to service notes 98-020, 98-023, 98-030, 98-033, 98-034, 98-049.
3. Ensure that no other communications programs are open from the computer to the analyzer that would use the computer comm port. – such as HyperTerminal**. Open (execute) the APICOM interface program** (APICOM.EXE).



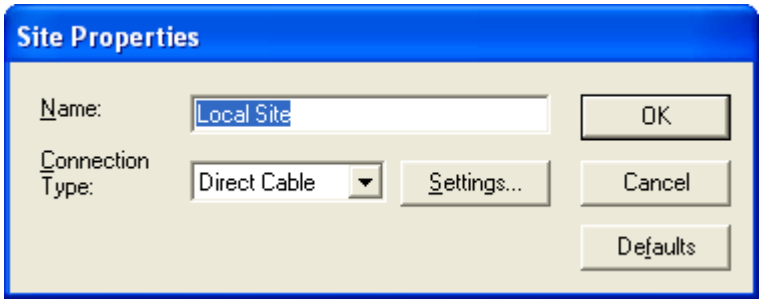
4. Press **Settings** and select **Sites**.



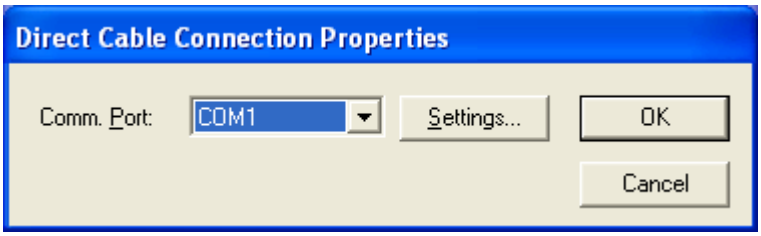
5. Select **New**.



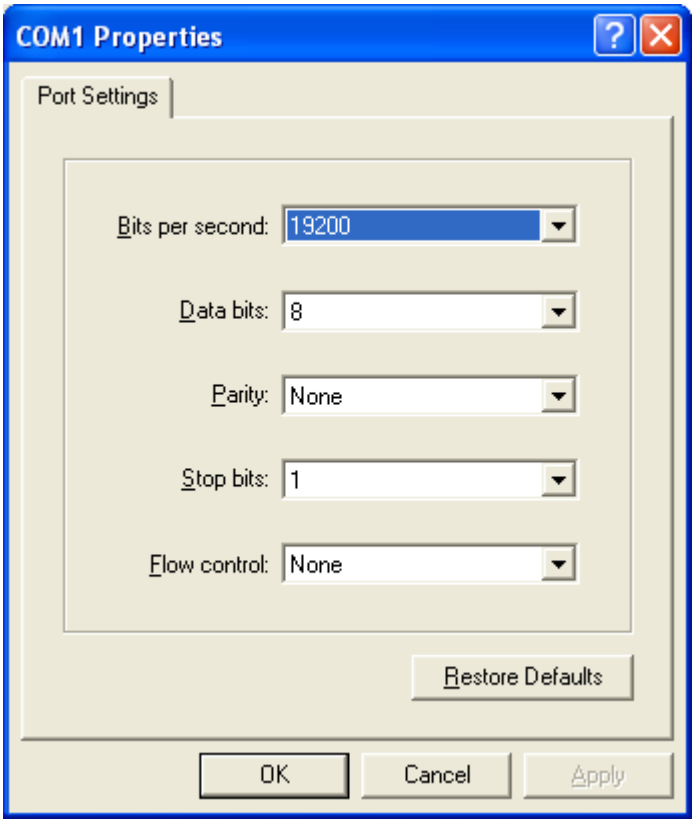
6. For Direct Cable connection follow steps 7-10, for TCP/IP (Ethernet) connection follow steps 11 – 13.
7. The Name field may remain default as “Local Site” or if desired, type a name for the site such as “Station 1” into the Name field. On **Connection Type dropdown**, select (for this example) **Direct Cable**, and select **Settings**.



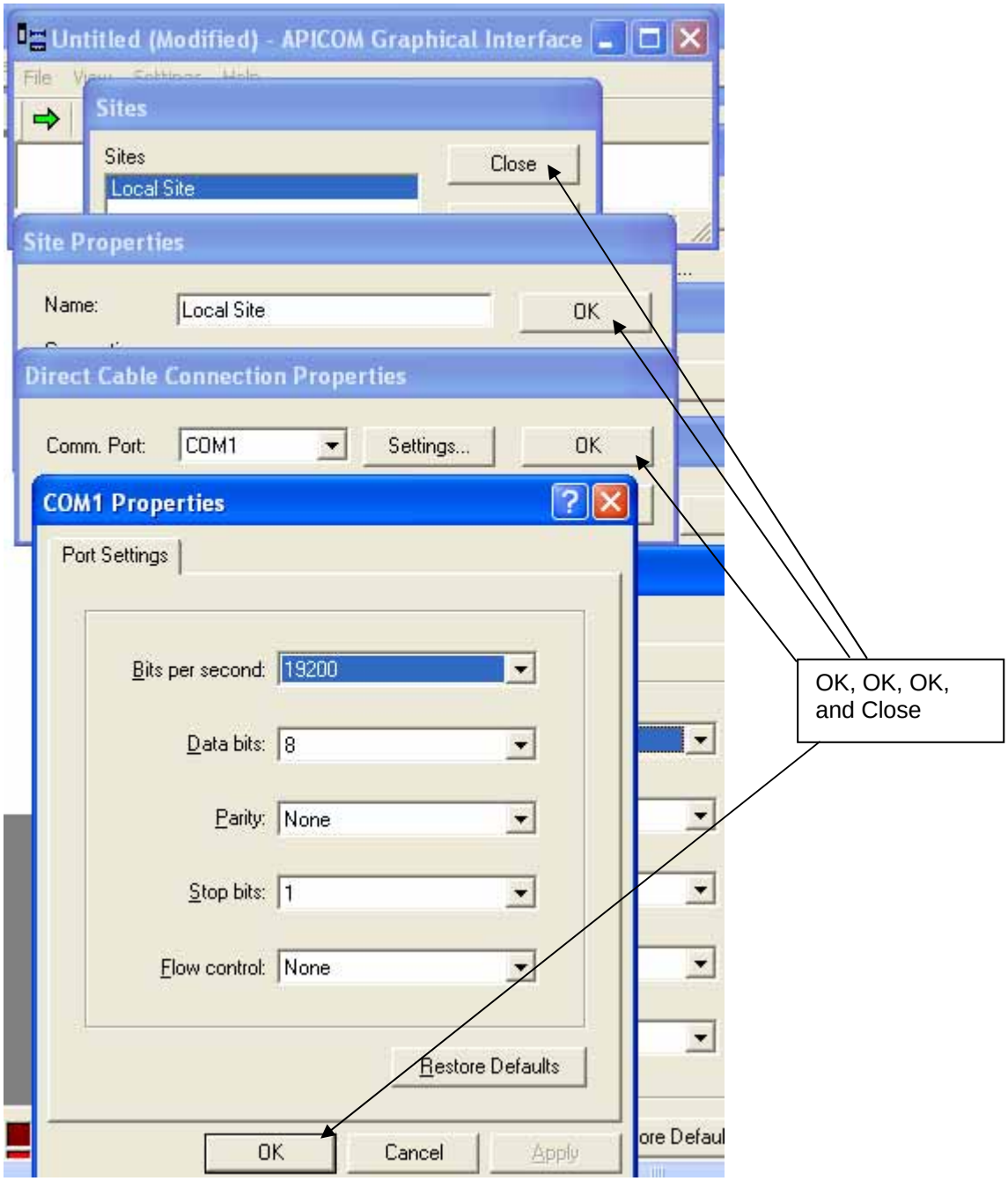
8. Select the computer com port that is being used (example **COM1**), and select **Settings**.



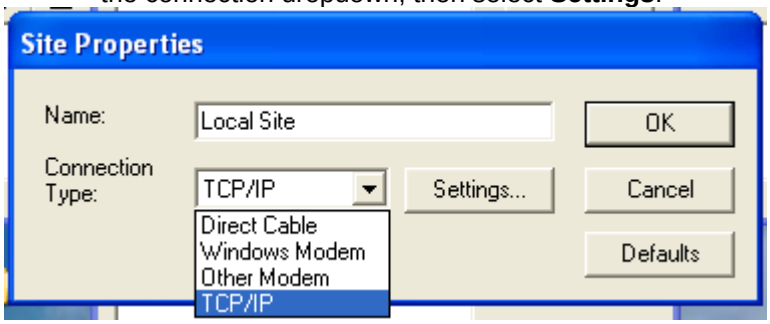
9. Select the baud rate of the instrument,
    a. Check baud rate on "E" series instrument by pressing **SETUP** – **MORE** – **COMM** – **COM1** – **SET** to view the COM1 BAUD RATE.
    b. Check the baud rate of the "A" series instrument by pressing **SETUP – MORE – COMM** – **BAUD** to view the COM BAUD RATE.
    c. Then select that rate in the **Bits per second dropdown** menu on the computer (example **19200**). Ensure data bits = **8**, Parity = **none**, stop bits = **1**, and Flow control = **none**.



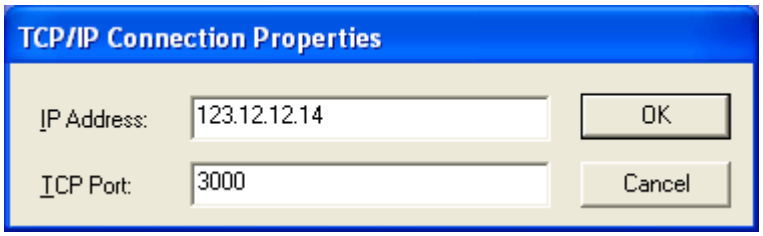
10. Now press **OK, OK, OK, and Close** for the next windows to get back to the main screen, setup for the direct cable site is complete. Now go to step 14.



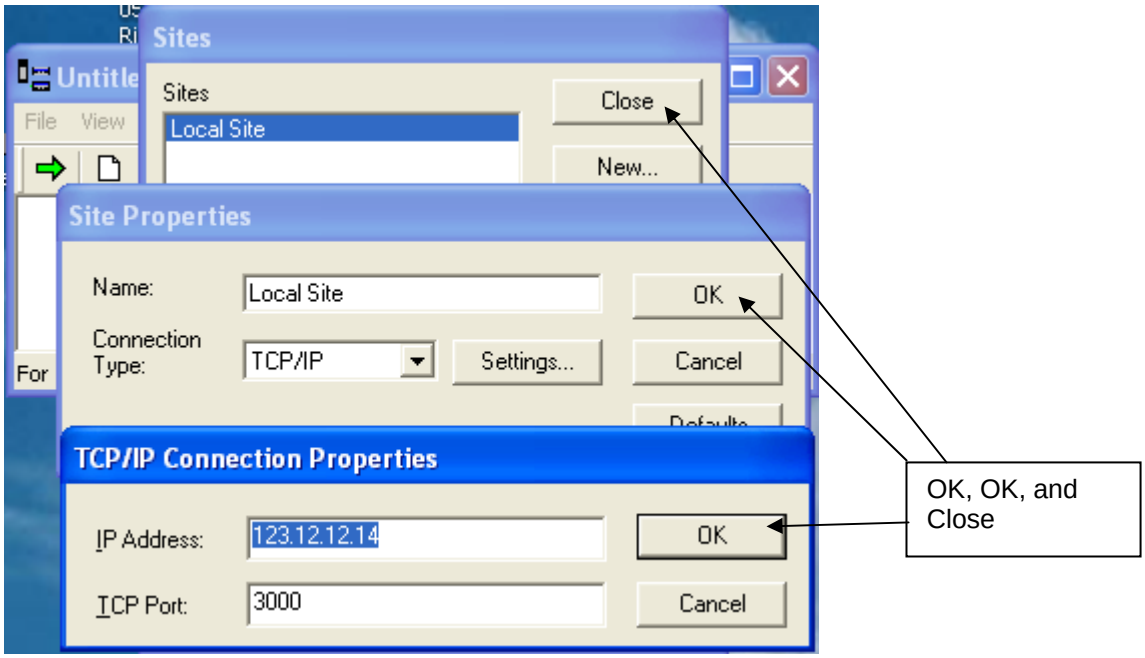
11. Setup of site for TCP/IP (Ethernet). In the New Site Properties window, select **TCP/IP** in the connection dropdown, then select **Settings**.



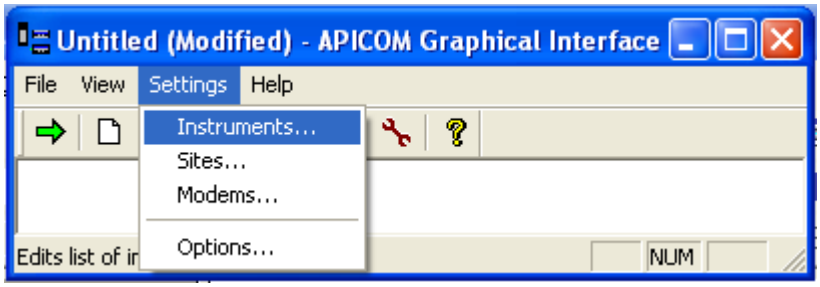
12. **Type the IP address** of the instrument (example **123.12.12.14**) and type **3000** for the TCP port. Select **OK**.
    a. Refer to Service Note 05-006 or 05-007 for the method of finding / setting IP Addresses.



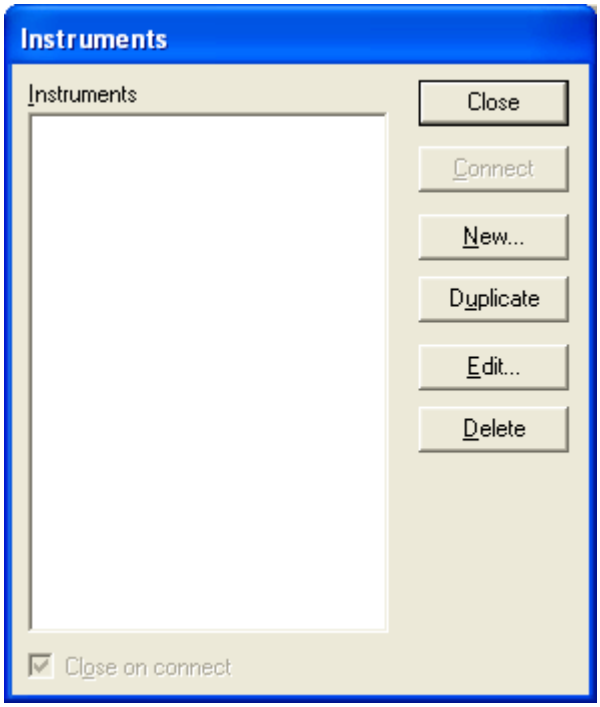
13. Select **OK, OK, and Close** to exit to the main menu. The Ethernet TCP/IP site setup is complete.



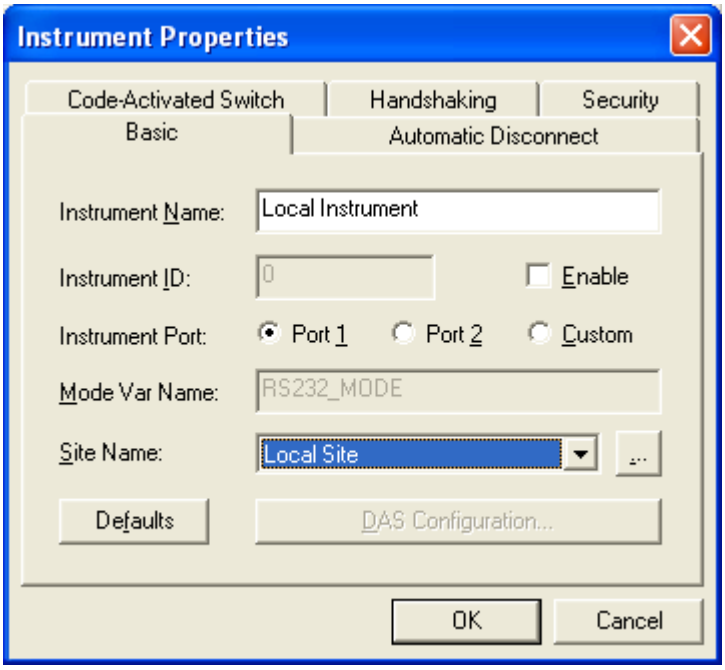
14. Select **Settings**, **Instruments**.



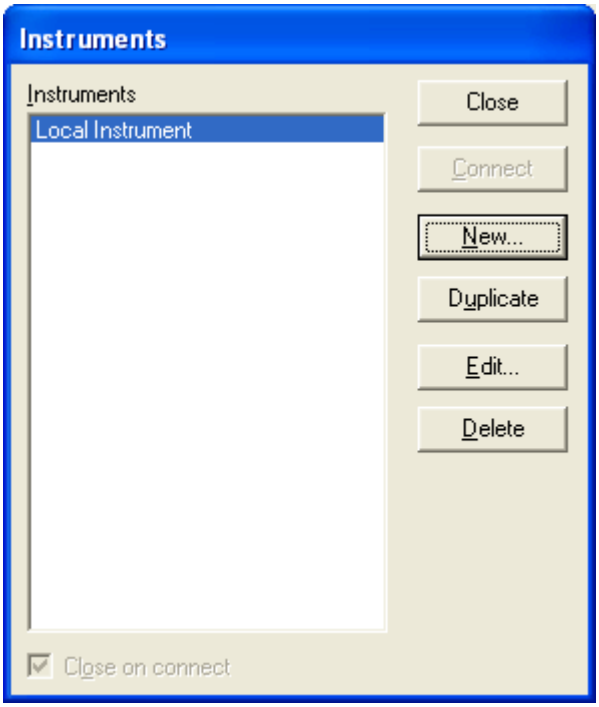
15. Select **New**.



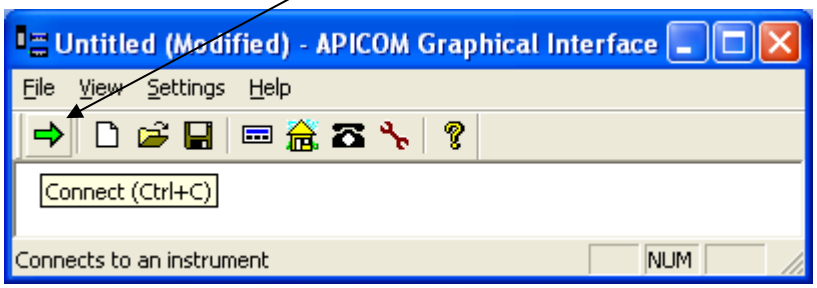
16. Select the **dropdown arrow** in the Site Name field and select the “Site” you created in previous steps, (in this case “**Local Site**”). Instrument Name field may remain default as “Local Instrument” or if desired, type a name for the instrument such as “M400E” into the Instrument name field. Now select **OK**.



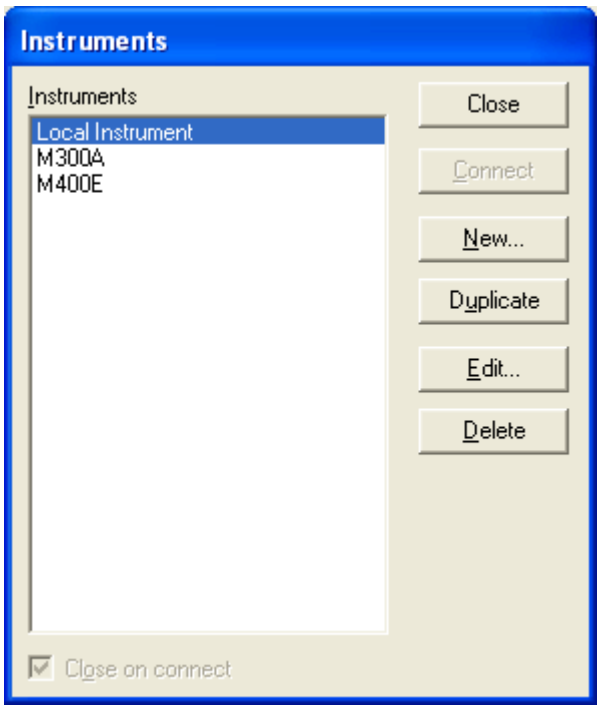
17. Select **Close,** or add **new** instruments as desired.



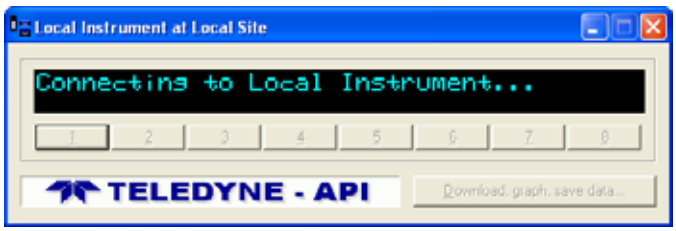
18. Select the green "**Connect**" **arrow**.

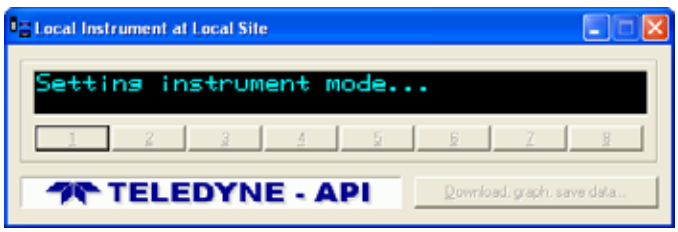


19. Select the desired instrument, in this case "**Local Instrument**" Select **Connect.**

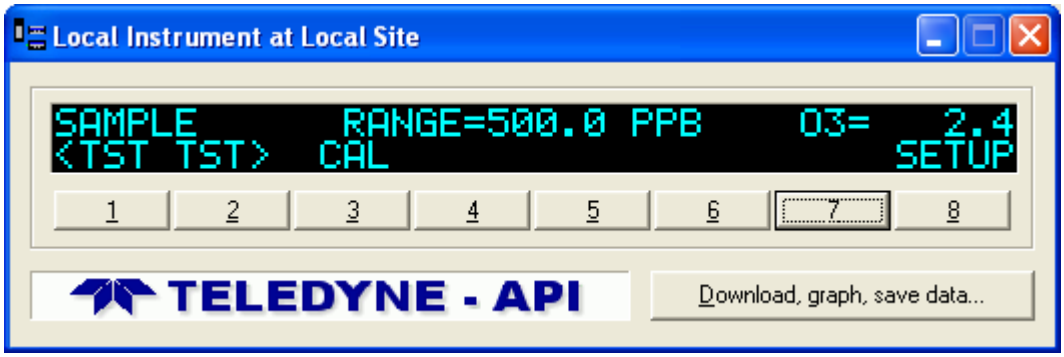


20. The following screens may appear as the computer connects to the analyzer.

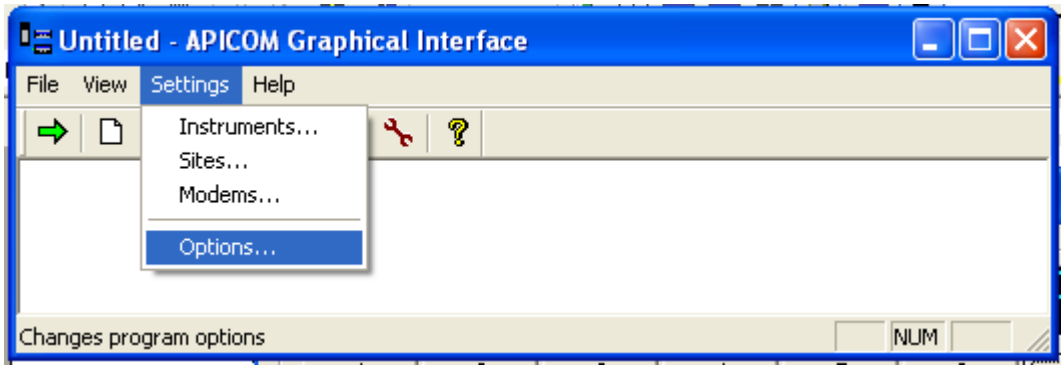




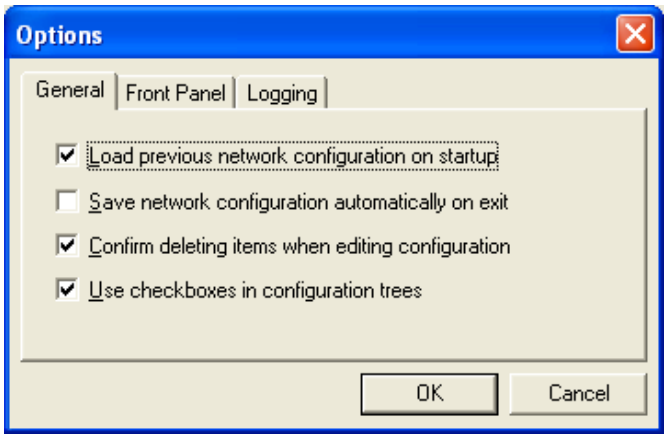
21. You are now connected to the instrument and can use the computer mouse to press the buttons just as you would press them while in front of the analyzer.



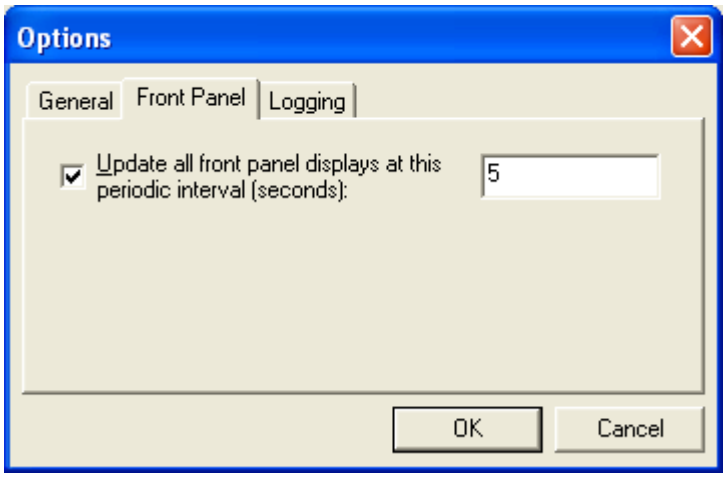
22. Turn on analyzer front panel updating to the computer (so the computer is constantly updated by the instrument), by pressing **Settings** and selecting **Options**.



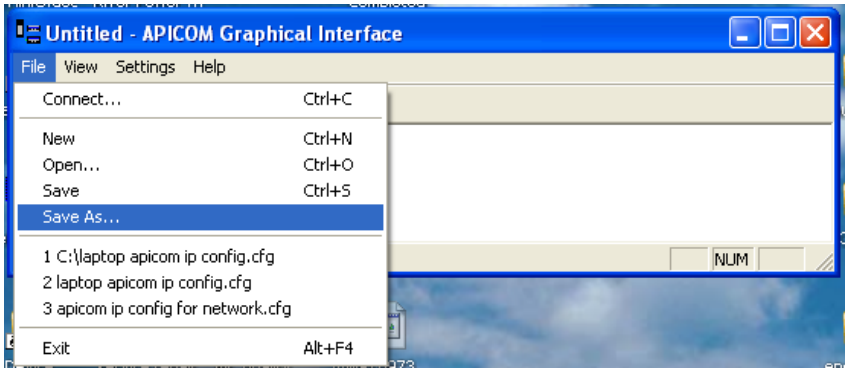
23. On the Options screen, select the second tab called "**Front Panel**".



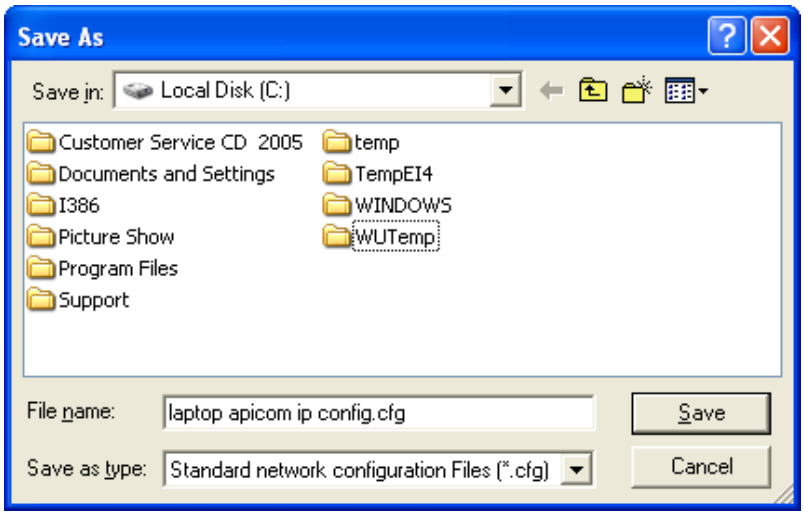
24. On the Front panel screen, select the **Update checkbox** and **type 5** for the desired interval of updating (minimum is 5 seconds). Select **OK** and now the computer screen will get updated every 5 seconds.



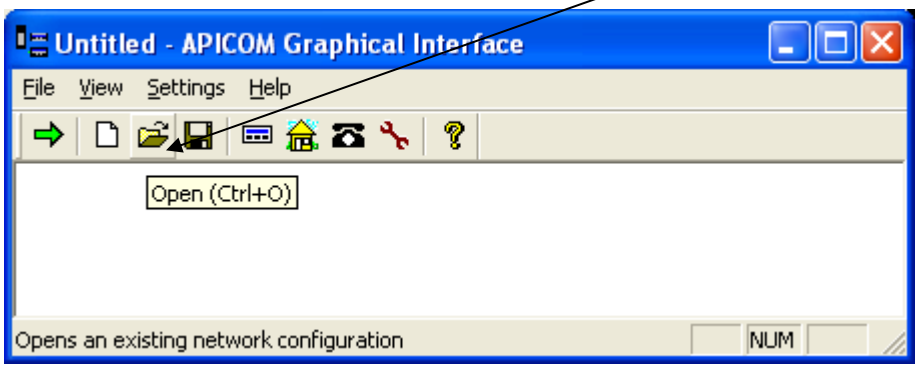
25. If desired, this setup configuration can be saved and recalled (used again without selecting all of the parameters again). To save the configuration, press **File** and select **Save As**.



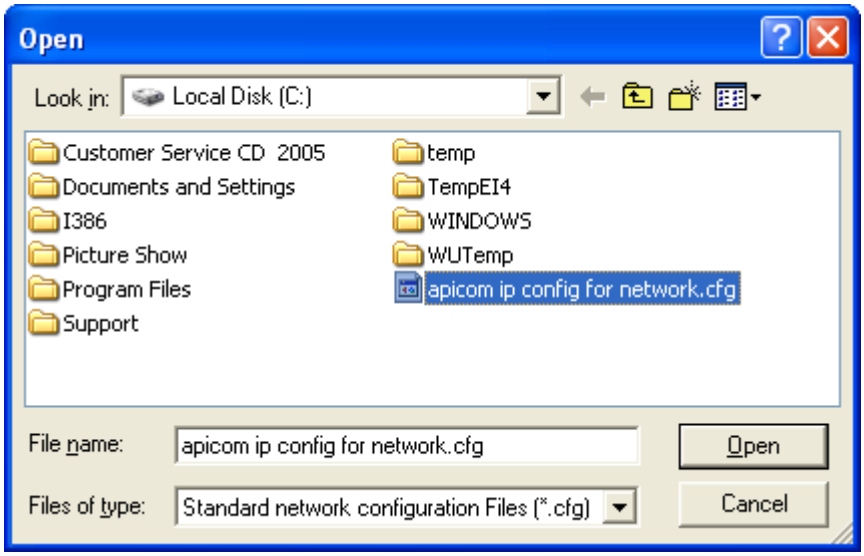
26. **Type** a name in the File Name field such as "**laptop apicom ip config**" and select **Save**.



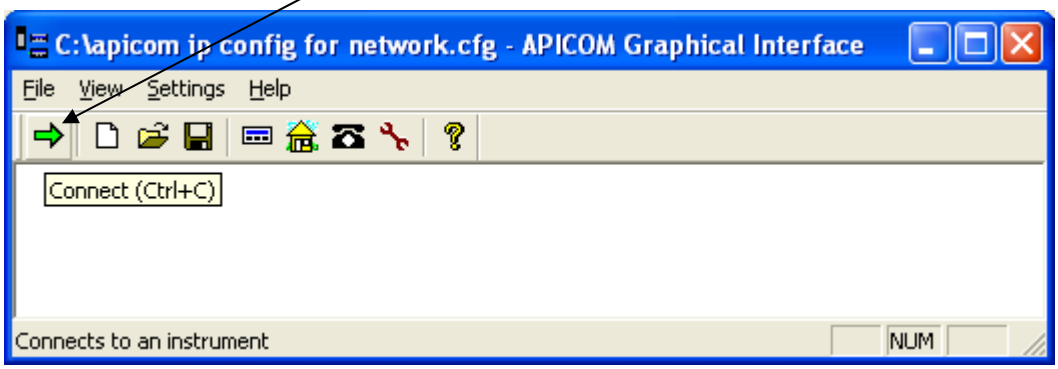
27. (The next 2 steps are only required if loading a new / different configuration). If you want to recall a saved configuration, press the **Open File** icon, otherwise skip to step 29.



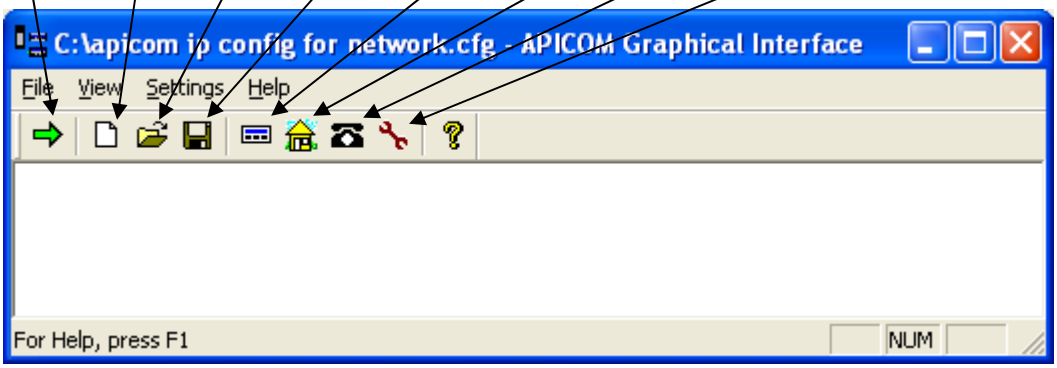
28. Select the desired configuration file and select **Open**.



29. Now select the "**connect**" icon for easy connection again.



30. For easier navigation of the setup tools, use the icons on the menu bar: Connect, new file, open file, save, instruments, sites, modems, options

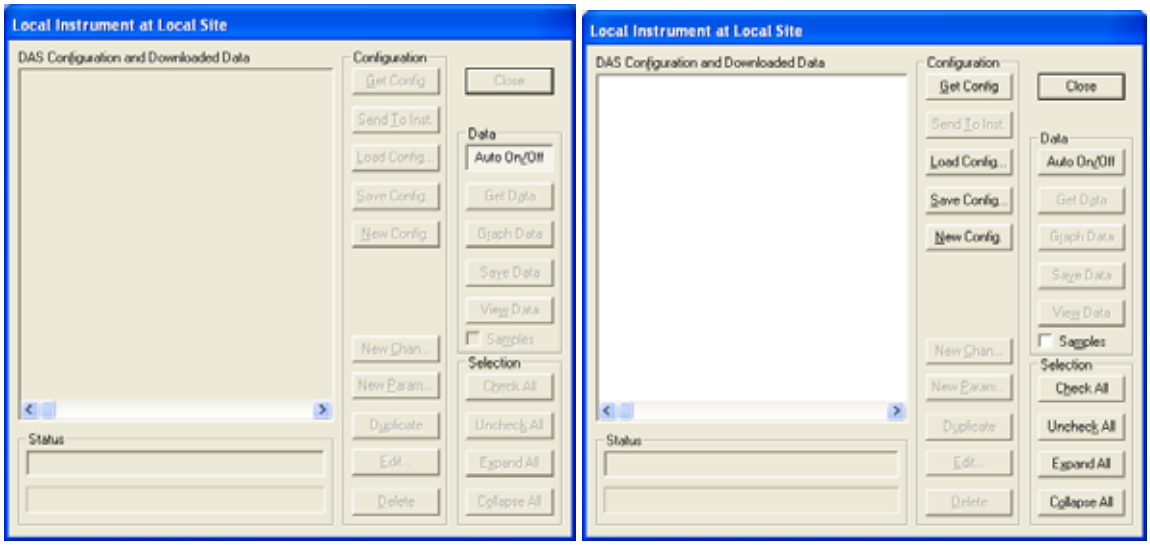


At the end of this document is a **short Quick Reference Checklist for APICOM,** as well as another **short Quick Reference Checklist for IDAS Setup**.

Setup of IDAS (Internal Data Acquisition System) through APICOM

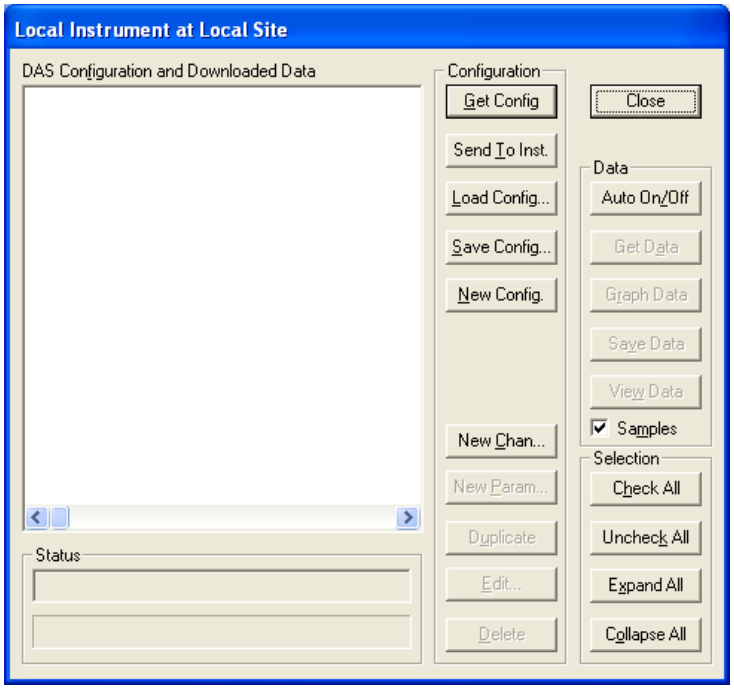
1. For this example we will set up a configuration to help troubleshoot the analyzer.
   a. Select the **Download, graph, save data**… button.
   b. These actions will delete all data that have been collected by the IDAS, if you wish to keep / save this data, download it first by following steps: 2, 3, and 15-20….

2. If the screen is "grayed out", Select Data **Auto On/Off** to get the screen active. Select **Get Config**.

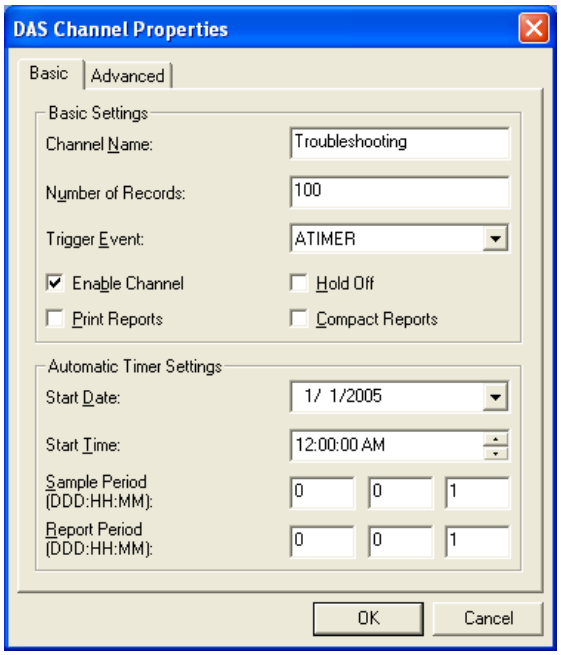


3. Getting configuration from instrument. If saving data go to step 15.

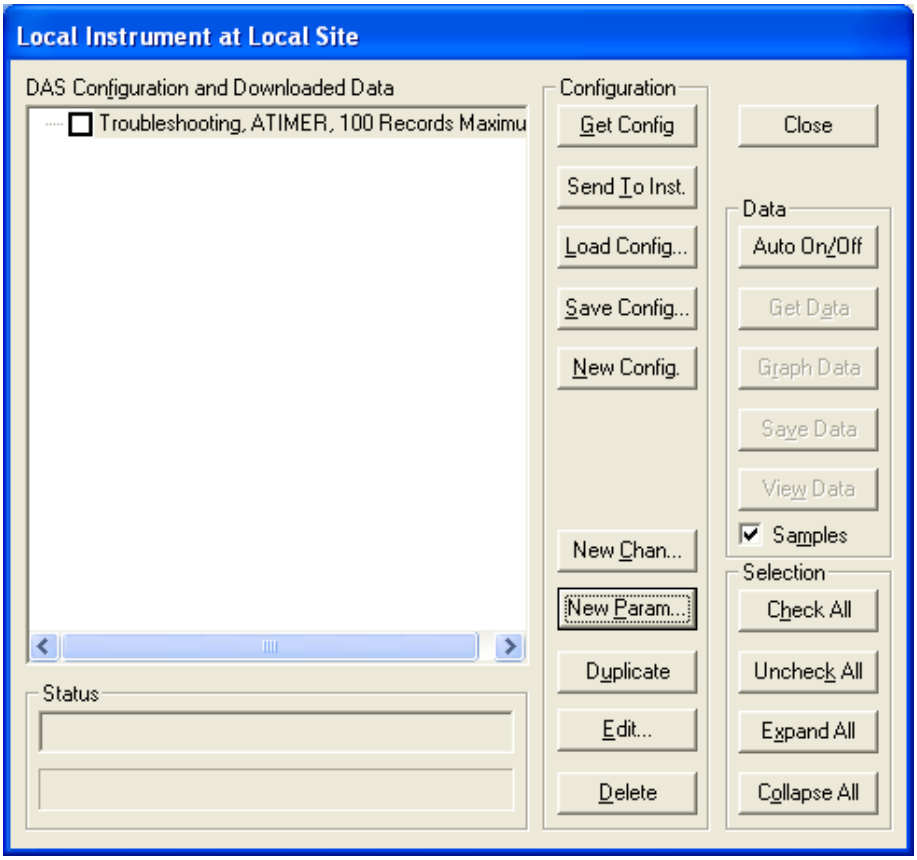
4. This instrument had a blank config, select New Channel (**New Chan**…) (select New Chan even if there are some configurations already in the instrument.)



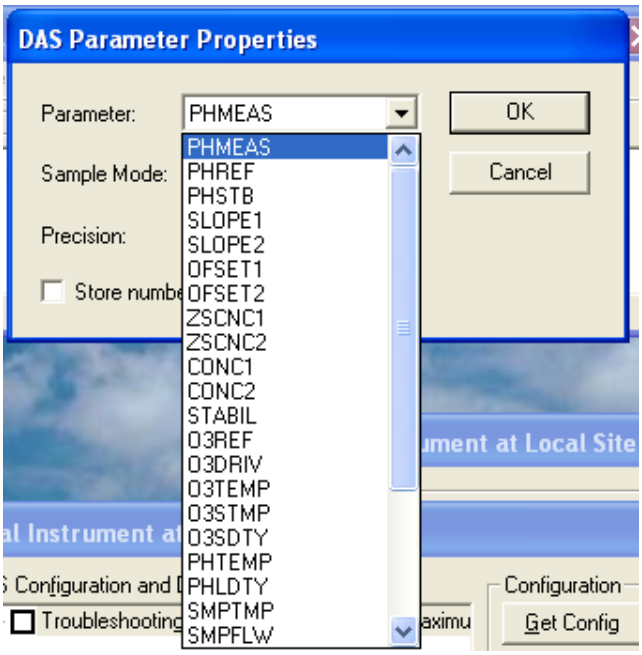
5. Type a Channel name (example "**Troubleshooting**"), type the sample period to **1** (if not already 1) and type the report period to **1**, and select **OK**.
    a. If Number of Records is 100 and Sample Period is 1 minute, then 100 minutes of data will be stored. Change Number of Records to a higher value for more run time.
    b. Usually for troubleshooting use the shortest sample time, which is every 1 minute.
    c. Sample, report, and download periods use Julian date format.



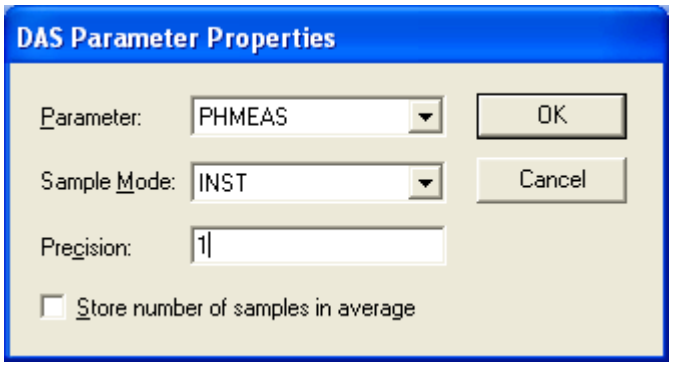
6. Click to highlight the desired channel if several channels are present. Select New Parameter (**New Param**…),



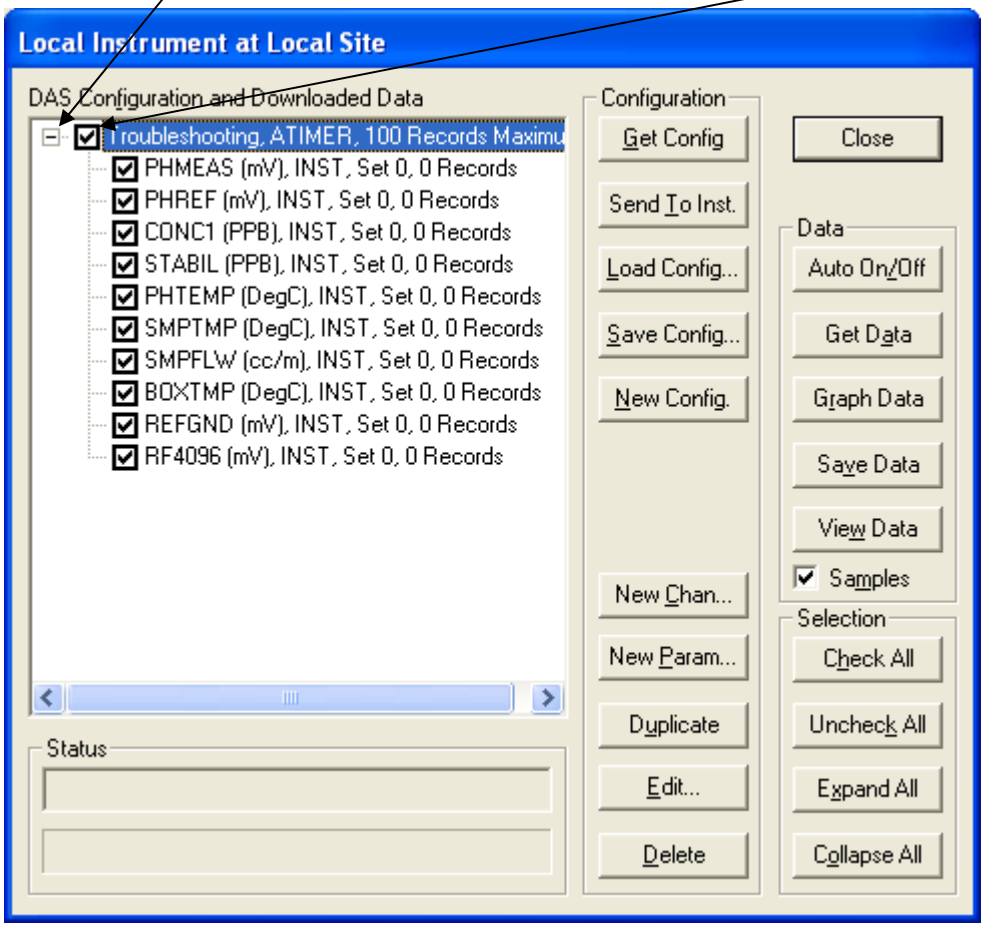
7. Use **Parameter dropdown** to select desired measurement parameter (example **PHMEAS**).



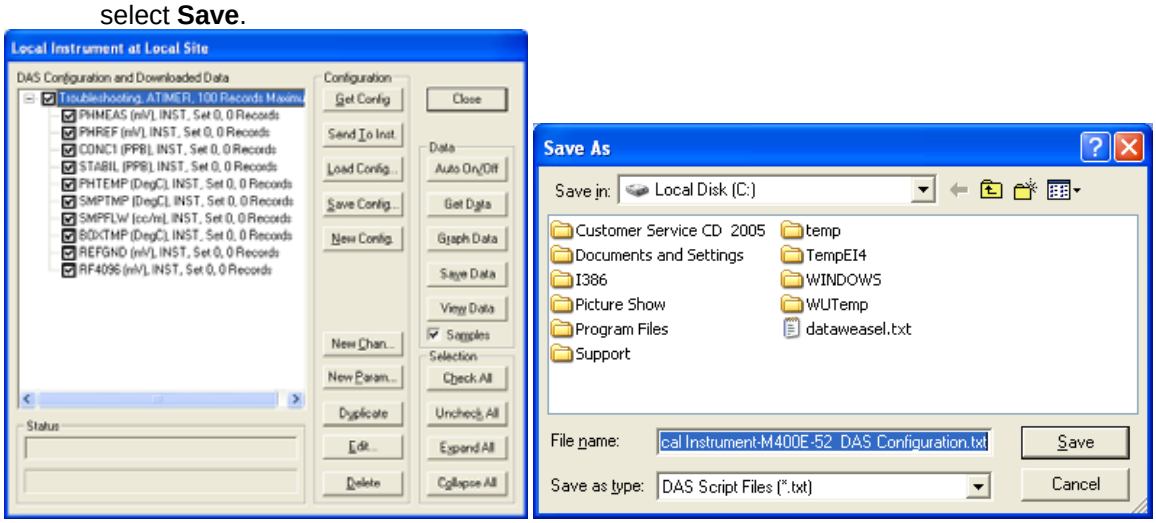
8. Usually the Sample Mode will remain at Inst (instantaneous) for troubleshooting purposes; Precision selection will select the number of decimal places for the measurements (example **1**= 4500.1), Select **OK**.



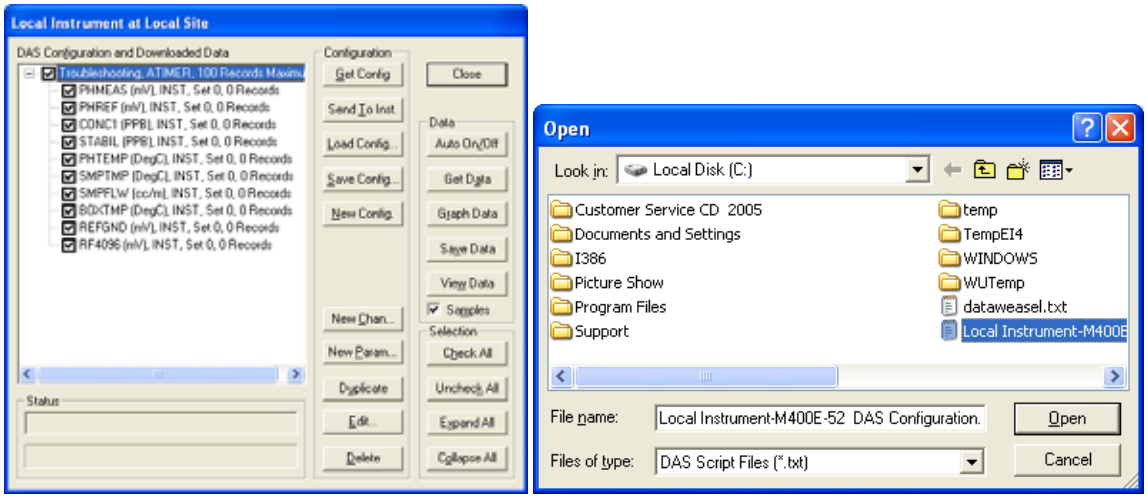
9. Press the "**+**" box next to "Troubleshooting" to see all of the parameters being sampled in this configuration. Select **New Param** to add more parameters. Select the "**check box**" next to "Troubleshooting" to select all parameters.



10. Select **Save Config**…, use the default name if desired, choose the location desired, and select **Save**.

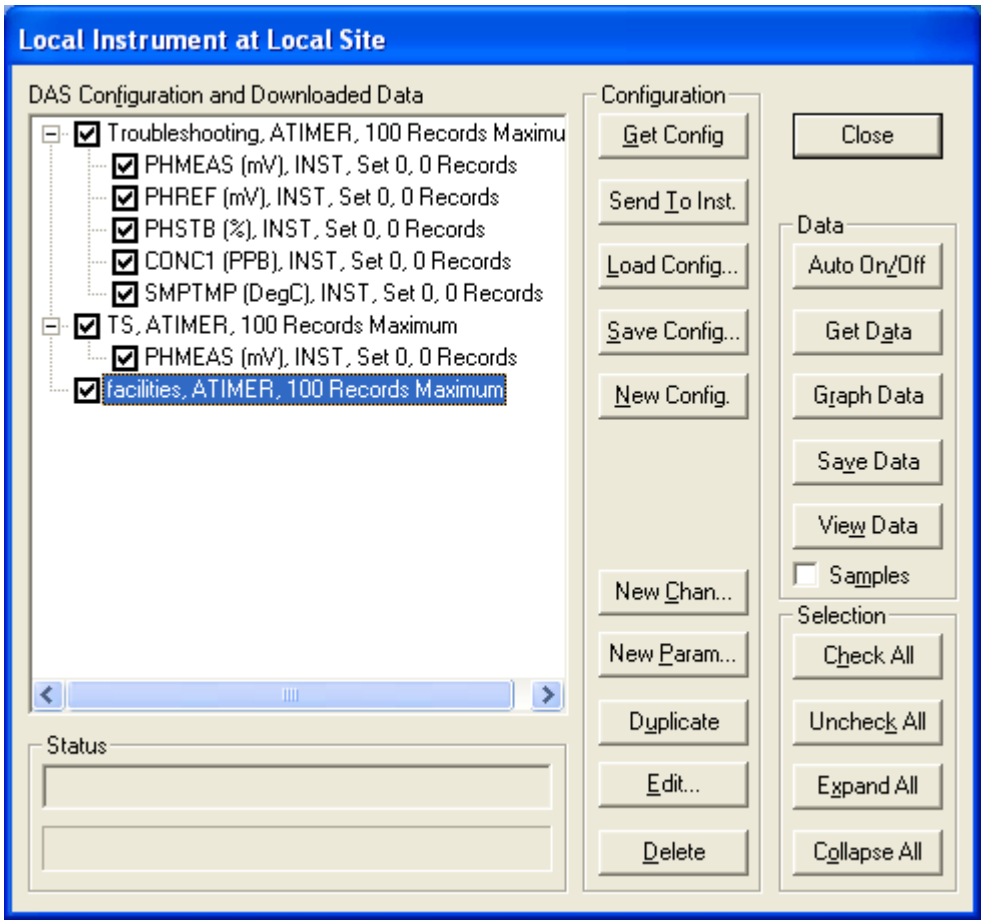


11. (This step is only required if loading a new / different configuration), if recalling the saved configuration, select **Load Config..**, select the desired config file (the one that you just created), and select **Open.**

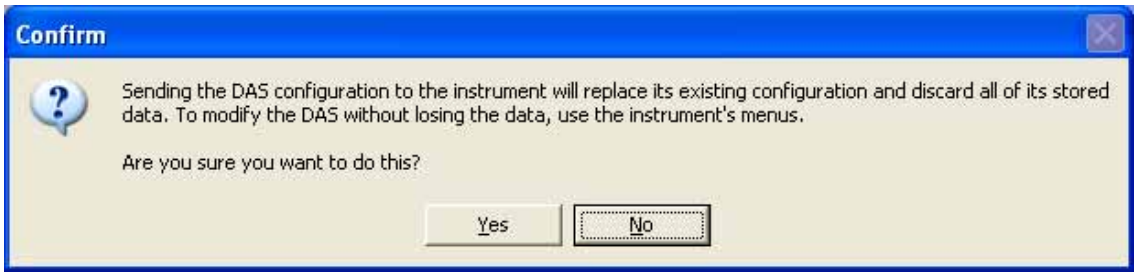


WARNING: If you haven't already pressed "Get Config" and other channels exist in the instrument, the next action will delete the existing configuration, all channels, and all data, and replace it with this new configuration. If you have retrieved the configuration from the instrument (Get Config..), it is safe to load the entire new configuration without erasing the previous configurations / channels; however all data will be lost.

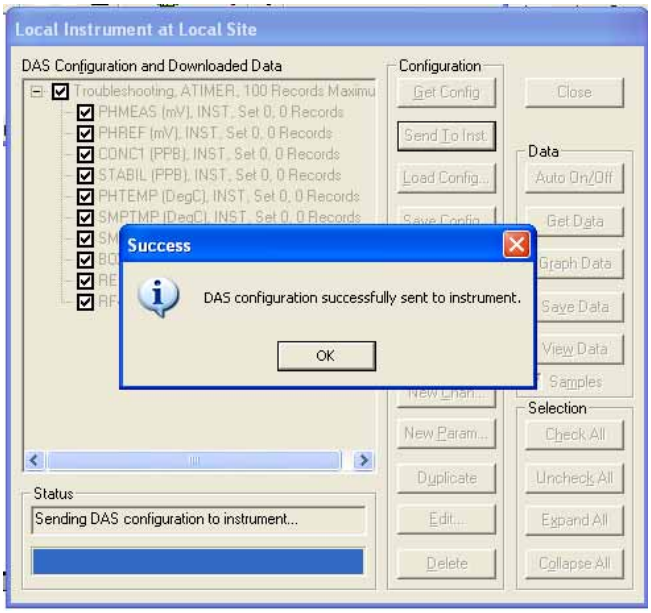
12. Select **Send To Inst** so the instrument will now use this file to start loading measurements into the IDAS.



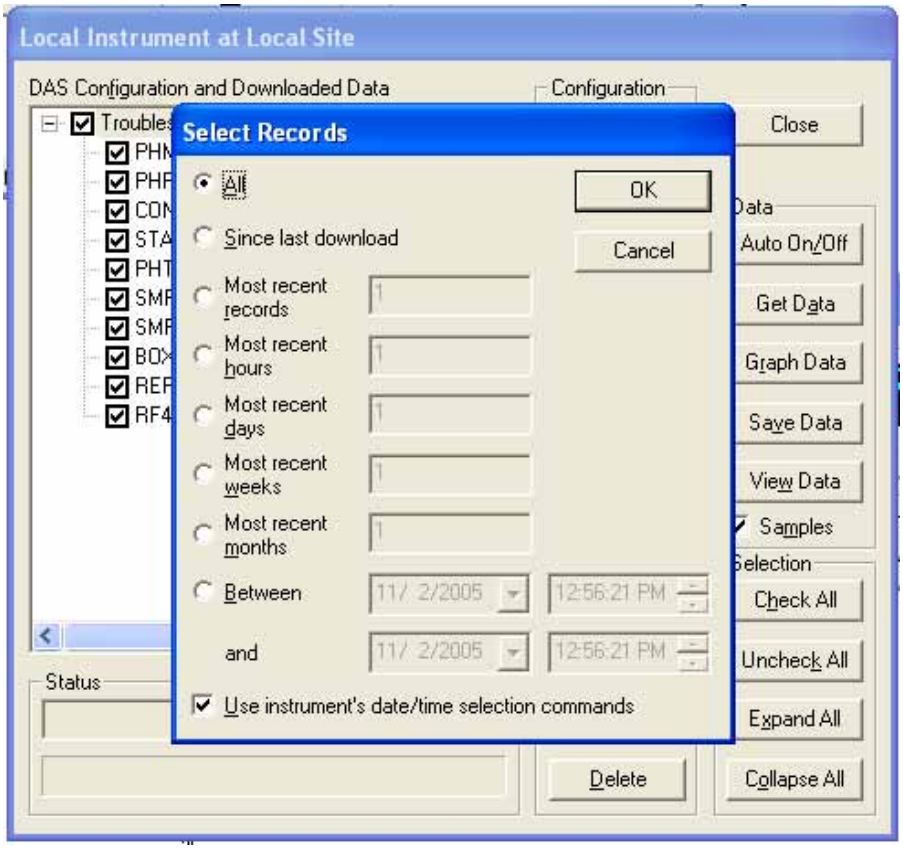
13. Select **Yes** to the confirmation warning if you wish to discard all data and existing configuration.



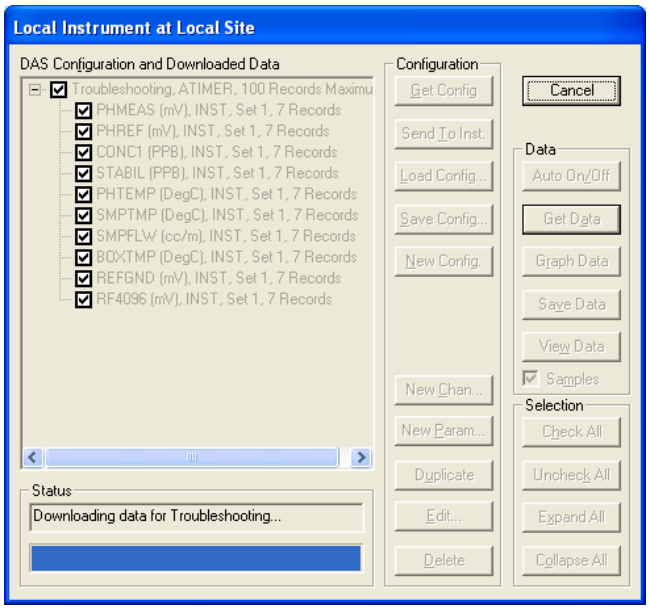
14. The new configuration has been sent to the instrument so it will start feeding measurements to the IDAS. Select **OK**.



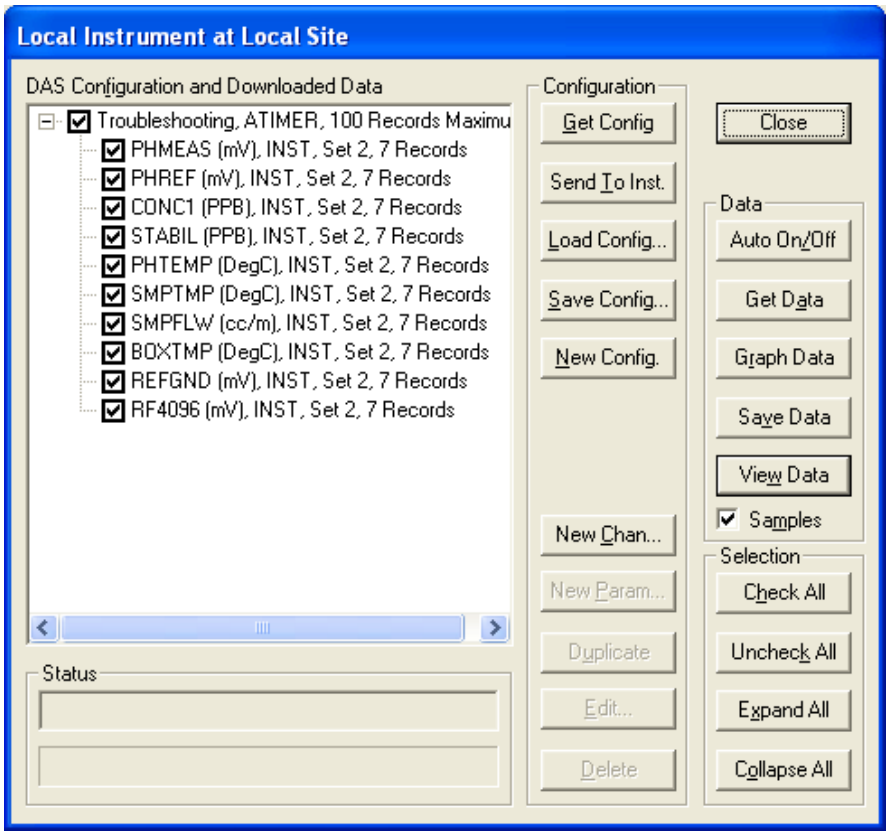
15. After at least 2 minutes, check that the data is being streamed into the IDAS by selecting **Get Data**, and select the # of records (usually "**All**"), then select **OK**.



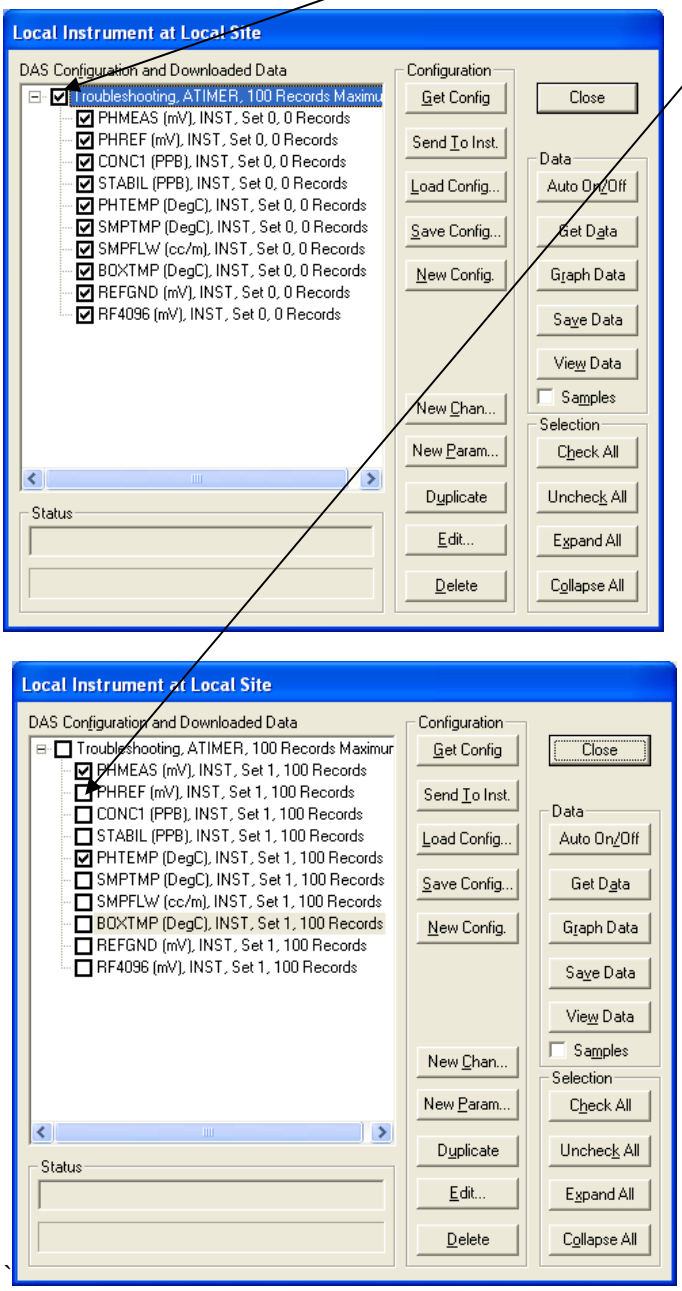
16. Downloading data from the instrument to the computer.



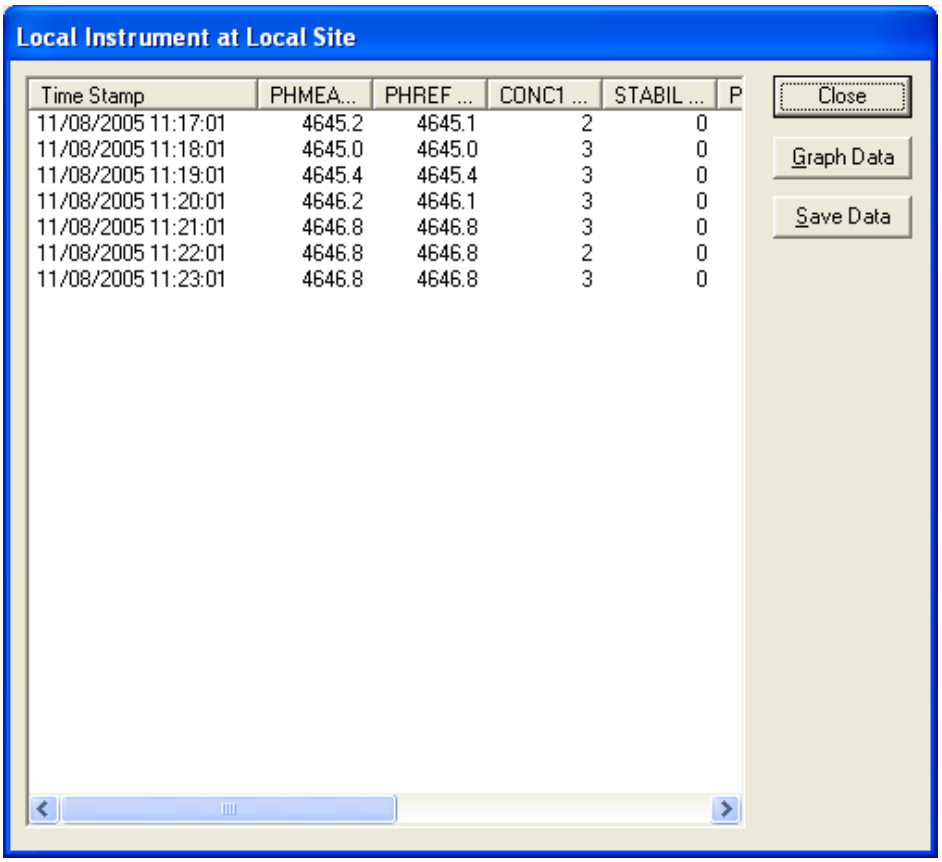
17. The data records are have now been copied from the analyzer to the computer and are available for viewing / saving.



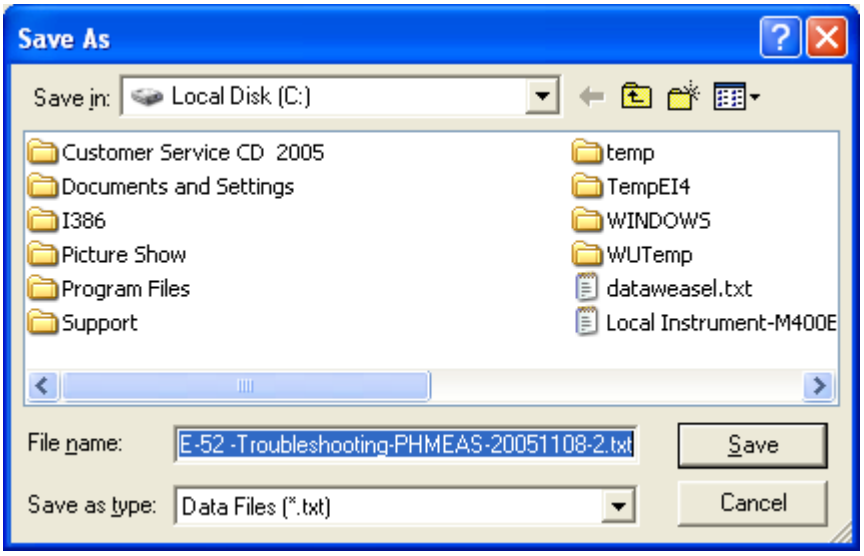
18. Select the **main "troubleshooting" check box** for all of the parameters to be selected, **or** you may choose to not view or graph all of the data by **deselecting** some check boxes. Now select **View Data**.



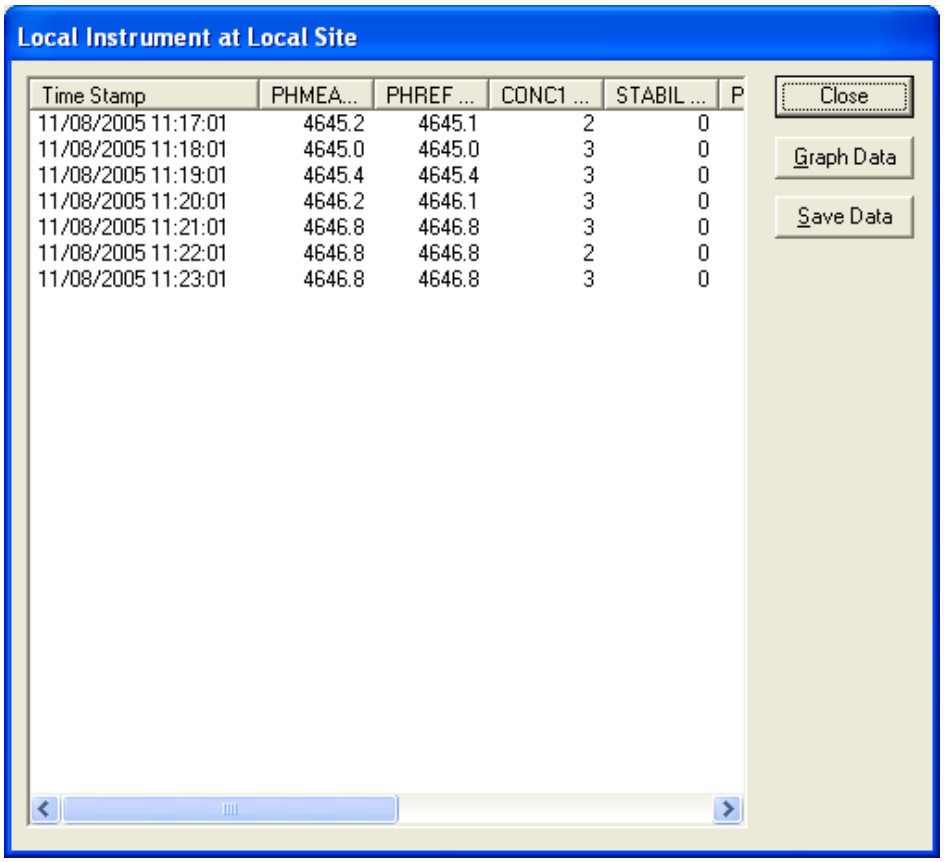
19. To save this data into a text file, select **Save Data**.



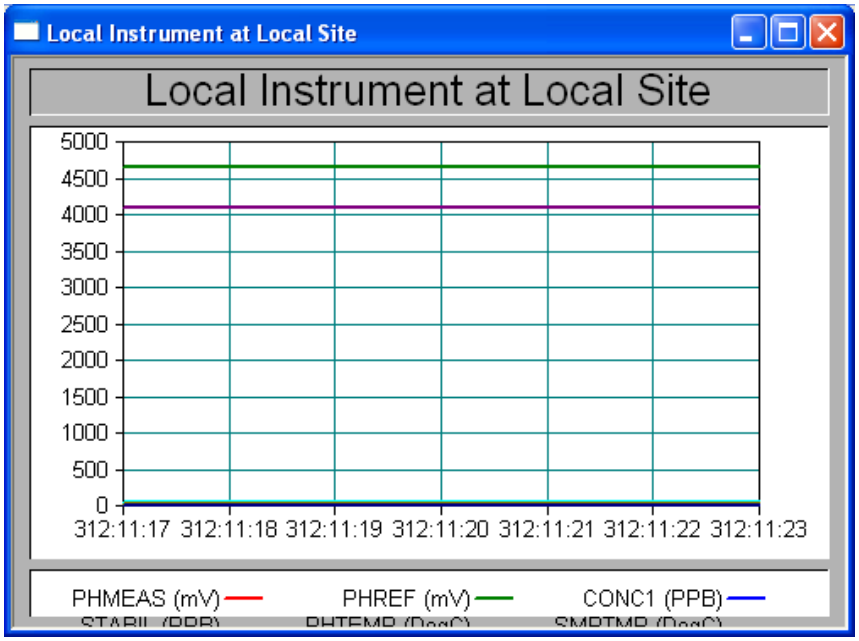
20. Use the default name if desired and select **Save**. If you are starting a new configuration, go back to step 4.



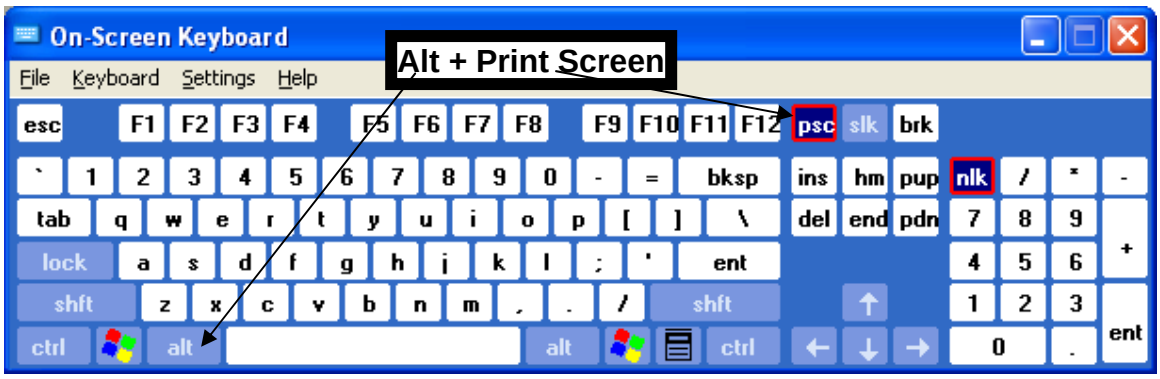
21. You may view a chart of the data, press **Graph Data**.



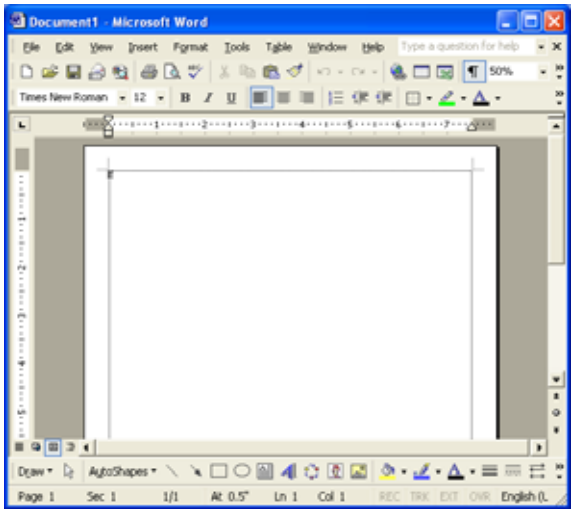
22. You may save this chart graphically by following the steps below.

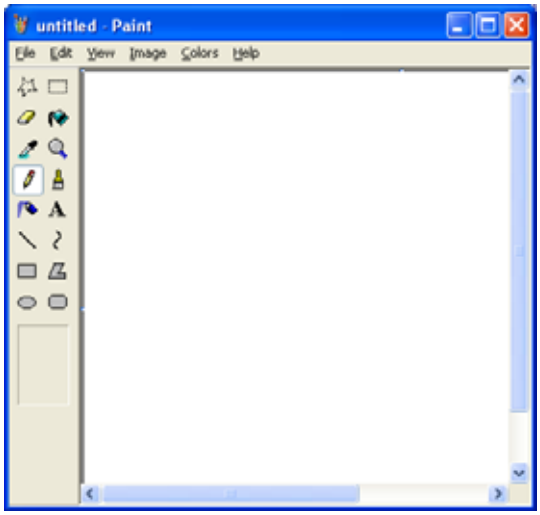


23. To save the graphic to a file, press and hold the "**Alt**" key on your computer keyboard, then press the "**Print Screen / SysRq**" key on the computer keyboard, then release (**Alt + Print Screen**). NOTE: The screen MUST be active (selected) that you are copying – to make sure that it is active –click your mouse cursor inside of the screen before pressing Alt + Print Screen. Now you will need to open a program such as Microsoft Paint, Microsoft Word, Excel, or PowerPoint.

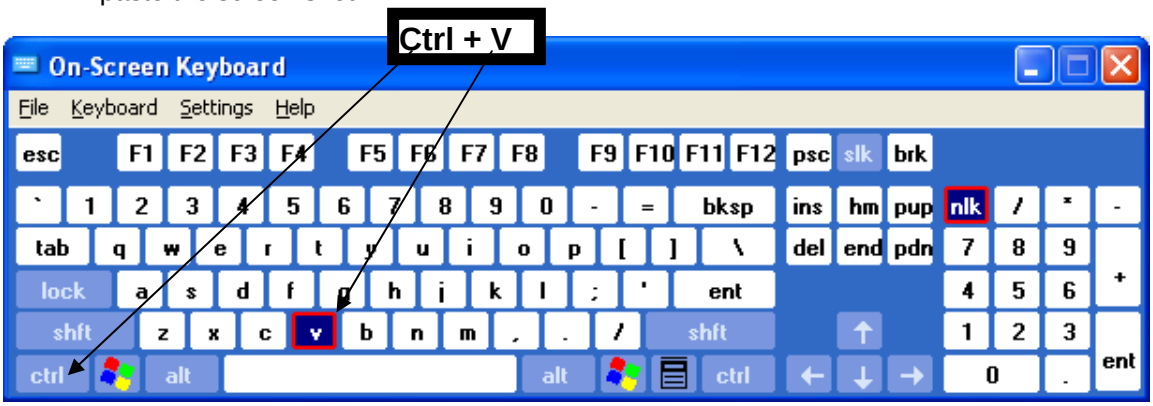


24. **Open Word, Paint, Excel, or PowerPoint**.

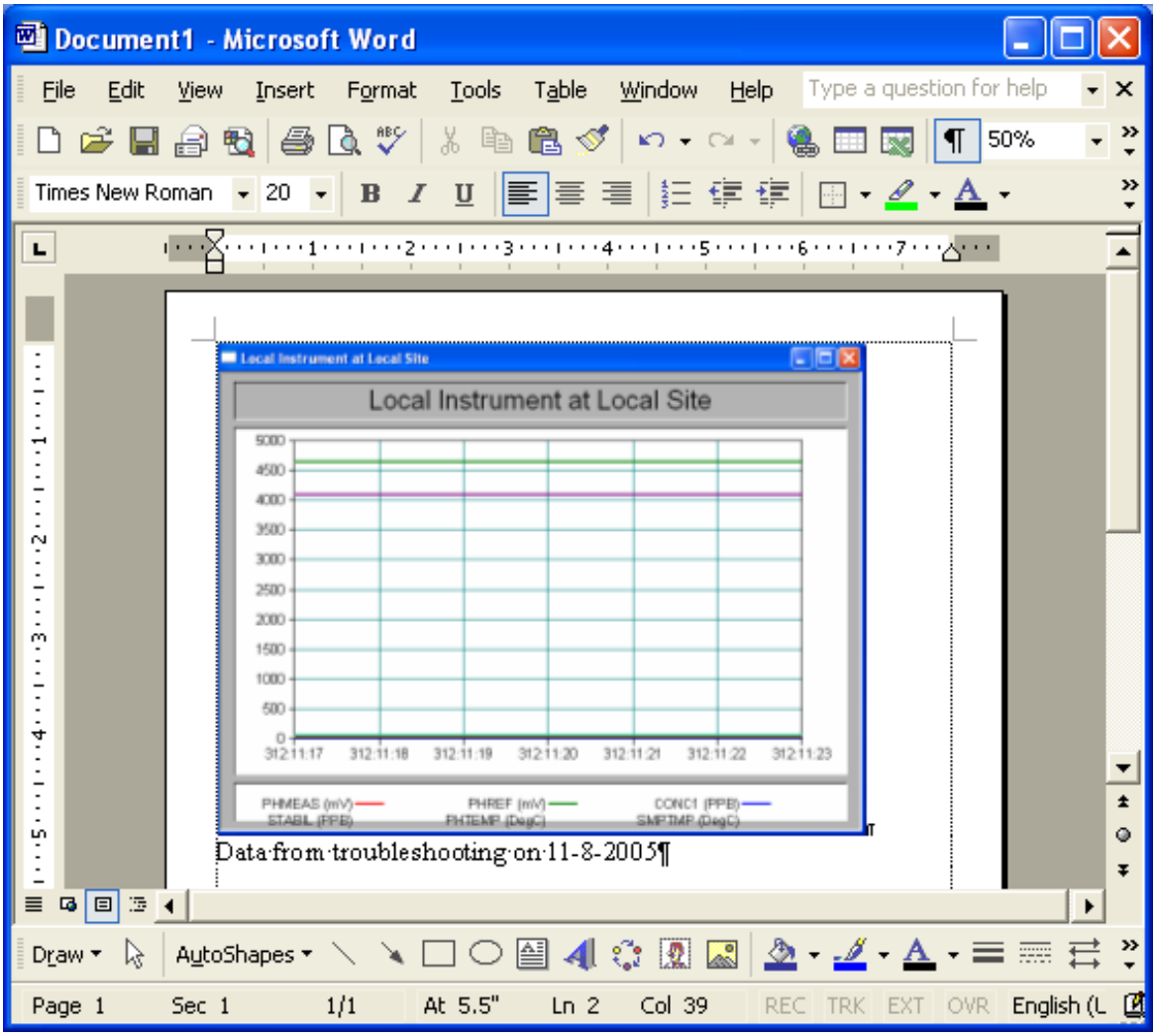




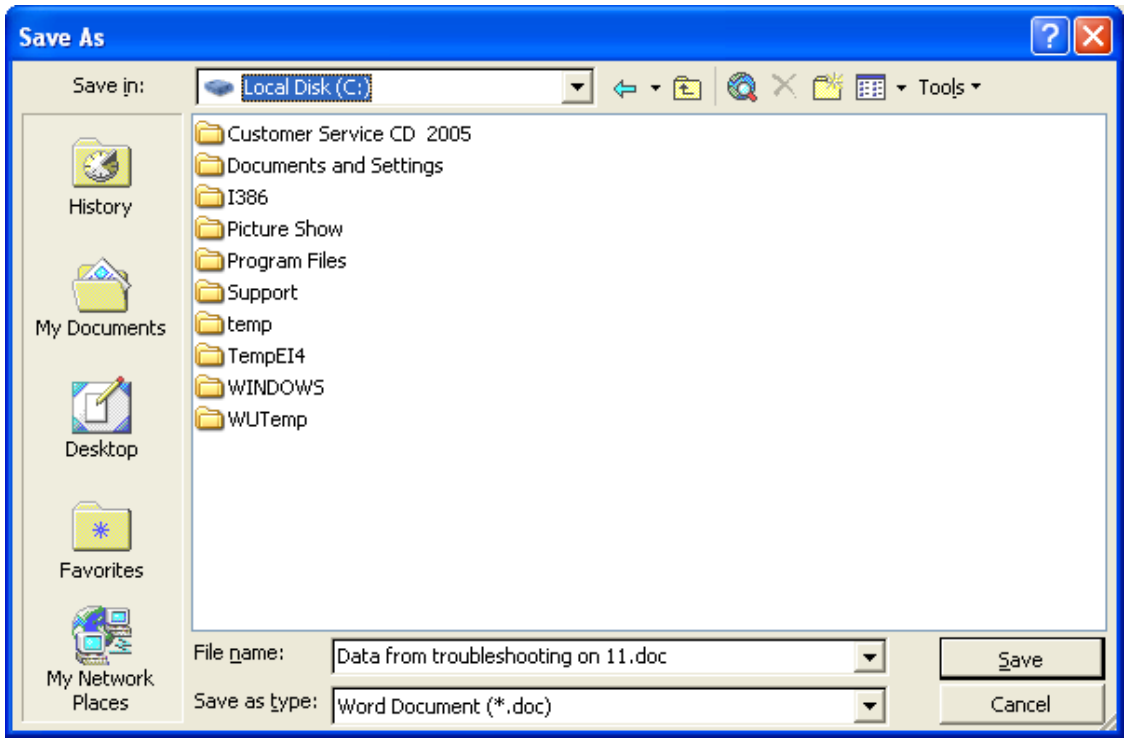
25. Press the "**Ctrl**" and "**V**" keys (**Ctrl + V**) on the computer keyboard simultaneously to paste the screen shot.



26. You may also write other information into the file before saving it (like "**Data from 11-08-2005**").

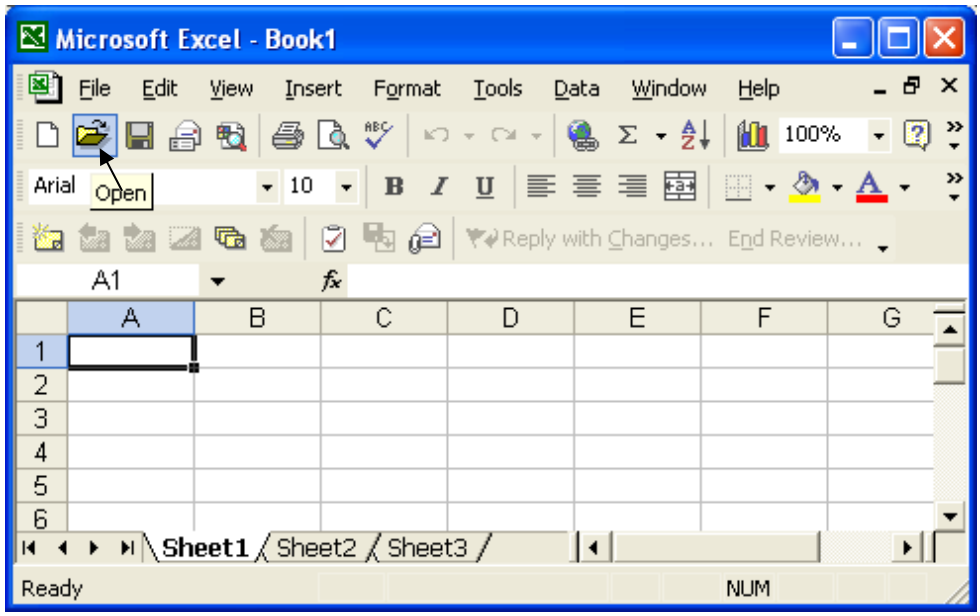


27. Select **File / Save As**, choose a location and filename and select **Save**.

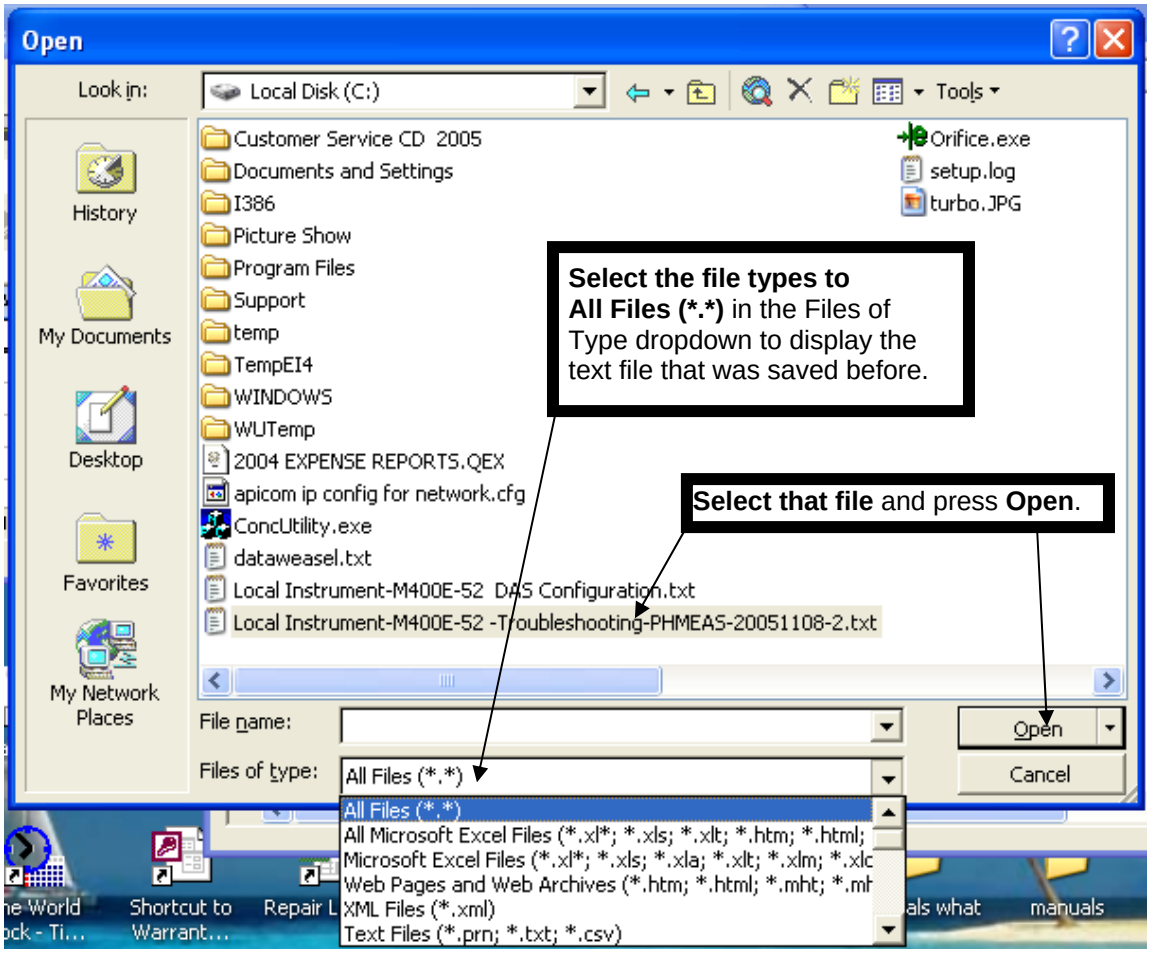


NOTE: The following procedure for data charting may require an advanced Microsoft Excel user.

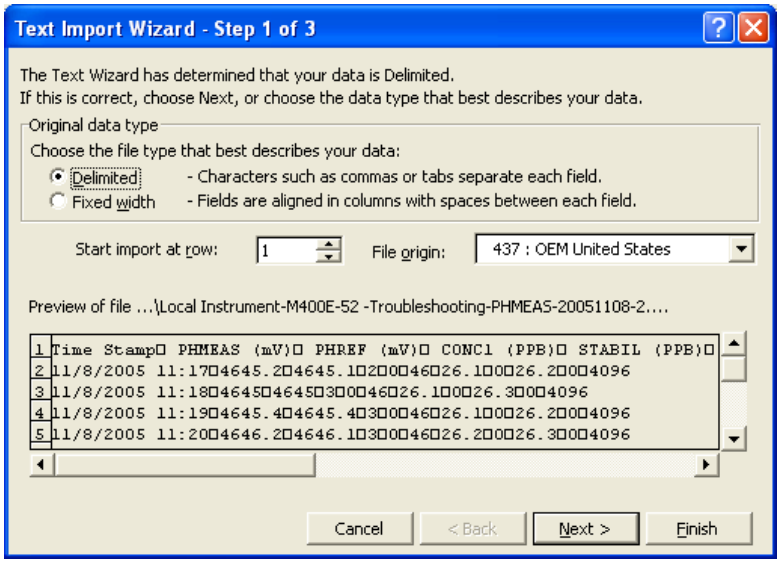
28. You may also open up the saved text file and manipulate the data using a program like Microsoft Excel.
    d. **Open Excel** program and select **File / Open**.



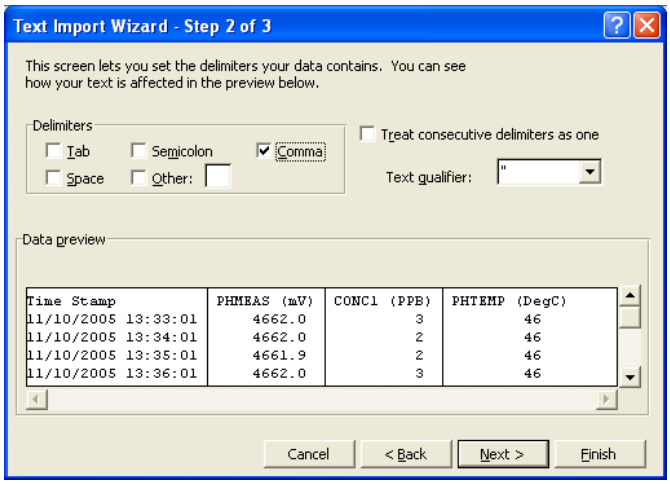
29. You may have to **select the file types to All Files (*.*)** in the Files of Type dropdown to display the text file that was saved before. **Select that file** and press **Open**.



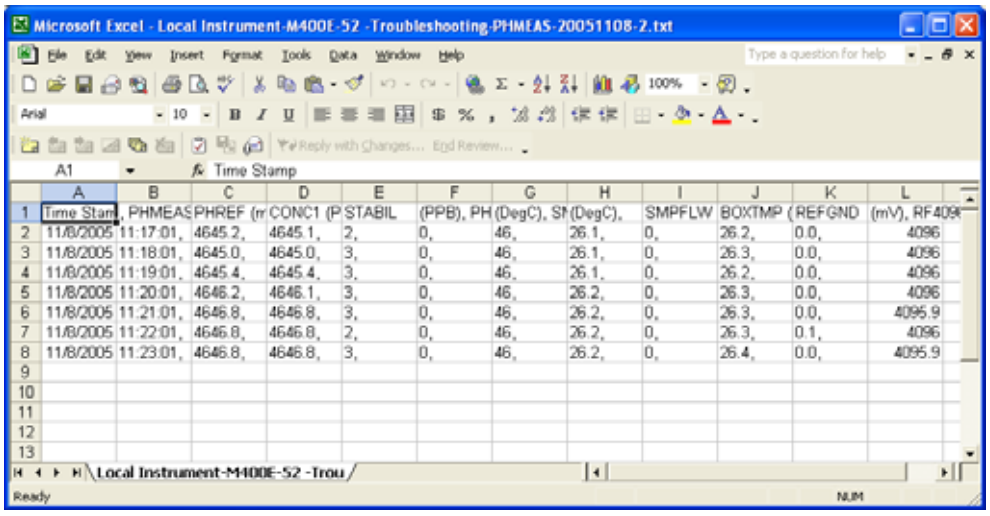
30. Select **Delimited**, then **Next**.



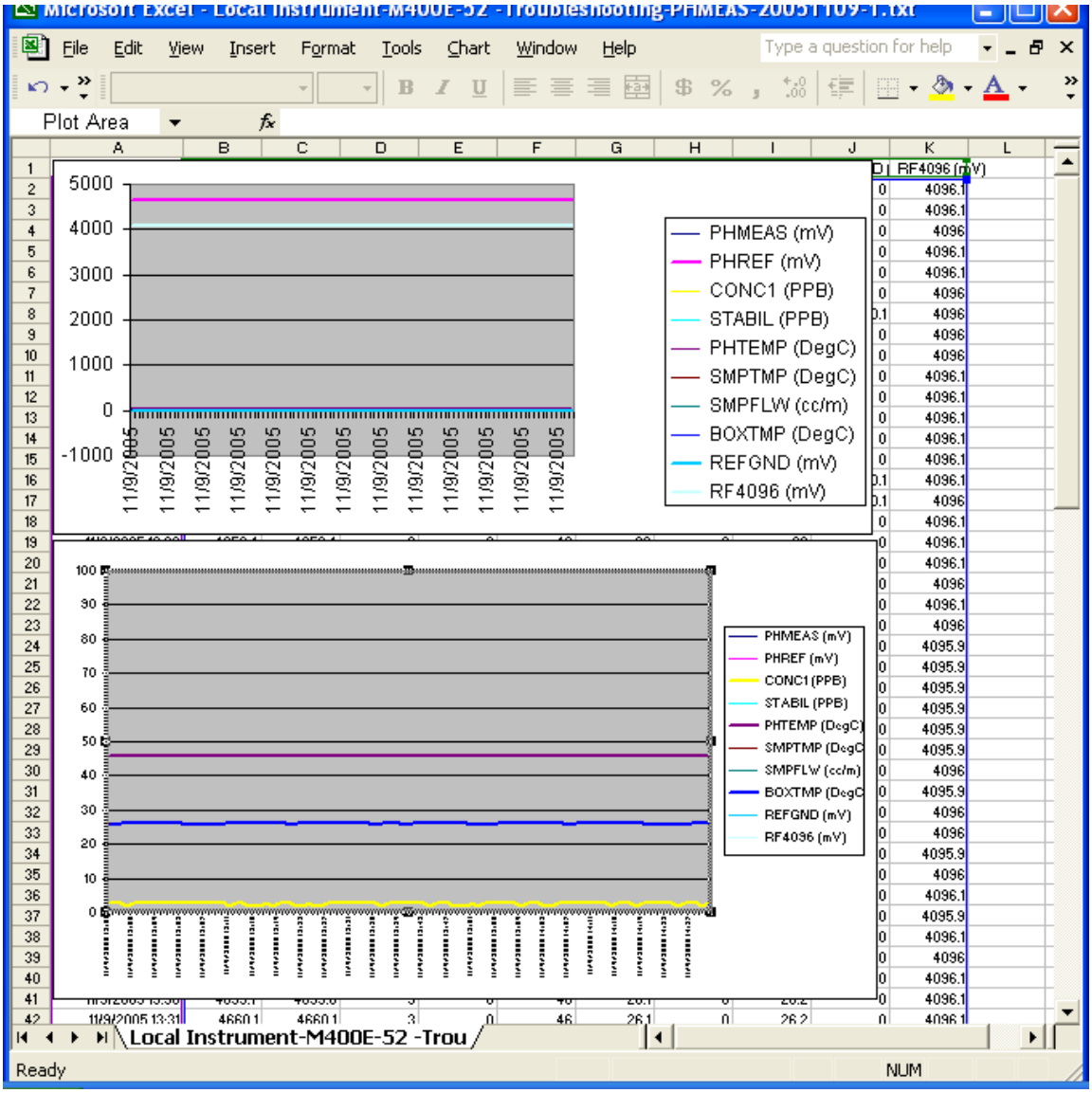
31. Select **Comma** check box, then press **Finish**.



32. Now the data may be manipulated and charted, contact an advanced Excel user for assistance.



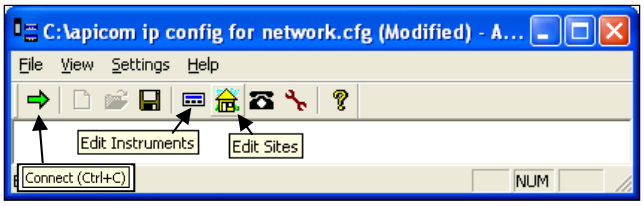
33. Example of charting with Excel.



Following this page is a **1 page Quick Reference Checklist for API Com**
As well as a **1 page Quick Reference Checklist for IDAS Setup**.

Quick Reference Checklist for APICOM

1. **Install APICOM or copy the APICOM.EXE** file to the computer that is connecting to the Teledyne API instrument.
2. Connect the instrument to the computer with the desired cables. If connecting with Ethernet, refer to service notes 05-006 or 05-007. If connecting direct refer to service notes 95-001, 98-049. If connecting with a phone line modem refer to service notes 98-020, 98-023, 98-030, 98-033, 98-034, 98-049.



3. Ensure that no other communications programs are open from the computer to the analyzer that would use the computer comm port. – such as HyperTerminal**. Open (execute) the APICOM interface program** (APICOM.EXE).

SITE SETUP

4. Press the **Edit Sites** icon. Follow steps 5 – 9 for **Direct Cable setup**, or steps 10 – 12 for **TCP/IP Setup**.

DIRECT CABLE SETUP

5. Setup for Direct cable, Select **New**, On **Connection Type dropdown**, select (for this example) **Direct Cable**, and select **Settings**.
6. Select the com port that is being used (example **COM1**), and select **Settings**.
7. Select the baud rate of the instrument,
   a. Check baud rate on "E" series instrument by pressing **SETUP** – **MORE** – **COMM** – **COM1** – **SET** to view the COM1 BAUD RATE.
   b. Check the baud rate of the "A" series instrument by pressing **SETUP – MORE – COMM** – **BAUD** to view the COM BAUD RATE.
8. Then select that rate in the **Bits per second dropdown** menu on the computer (example **19200**). Ensure data bits = **8**, Parity = **none**, stop bits = **1**, and Flow control = **none**.
9. Now press **OK, OK, OK, and Close** for the next windows to get back to the main screen, setup for the direct cable site is complete.

TCP/IP SETUP

10. Setup of site for TCP/IP (Ethernet). In the New Site Properties window, select **TCP/IP** in the connection dropdown, then select **Settings**.
11. **Type the IP address** of the instrument (example **123.12.12.14**) and type **3000** for the TCP port. Select **OK**.
    a. Refer to Service Note 05-006 or 05-007 for the method of finding / setting IP Addresses.
12. Select **OK, OK, and Close** to exit to the main menu. The Ethernet TCP/IP site setup is complete.

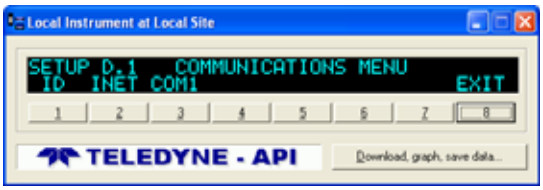
INSTRUMENT SETUP

13. Press the **Edit Instruments** icon. Select **New**.
14. Select the **dropdown arrow** in the Site Name field and select the "Site" you created in previous steps, (in this case "**Local Site**"). Instrument Name field may remain default as "Local Instrument" or if desired, type a name for the instrument such as "M400E" into the Instrument name field. Now select **OK**.
15. Select **Close**.
16. Select the green "**Connect**" **arrow**.
17. Select the desired instrument, in this case "**Local Instrument**" Select **Connect.**
18. You are now connected to the instrument and can use the computer mouse to press the buttons just as you would press them while in front of the analyzer.
19. Turn on analyzer front panel updating to the computer (so the computer is constantly updated by the instrument), by pressing **Settings** and selecting **Options**.
20. On the Options screen, select the second tab called "**Front Panel**".
21. On the Front panel screen, select the **Update checkbox** and **type 5** for the desired interval of updating (minimum is 5 seconds). Select **OK** and now the computer screen will get updated every 5 seconds.

22. If desired, this setup configuration can be saved and recalled (used again without selecting all of the parameters again). To save the configuration, press **File** and select **Save As**.
23. **Type** a name in the File Name field such as "**laptop apicom ip config**" and select **Save**.
24. (The next 2 steps are only required if loading a new / different configuration).If you want to recall the saved configuration, press the **Open File** icon.
25. Select the desired configuration file and select **Open**.
26. Now select the "**connect**" icon for easy connection again.

Quick Reference Checklist for IDAS

1. Setup of IDAS (Internal Data Acquisition System) through APICOM.
    a. For this example we will set up a configuration to help troubleshoot the analyzer.
    b. Select the **Download, graph, save data**… button.
    c. These actions will delete all data that have been collected by the IDAS, if you wish to keep / save this data, download it first by following steps 1 and 11-13.



1. If the screen is "grayed out", Select Data **Auto On/Off** to get the screen active. Select **Get Config**.
2. Select New Channel (**New Chan**…)
3. Type a Channel name (example "**Troubleshooting**"), type the **sample period to 1** (if not already 1) and type the **report period to 1**, and select **OK**.
    a. If Number of Records is 100 and Sample Period is 1 minute, then 100 minutes of data will be stored. Change Number of Records to a higher value for more run time.
    b. Usually for troubleshooting use the shortest sample time, which is every 1 minute.
    c. Sample, report, and download periods use Julian date format.
4. Select New Parameter (**New Param**…)
5. Use **Parameter dropdown** to select desired measurement parameter (example **PHMEAS**).
6. Usually the Sample Mode will remain at Inst (instantaneous) for troubleshooting purposes; Precision selection will select the number of decimal places for the measurements (example **1**= 4500.1), Select **OK**.
7. Press the **"+"** box next to "Troubleshooting" to see all of the parameters being sampled in this configuration. Select **New Parameter** to add more parameters. Select the "**check box**" next to "Troubleshooting" to select all parameters.
8. Select Save Configuration, use the default name if desired, choose the location desired, and select Save.
9. (This step is only required if loading a new / different configuration), if recalling the saved configuration, select **Load Config..**, select the desired config file (the one that you just created), and select **Open.**

WARNING: If you haven't already pressed "Get Config" and other channels exist in the instrument, the next action will delete the existing configuration, all channels, and all data, and replace it with this new configuration. If you have retrieved the configuration from the instrument (Get Config..), it is safe to load the entire new configuration without erasing the previous configurations / channels; however all data will be lost.

10. Select **Send To Inst** so the instrument will now use this file to start loading measurements into the IDAS, Select **Yes** to the confirmation warning if you wish to discard all data and existing configuration.
11. After at least 2 minutes, check that the data is being streamed into the IDAS by selecting **Get Data**, and select the # of records (usually "**All**"), then select **OK**.
12. Select the **main "troubleshooting" check box** for all of the parameters to be selected, **or** you may choose to not view or graph all of the data by **deselecting** some check boxes. Now select **View Data**.
13. To save this data into a text file, select **Save Data**. Use the default name if desired and select **Save**.
14. You may view a chart of the data, press **Graph Data**.
15. To save the graphic to a file, press and hold the "**Alt**" key on your computer keyboard, then press the "**Print Screen / SysRq**" key on the computer keyboard, then release (**Alt + Print Screen**). NOTE: The screen MUST be active (selected) that you are copying – to

make sure that it is active –click your mouse cursor inside of the screen before pressing Alt + Print Screen. Now you will need to open a program such as Microsoft Paint, Microsoft Word, Excel, or PowerPoint.

16. **Open Word, Paint, Excel, or PowerPoint**.
17. Press the "**Ctrl**" and "**V**" keys (**Ctrl + V**). on the computer keyboard simultaneously to paste the screen shot. You may also write other information into the file before saving it (like "**Data from 11-08-2005**").
18. Select **File / Save As**, choose a location and filename and select **Save**.
19. **Open Excel** program and select **File / Open**.
20. You may have to **select the file types to All Files (*.*)** in the Files of Type dropdown to display the text file that was saved before.
21. **Select that file** and press **Open**. Select **Delimited**, then **Next**. Select **Comma** check box, then press **Finish**.
22. Now the data may be manipulated and charted, contact an advanced Excel user for assistance.