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LogView Mobile

User's Guide

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1. Installing LogView Mobile

It is assumed that the user is familiar with the operation of the Hand-Held Device (HHD) as well as the interface connections between the HHD and the PC. If a HHD, such as the Nautiz X7, was purchased from Geokon then Section 1 can be skipped as LogView Mobile will be installed at the factory.

1.1 Requirements

The installation of LogView Mobile requires the following:

- HHD running Windows Mobile Classic 6.0 or higher with at least 50 Mbytes of free memory. HHD must have some way to interface to COM Ports; either direct via an RS-232 port or indirect (Virtual COM Ports) via USB Host connection or Bluetooth.
- Windows .NET 3.5 Compact Framework (CF) installed on the HHD. (Included on the LogView Mobile Installer)
- Microsoft ActiveSync version 4.5.0 or higher running on the host PC (or Windows Mobile Device Center if PC is running Windows 7) as well as the HHD. An active connection between the two must be established either via a physical link or Bluetooth. (see screen-shot below)
- LogView Mobile Installer (available on the Geokon website).

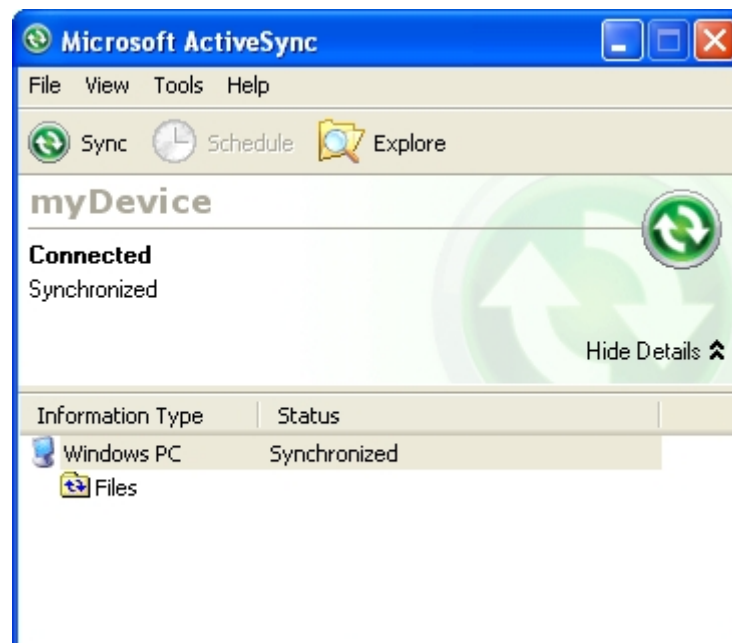


Figure 1 - ActiveSync Window

1.2 Launching the LogView Mobile Installer

From the ActiveSync Window on the PC (see Figure 1) click on the folder icon labeled “Explore” to call up an Explorer Window for the HHD (see Figure). From the Windows Mobile Device Center, click on the icon labeled “Browse the contents of your device” (see Figure 3).

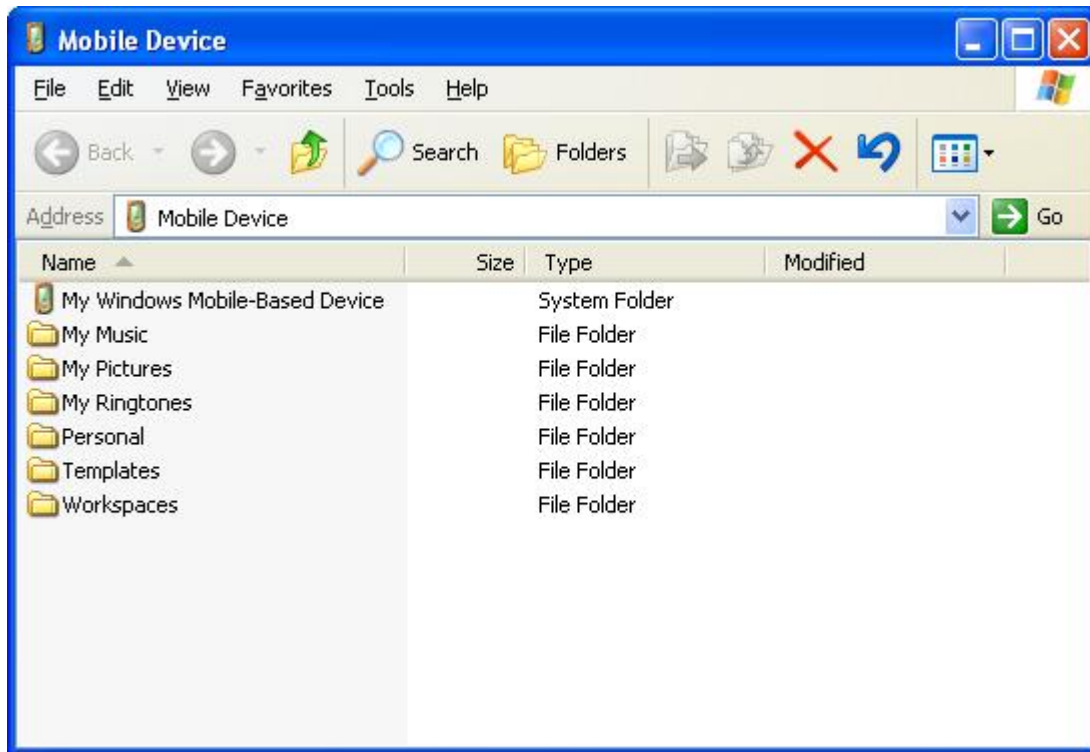


Figure 2 - Explorer Window (Hand-Held Device)

In Figure 2 above, double click “My Windows Mobile-Based Device” to navigate to the system root (see Figure 4).



Figure 3 - Windows Mobile Device Center Window

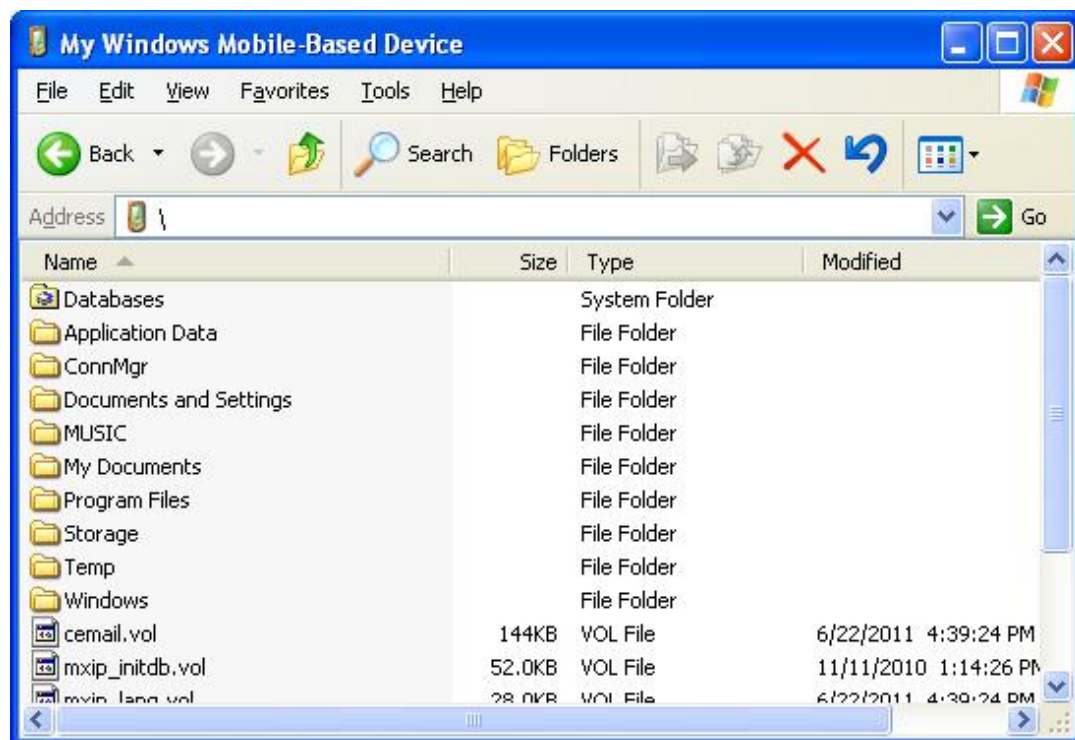


Figure 4 - Hand-Held Device System Root Folder

After downloading the “zipped” LogView Mobile Installer from the Geokon web-site, unzip the installer to a folder on your PC’s hard-drive, such as “LVM_Installer” (see Figure 5).

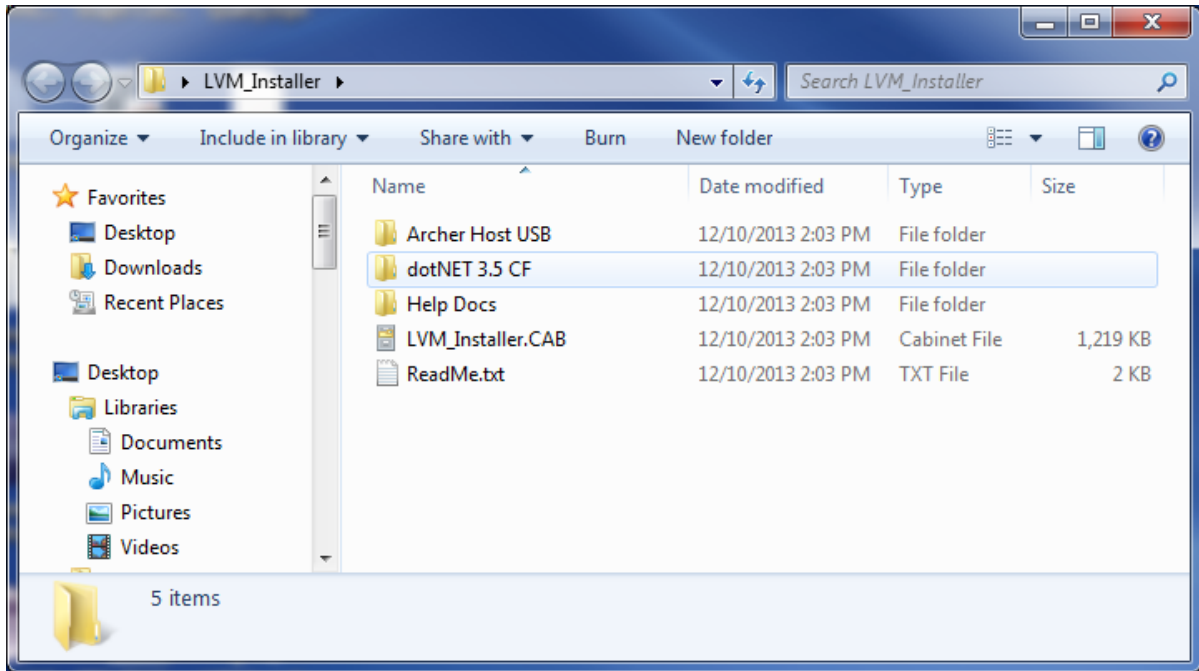


Figure 5 - LogView Mobile Installer Folder

Copy the file, “LVM_Installer.CAB” from the installer folder (see Figure 5) to the HDD system root folder (see Figure 4). From the HDD, navigate to the system root folder with File Explorer (see Figure 6) and tap the file, “LVM_Installer” to execute the installer.

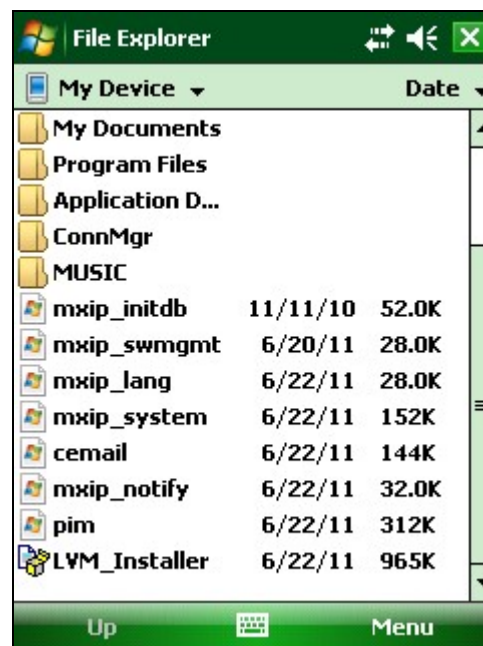


Figure 6 - HDD File Explorer (displaying root folder)

If there is a storage card installed in the HHD then the user will be prompted to choose the location for the installation (see Figure 7). It is recommended that "Device" be selected then tap "Install" with the stylus to initiate the install process.



Figure 7 - LogView Mobile Install Preparation

The file, LVM_Installer.CAB can be now deleted from the system root folder to free up memory. LogView Mobile is now installed and the LogView Mobile icon should appear in "Start->Programs" (see Figure 8).



Figure 8 - Programs Window

2. Starting LogView Mobile the first time

When starting the LogView Mobile application for the first time, you will be prompted to create a workspace name (see Figure 9). The workspace name can be any combination of letters and numbers and should be descriptive in nature. After creation, this name will be displayed in the Project Explorer window.

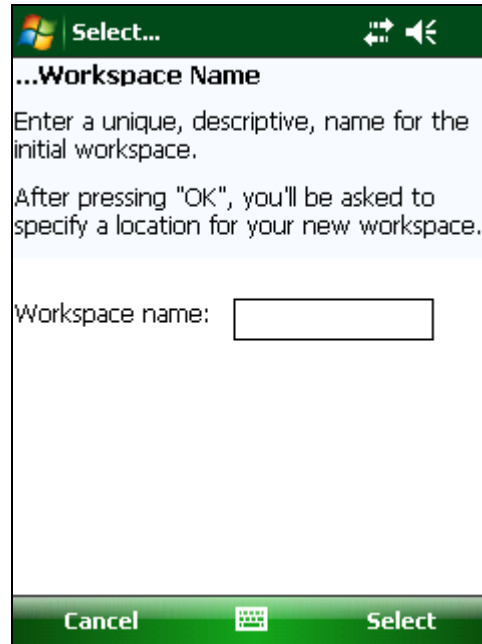


Figure 9 – Select Workspace Name Window

Once you've selected the name for your workspace, you will be prompted to choose or create a folder on your PC where all the workspace elements will be stored. As can be seen below, the default workspace location is in a folder name the same as the workspace name under a special shared folder reserved for workspaces. For Windows Mobile devices this folder is located at:

`\Application Data\Geokon\LogViewMobile\Workspaces.`

LogView Mobile appends the name of the new workspace to this shared folder and uses it as the default location for the new workspace. The user is free to select their own location, either by entering it directly, or the **Browse [...]** button may be used to navigate to a different folder location or to create a new folder (see Figure 10). This workspace location will be stored in the LogView Mobile configuration for subsequent application access. After workspaces are created, all future user access is always by name.

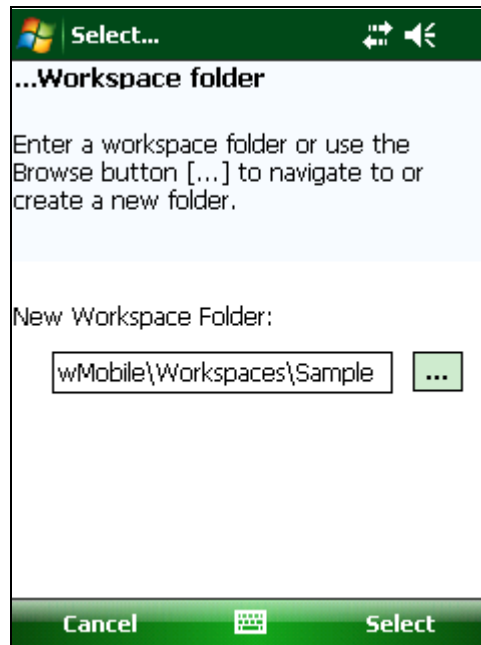


Figure 10 - Select Workspace Folder

This is all that's required to create an initial workspace. The newly created workspace will be opened by default and you will be able to create new project(s) and add new datalogger configurations to your workspace (see Figure 11).

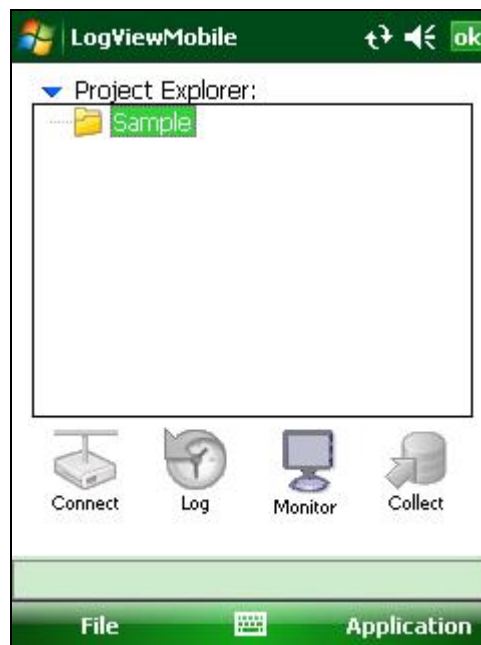


Figure 11 – LogView Mobile Main Screen after Workspace Creation

Note: If the newly selected workspace folder contains an existing workspace, LogView Mobile will display a dialog prompt asking the user if they want to import the workspace as is or to rename it with the previously specified new workspace name.

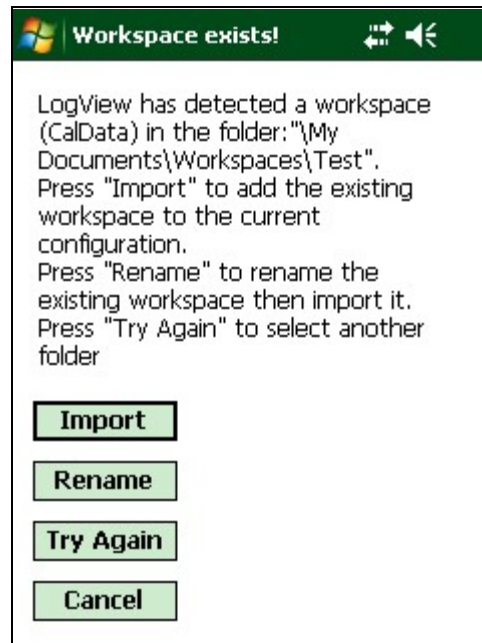


Figure 12 – Workspace Exists Dialog

3. User Interface

3.1 Overview

The LogView Mobile user interface contains a number of navigation controls designed to make the job of selecting application elements and functions easier. These navigation controls present an organizational view of the active workspace, inform the user about the state of the application, and provide the user with tools to configure and control various Geokon devices.

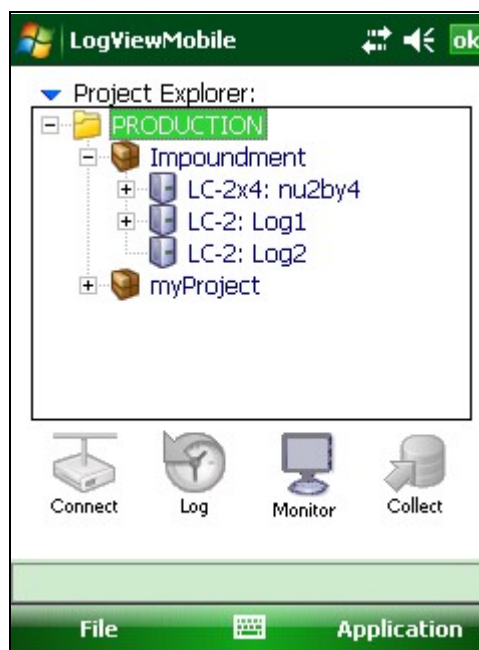


Figure 13 - LogView Mobile Main Screen (Workspace selected)

The LogView Mobile User Interface is comprised of several core components:

| | |
|------------------|--|
| Project Explorer | Element selection tool. Drop-down menu. |
| Application Menu | Change displays, configure project, datalogger and sensor settings. |
| File Menu | Change workspaces, file I/O and project explorer element deletions/import/export |
| Tool Bar | Grouping of application buttons. |
| Status Bar | Displays the current status of the application. |

3.2 Project Explorer

The Project Explorer is the primary navigation mechanism for moving around the LogView Mobile workspace. The Project Explorer presents a view of the workspace including projects, dataloggers and sensors reflecting the hierarchical relationship between these elements.

The highest element in the workspace hierarchy tree is a project. Projects allow a LogView Mobile user to group dataloggers into organizational units based on the user's preference. A project can reflect a specific site where dataloggers are installed, such as a mine, or a construction project. This organizational feature makes it easy to find datalogger configurations along with related data files. The list of dataloggers defined under the project can be viewed by selecting a specific project and expanding its branch in the explorer view (click on + sign preceding project name) (see Figure 14).

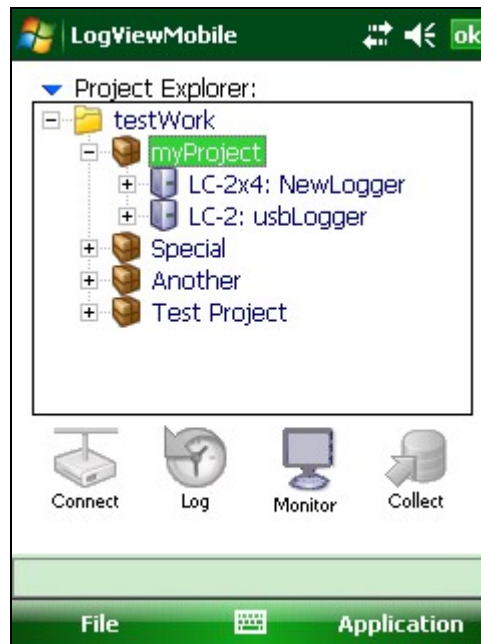



Figure 14 - LogView Mobile Main Screen (project selected and expanded)

In the hierarchy of the project explorer, dataloggers are child elements of a project. Datalogger settings can be viewed by selecting the desired datalogger in the explorer tree. Once selected, datalogger settings can be displayed using "Settings View" from the Application Menu. They can be edited by using "Edit Settings" also from the Application Menu. The list of sensors configured under a datalogger can be accessed by selecting the desired datalogger in the explorer tree and expanding its branch by clicking on the "+" sign preceding the datalogger name (see Figure 15).

 **Note:** The datalogger selection cannot be changed while the active datalogger is connected. In order to change the datalogger selection you must first disconnect the active datalogger.

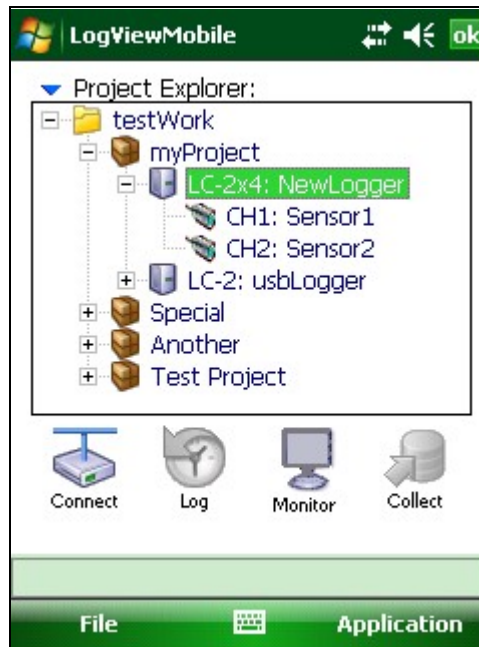


Figure 15 - LogView Mobile Main Screen (datalogger selected and expanded)

The lowest element in the explorer tree is a sensor. Sensors are organized under dataloggers reflecting a physical connection between the two. Sensor configuration attributes can be viewed by selecting the desired sensor in the explorer tree and clicking on "Settings View" from the Application Menu. They can be edited by clicking "Edit Settings" from the Application Menu. The sensor settings can also be edited via the "Context Menu" (see Section 3.2.1).

3.2.1 Context Menu

From the Project Explorer, new workspace elements can be added via the Context Menu which is invoked by tapping and holding an individual Project Explorer element. As its name implies the Context Menu is context sensitive in that, based on the current selection, the appropriate element will be enabled and all others will be disabled. The screen-shot shown in Figure 16 shows the Context Menu with the menu item, "Add Datalogger", enabled since a "project" element is selected in the Project Explorer.

In addition to allowing sub-elements to be added the Context Menu can also be used to switch to another workspace and edit the settings for a particular Project Explorer element.

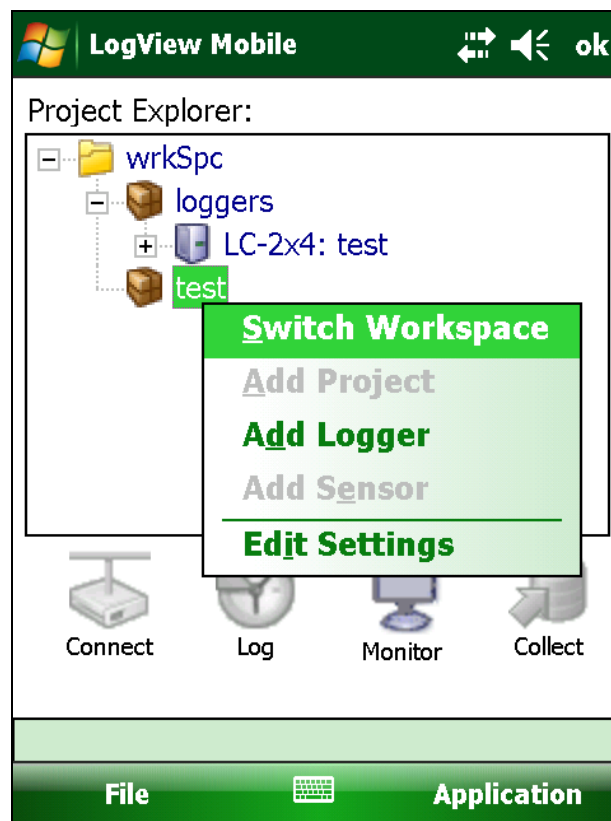


Figure 16 - Context Menu

3.3 Application Menu

The LogView Mobile Application Menu (see Figure 17) provides access to the high level application functionality. It is located in the lower, right corner of the main window frame. Some items of this menu can also be accessed via the toolbar buttons.

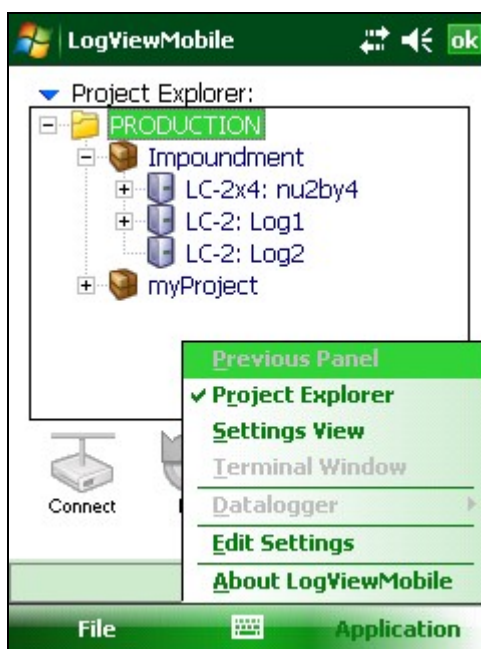


Figure 17 – Application Menu

3.3.1 Previous Panel

This menu item is enabled only if "Settings View" is selected and if there is a previous workspace element to display settings for. If the workspace element of the Project Explorer is selected then this menu item will be disabled. When enabled, clicking the menu item will "select" the parent element for the element currently display and display that element. For example: if datalogger settings are being displayed in "Settings View", clicking "Previous Panel" will cause the datalogger's parent Project be displayed.

3.3.2 Project Explorer

This is LogView Mobile's default setting. At program start, this menu item will be checked and the Project Explorer will be displayed in the main window. After switching to "Settings View" (see 3.3.3 below), clicking this menu item will cause LogView Mobile to switch back to "Project Explorer".

3.3.3 Settings View

Clicking this menu item (see Figure 17) will cause LogView Mobile to display the "Settings View" (see Figure 18) in the main window.



Figure 18 - Settings View (Project Settings Shown)

"Settings View" allows all settings for a particular workspace element to be displayed in a read-only, snapshot (above, project settings are displayed). Click on the workspace element icon (lower-right) to move down the workspace hierarchy to the next element (in the case above, a datalogger) or use the "Previous Panel" menu item to move up the workspace hierarchy.

3.3.4 Terminal Window

When connected to a datalogger, clicking this menu item (see Figure 17) will cause the "Terminal Window" (see Figure 19) to be displayed in the main window.

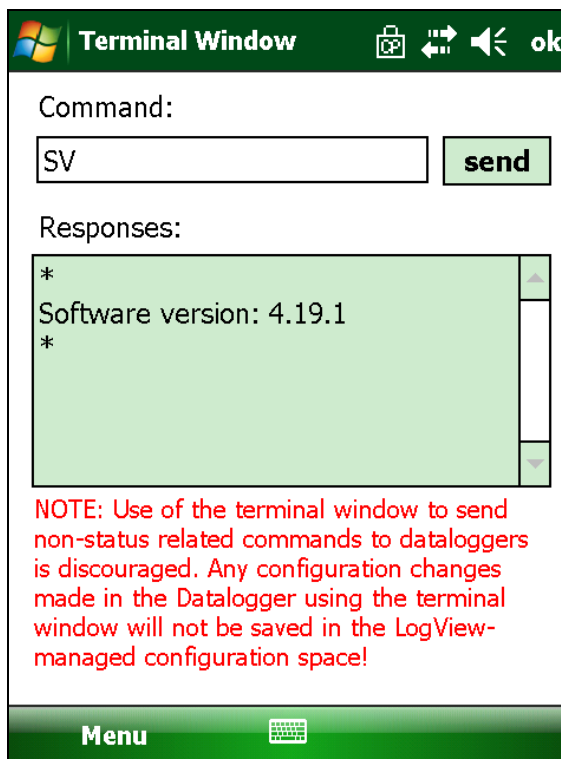



Figure 19 - Terminal Window (Shown with Keypad Minimized)

The Terminal Window is used to send commands manually to a connected datalogger. In the case above, a command to read the software version was sent. See the User Manuals for the LC-2 series for more information regarding datalogger command protocol.

 **Note:** Sending other than read-only status commands is not recommended. Doing so could cause LogView Mobile to be "out of sync" with the datalogger and unintended consequences could result.

3.3.5 Datalogger

Clicking this menu item (see Figure 17) will call up a sub-menu dealing strictly with datalogger functions. If no datalogger is selected, this menu item is disabled. The Datalogger sub-menu is shown in Figure 20.

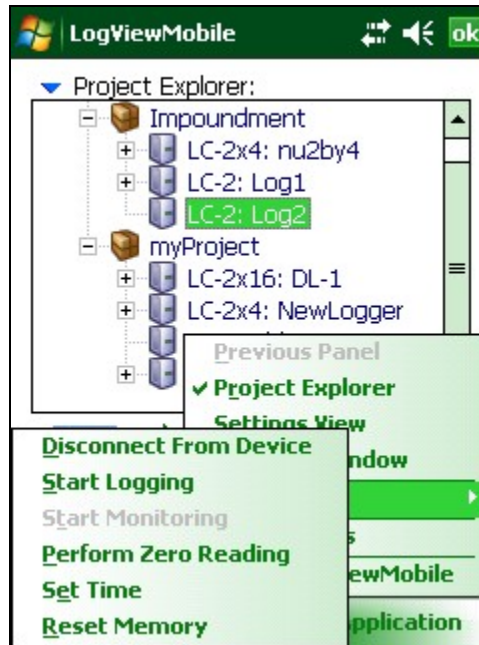


Figure 20 - Datalogger Sub-Menu

3.3.5.1 Connect/Disconnect To/From Device

Depending on the datalogger connection status, either "Connect To Device" or "Disconnect From Device" will be displayed for this menu item. Clicking this menu item will either connect or disconnect the datalogger from LogView Mobile.

3.3.5.2 Start/Stop Logging

Depending on the datalogger logging status, either "Start Logging" or "Stop Logging" will be displayed for this menu item. Clicking this menu item will cause the datalogger to either start logging data or stop logging data. This menu item will be disabled if no logger is connected to LogView Mobile.

3.3.5.3 Start/Stop Monitoring


Depending on the datalogger logging status, either "Start Monitoring" or "Stop Monitoring" will be displayed for this menu item. Clicking this menu item will cause the datalogger to either start monitoring or stop monitoring (see the User's Manuals for the LC-2 series for a complete description of the monitoring function). This menu item will only be enabled if a logger is connected to LogView Mobile AND logging is enabled.

3.3.5.4 Perform Zero Reading

This menu item is enabled if a datalogger is selected and a connection to LogView Mobile has been established. Clicking this menu item (see Figure 20) displays the dialog shown in Figure 21:

Figure 21 - Zero Reading Dialog

The read-only values in the “Current Settings” reflect the values that are currently stored in the datalogger configuration while the “New Settings” will be blank until a new zero reading is taken by clicking on the Zero Reading menu item. Clicking the Save menu item will save the new values to the selected datalogger configuration. Figure 21 shows the dialog displayed for a single channel datalogger. Additional “channel” tabs will be displayed across the bottom of the screen if a multi-channel datalogger is connected.

 **Note:** The new values obtained from performing a zero reading will not be saved in the datalogger itself until the settings are uploaded to the datalogger (see Section 3.4.3, “File->Upload Settings”)

3.3.5.5 Set Time

Clicking on this menu item (see Figure 20) will set the currently selected datalogger's internal real time clock to system date-time values. Before the datalogger time is actually changed, a confirmation dialog will be displayed.

3.3.5.6 Reset Memory

Clicking this menu item (see Figure 20) will reset the datalogger's memory pointers to default settings. Sensor and interval settings, as well as the real-time clock settings are not affected by this command.

3.4 File Menu

The LogView Mobile File Menu allows the user to manage workspace, data and configuration files and their contents. It is located in the lower, left corner of the main window frame (see Figure 22).

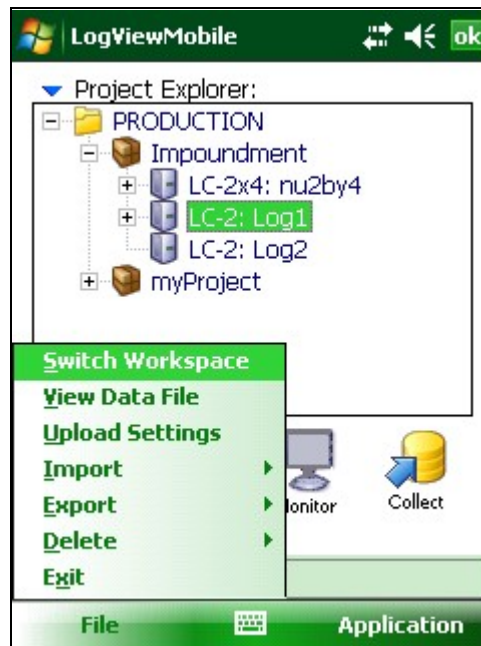


Figure 22 - LogView Mobile File Menu

3.4.1 Switch Workspace

Use this menu item (see Figure 22) to open any previously opened workspace, select a workspace from the file system or create a completely new workspace. Click this menu item to display the Workspace Selection dialog (see Figure 23).

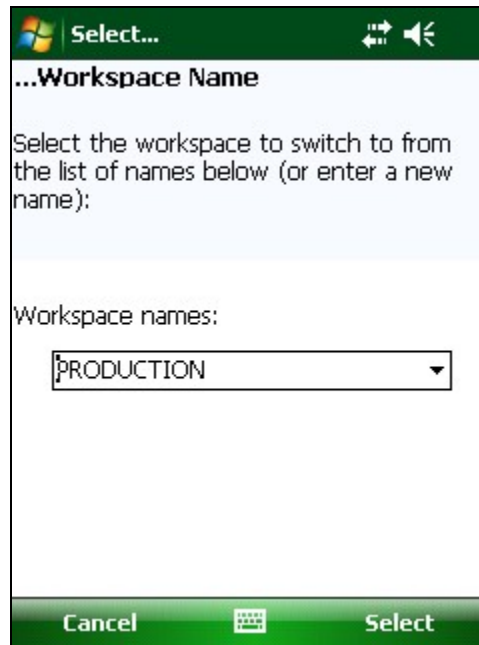


Figure 23 - Workspace Selection Dialog


Click on the drop-down  control, to display the available workspaces (see Figure 24).

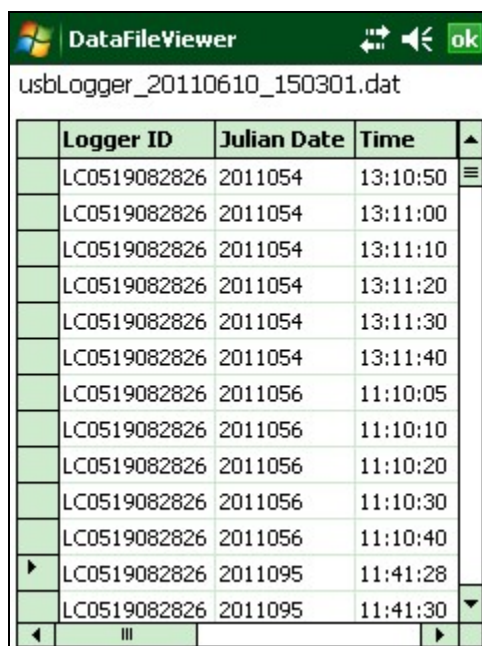


Figure 24 – Selecting a Workspace by Name

Alternatively, a new name can be entered in the workspace name selection box. If LogView Mobile recognizes the name as a workspace it has opened before, it will simply re-open the existing workspace. If the workspace name is new to LogView Mobile then a workspace folder selection window is displayed (see Section 2, “Starting LogView Mobile the First Time” for more information on creating new workspaces).

3.4.2 View Data File

This menu item (see Figure 22) will be enabled if a datalogger is currently selected in the Project Explorer. If the selected datalogger has collected data available when this item is clicked, a file selection dialog is displayed if there is more than one collected file. After selecting the file to view (or if there was only one file available), the window shown in Figure 25 is displayed showing the contents of the data file.



The screenshot shows a window titled "DataFileViewer" with a green header bar. Below the header, the file name "usbLogger_20110610_150301.dat" is displayed. The main area contains a table with four columns: "Logger ID", "Julian Date", "Time", and a small icon column. The table has 15 rows of data. The first 10 rows have a Julian Date of 2011054, and the next 5 rows have a Julian Date of 2011056. The final two rows have a Julian Date of 2011095. The "Time" column shows timestamps ranging from 13:10:50 to 11:41:30. The table is scrollable, with horizontal and vertical scroll bars visible at the bottom and right.

| | Logger ID | Julian Date | Time | |
|--|--------------|-------------|----------|--|
| | LC0519082826 | 2011054 | 13:10:50 | |
| | LC0519082826 | 2011054 | 13:11:00 | |
| | LC0519082826 | 2011054 | 13:11:10 | |
| | LC0519082826 | 2011054 | 13:11:20 | |
| | LC0519082826 | 2011054 | 13:11:30 | |
| | LC0519082826 | 2011054 | 13:11:40 | |
| | LC0519082826 | 2011056 | 11:10:05 | |
| | LC0519082826 | 2011056 | 11:10:10 | |
| | LC0519082826 | 2011056 | 11:10:20 | |
| | LC0519082826 | 2011056 | 11:10:30 | |
| | LC0519082826 | 2011056 | 11:10:40 | |
| | LC0519082826 | 2011095 | 11:41:28 | |
| | LC0519082826 | 2011095 | 11:41:30 | |

Figure 25 - Data File Viewer

Using the horizontal and vertical scroll-bars, all of the contents of the file can be viewed.

3.4.3 Upload Settings

This menu item (see Figure 22) will be enabled if a datalogger is currently selected in the Project Explorer and a connection has been established with LogView Mobile. Once activated, the Upload Setting function transfers all datalogger and sensor configuration values to the selected datalogger. This function requires no further user interaction and the status will be displayed (see Figure 26).

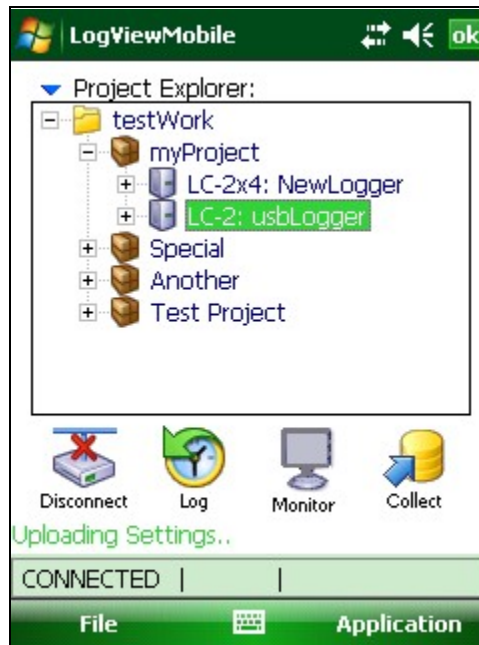


Figure 26 - Upload Settings Status

3.4.4 Import

This menu option (see Figure 22) enables the user to import datalogger and project elements into the current workspace. The screen-shot shown in Figure 27 shows the options available for Import.

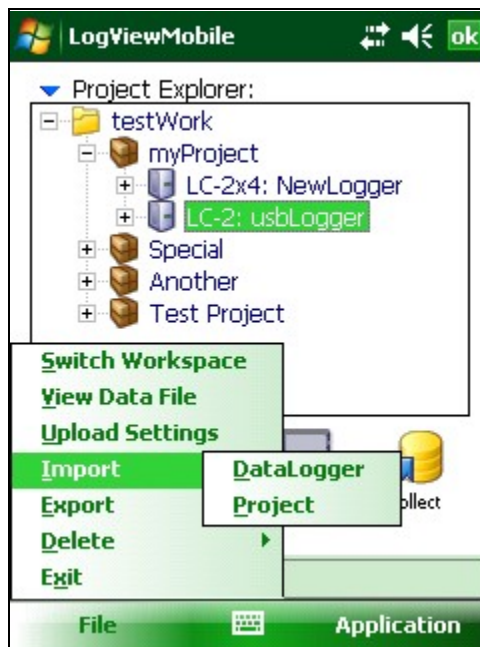


Figure 27 - Import Options

3.4.4.1 Import - Datalogger

When this menu item is clicked, LogView Mobile displays a file selection dialog. After selecting a datalogger import file (".LVDE" extension), the datalogger along with attached sensors and data are imported into the current project.

3.4.4.2 Import - Project

When this menu item is clicked, LogView Mobile displays a file selection dialog. After selecting a project import file (".LVPE" extension), the project including dataloggers, sensors and data are imported to the current workspace.

3.4.5 Export

This menu option (see Figure 22) enables the user to export collected data, datalogger and project elements to system files with unique extensions. The screen-shot shown in Figure 28 shows the options available for Export.

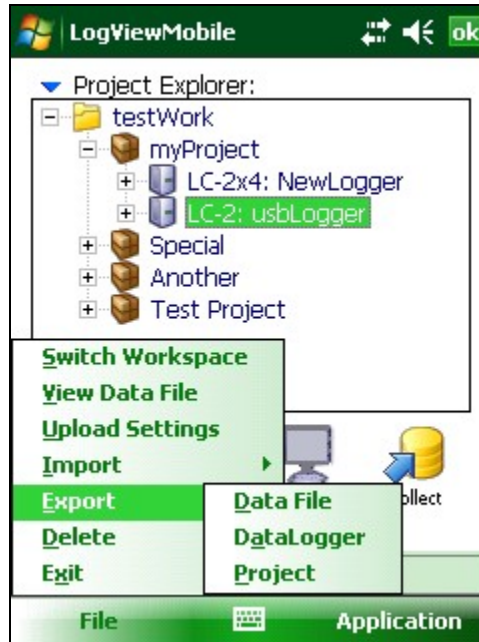


Figure 28 - Export Options

3.4.5.1 Export – Data File

When this menu item is clicked, LogView Mobile displays the Data Export options window (see Figure 29) to allow selection of various options and formats

Figure 29 - Data Export Options

The options to select are:

1. Export Data Format – display only, dependent on the parameters below and/or datalogger date/time formats.
2. Export File Format – Select from:
 - VDV** Data formatted for Vista Data Vision software, saved as a .DAT file with a concurrent .TXT file containing header info. Date and time format always: *yyyy,DDD,HHmm,ss*
 - .CSV** Typically reserved for “Comma Separated Values” files but LogView Mobile allows overriding of the separator character (see item X). Data saved with a .CSV file extension. Date and time formats dependant on logger configuration and/or Export Format Options (see item 3).
 - .DAT** – Can also comma separated values but saved with a .DAT file extension. Like the CSV format in item 2, data separator character can be a; comma, tab or semicolon. Date and time formats dependant on logger configuration and/or Export Format Options (see item 3).
 - .TXT** – Also comma separated values but saved as .DAT file. Date and time formats dependant on logger configuration and/or Export Format Options (see item 3).

3. Export Format Options – Select one, none or all from:
 - Dates in Serial Date (Y1900) Format** – Date and time formatted into a real number equaling the number of days since the 0th day of Jan, 1900. The fractional part of the number represents a fraction of a day. Preferred Excel format. This setting has no effect when set for VDV file format.
 - Add column header to export file** – when selected adds column header text as the first line of the export file. This setting has no effect when set for VDV file format.
 - Add meta data to export file** – when selected, adds meta data to the top of the export file. LogView Mobile meta data consists of: workspace and project names, scan interval, collection date and number of sensors.

Data file(s) can be selected for export by clicking on the “Data Export Files” tab in the Data Export Window (see Figure 30). More than one file can be selected by tapping in the “Selected” column in the row corresponding to each file. At least one file must be selected for export.

The screenshot shows the 'Export Data Files' window. At the top is a green header bar with the title 'Export Data Files' and icons for back, forward, and OK. Below the header, the text 'Select file(s) to export:' is followed by a table. The table has two columns: 'File Name' and 'Selected'. One row is visible with the file name 'test_20131210_111946.dat' and 'Yes' in the 'Selected' column. Below the table is a section titled 'Data File Info (test)' containing three fields: 'Path:' with the value '\\Application Data\\Geokon\\Lo', 'Last Exported:' with the value '12/10/13 11:25:04', and 'Last Collected:' with the value '12/10/13 11:19:46'. At the bottom, there are three tabs: 'Export Options', 'Export Files' (which is selected), and 'Export Folder'. Below the tabs are two large green buttons: 'Cancel' and 'Export'.

| File Name | Selected |
|--------------------------|----------|
| test_20131210_111946.dat | Yes |

Data File Info (test)

Path: \\Application Data\\Geokon\\Lo

Last Exported: 12/10/13 11:25:04

Last Collected: 12/10/13 11:19:46

Export Options | **Export Files** | Export Folder

Cancel **Export**

Figure 30 – Export Files Selection

The user must also select a folder where LogView Mobile will place the exported data file by tapping on the Export Folder tab (see Figure 31). A browser can be used to select the folder by clicking on [...]. The default folder is the "My Documents" folder on the HDD but this can be changed to any pre-existing folder and LogView Mobile will remember it for the next export session.

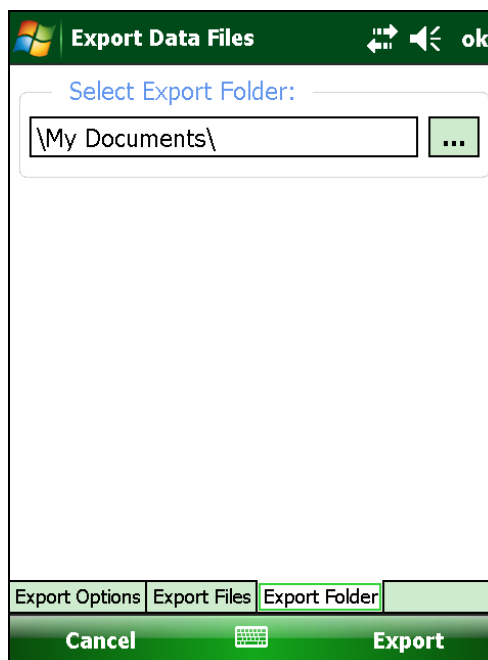


Figure 31 - Export Folder Selection

Clicking on the "Export" menu item starts the export process. LogView Mobile formats the collected data file according to the settings from the Data Export Options tab and creates a file named (in the case of Figure 39 above) "test_20131210_111946.DAT" in the export folder selected above.

3.4.5.2 Export – DataLogger

When this menu item is clicked, LogView Mobile displays a folder selection dialog. Once a folder is selected, the current datalogger is exported, along with sensor configuration and data to a compressed file named the same as the datalogger name but with a ".LVDE" extension.

3.4.5.3 Export – Project

When this menu item is clicked, LogView Mobile displays a folder selection dialog. Once a folder is selected, the currently selected project is exported along with all the dataloggers it contains to a file named the same as the project name but with an ".LVPE" extension.

3.4.6 Delete

This menu option enables the user to delete selected projects or dataloggers (see the screen-shot below).

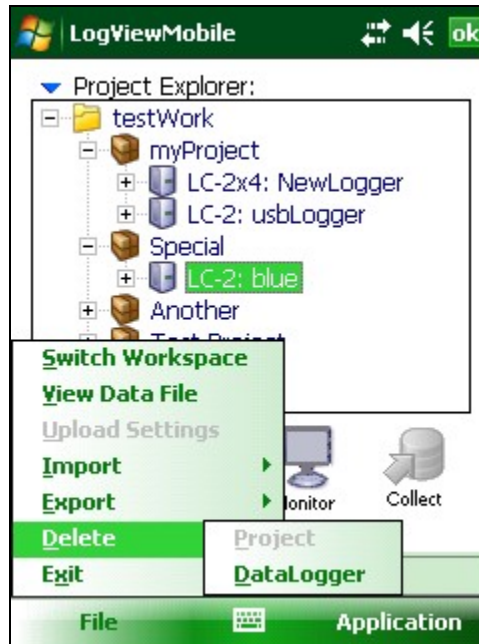


Figure 32 - Delete Datalogger Menu Item

After confirmation, LogView Mobile will permanently remove the selected workspace element from the workspace configuration.

3.4.7 Exit

Clicking this menu item causes LogView Mobile to save any outstanding configuration changes then to exit the program.

3.5 Tool Bar

The LogView Mobile Tool Bar consists of four large icons prominently displayed just below the Project Explorer and provides functions for connecting to a datalogger, enabling logging, monitoring the logging and data collection. Until a datalogger is selected in the Project Explorer, the Tool Bar remains disabled (see Figure 33).

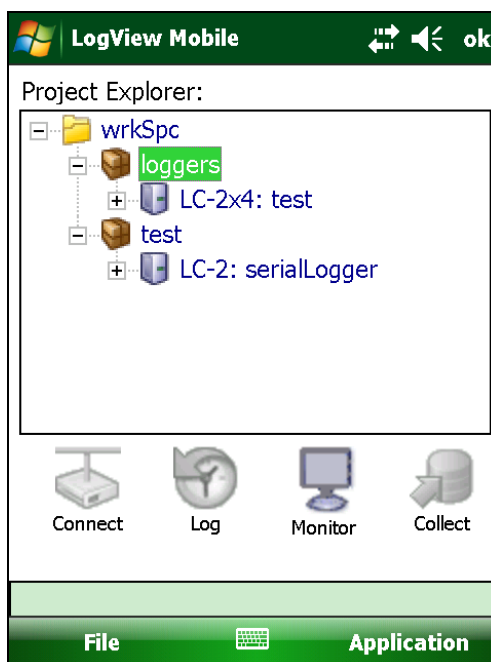


Figure 33 Tool Bar (disabled)

3.5.1 Connect/Disconnect To/From a Datalogger

After selecting a target datalogger in the Project Explorer, the first Tool Bar button that is activated is the **Connect** button (see Figure 34).

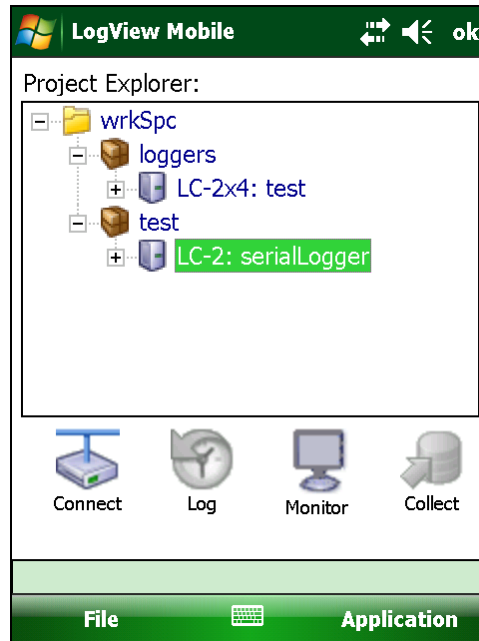


Figure 34 - Connect Tool Bar Button

Clicking on the “Connect” Tool Bar button starts a connection process where LogView Mobile will attempt to communicate (to the datalogger) via the selected COM port until a connection can be made. After a connection has been established, the Status Bar is updated (see Figure 35).

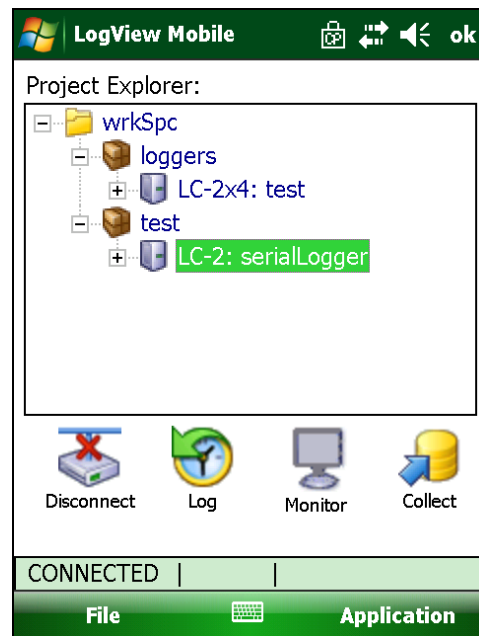


Figure 35 - Disconnect Tool Bar Button (datalogger connected)

Note: Once the datalogger is connected, the “Connect” button changes to a “Disconnect” button and the Log and Collect Tool Bar buttons are now enabled.

3.5.2 Log/Stop Log

After a datalogger is connected, data logging can be enabled by clicking on the “Log” Tool Bar icon. Figure 36 shows that the Status Bar has been updated, logging is enabled and the “Log” button is now the “Stop Log” button.

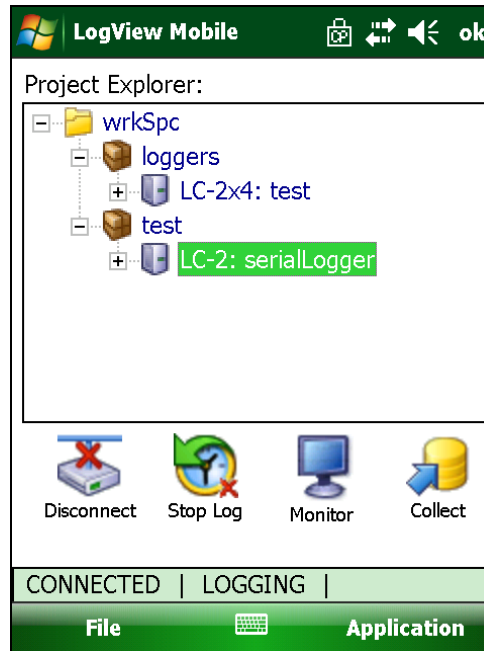


Figure 36 - Log/Stop Log Tool Bar Button

3.5.3 Monitor

After a datalogger is connected and logging is enabled, data monitoring can be enabled by clicking on the "Monitor" Tool Bar icon. Figure 37 shows that the datalogger is connected, logging is enabled, monitoring is enabled and the Monitoring Window is now displayed.

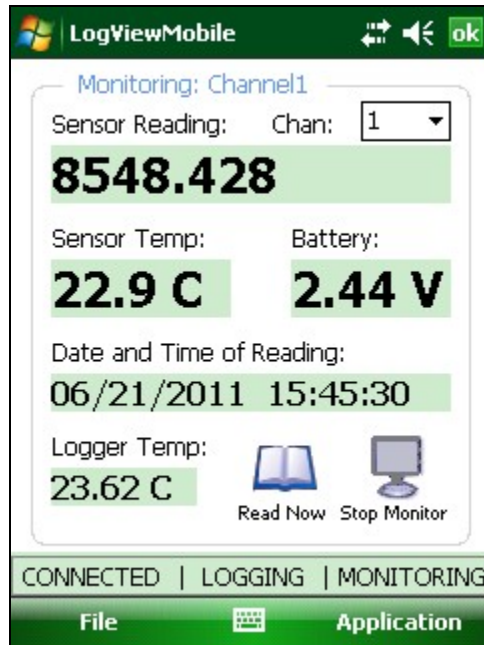


Figure 37 - Monitoring Window

The Monitor Window allows the data of any sensor channel to be displayed along with date and time of the reading, the internal datalogger temperature and the main battery voltage. The previous Tool Bar is replaced with just two buttons:

Read Now – causes the datalogger to take an immediate reading.

Stop Monitor – stops the monitor and returns to the previous display.

3.5.4 Collect

After a datalogger is connected, a data collection is started by clicking on the "Collect" Tool Bar icon. A data collection is a three step process: initialization, reading the data arrays and finally, saving the data arrays (see Figures 38 - 41).

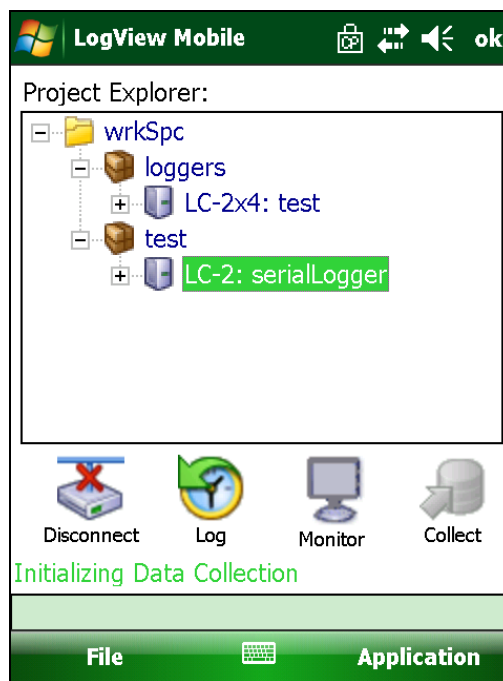


Figure 38 - Initializing Data Collection

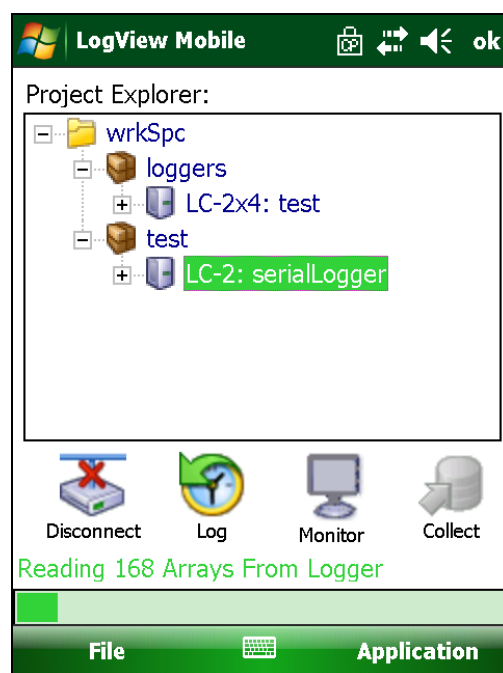


Figure 39 - Reading Arrays From Datalogger

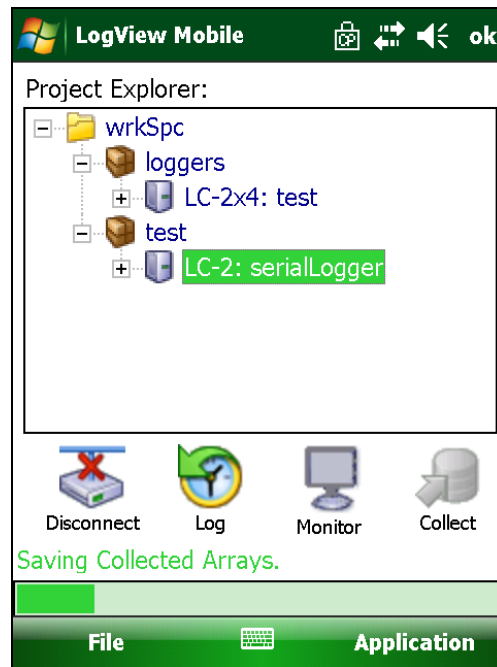


Figure 40 - Saving Collected Arrays

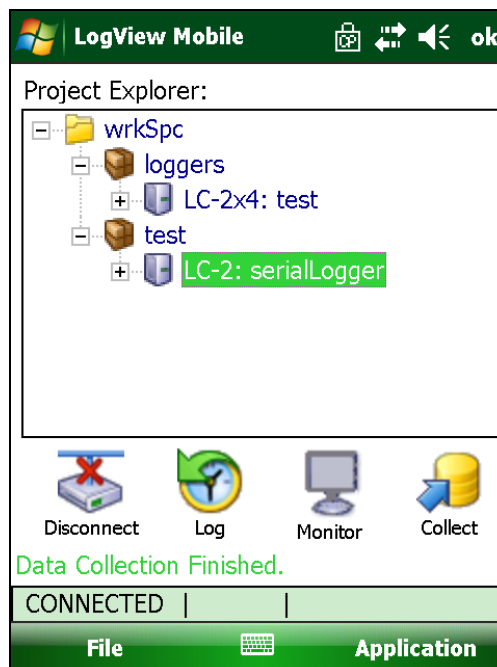


Figure 41 - Data Collection Finished

4. Working with Workspaces

A workspace is a place where all other LogView Mobile resources are stored and contains one or more projects along with dataloggers, sensors and data files. LogView Mobile allows multiple workspaces to be defined so that projects may be logically grouped together, i.e., a company may have multiple work-sites and for each work-site there may be multiple projects under way.

Workspaces can also be used to allow different users to keep their projects and data separate from others when sharing a PC.

4.1 What Is A Workspace?

The LogView workspace can be thought of as a folder structure where work will be stored. LogView organizes project files into workspaces, enabling users to have more than one location for storing files. Workspaces can be shared by different users when the workspace is placed on a network share.

Furthermore, a workspace created by one user on their PC (using LogView) can be shared via ActiveSync and accessed on an HHD using LogView Mobile, while retaining all of the original project, datalogger, and sensor settings. This makes LogView configuration files more portable and much easier to use.

4.2 Adding Existing Workspaces

To add an existing workspace, tap the “File” menu then tap the “Switch Workspace” menu item. LogView Mobile launches the Workspace Selection dialog (see Figure 42).

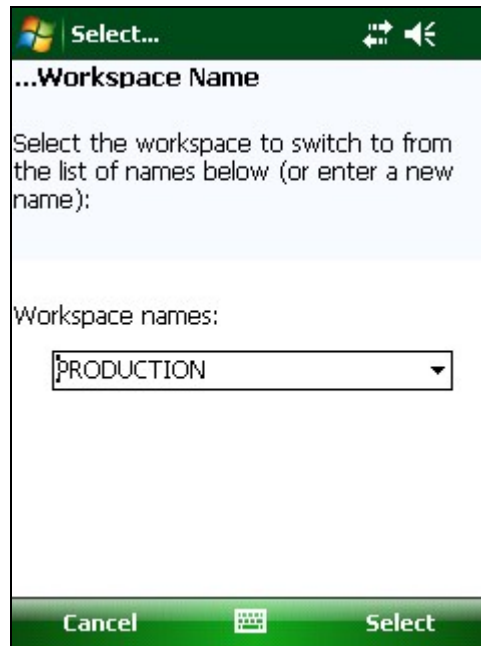


Figure 42 - Workspace Selection Dialog

Tap within the “Workspace names” selector, then enable the HHD keypad to enter a name for the workspace you want to add. The name is not as important as the folder selection in the next step. Tap on “Select” to display the Workspace Folder Selection dialog (see Figure 43).

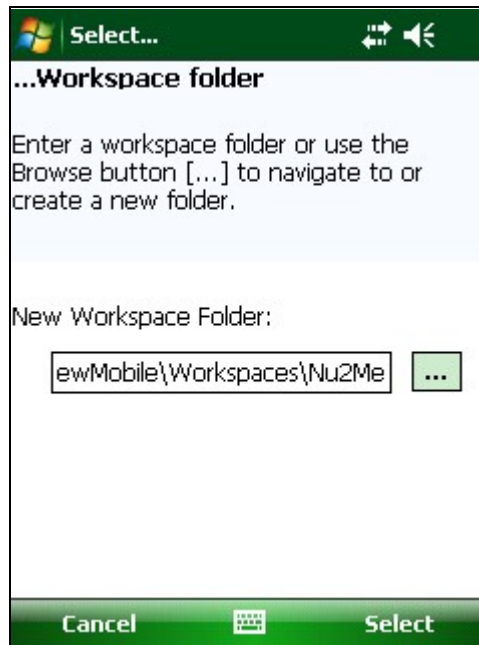


Figure 43 - Workspace Folder Selection Dialog

Tapping on the browse [...] button brings up the file selection dialog and allows the user to select a folder where the workspace was previously stored.

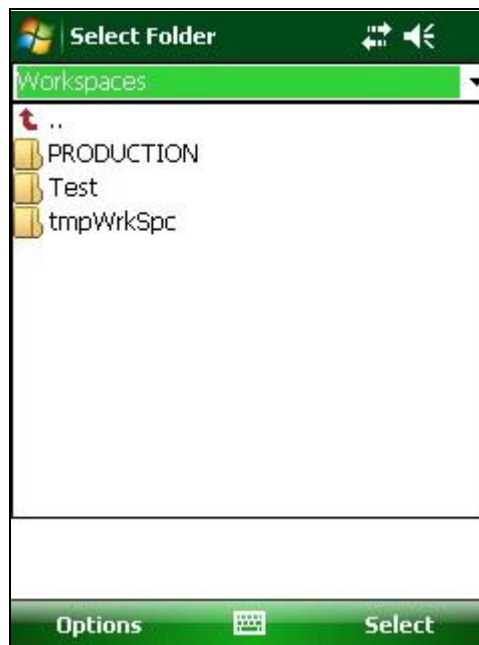


Figure 44 - File/Folder Selection Dialog

Tap on a folder to highlight it then tap "Select" to select it and return to the Workspace Selection dialog. If a workspace was already stored in the folder selected in the step above (see Figures 43 and 44) then the dialog shown in Figure 45 is displayed.

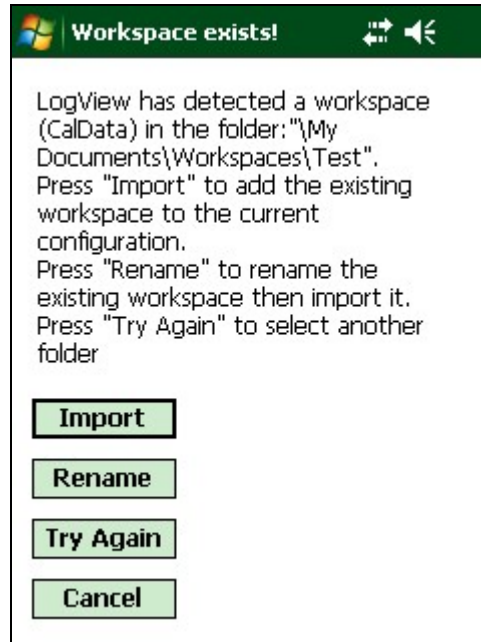


Figure 45 - Workspace Exists Warning

The dialog shown in Figure 45 allows the user to import the old workspace as is, rename the workspace or try again to find another suitable workspace.

LogView Mobile stores the "new" workspace name and maintains a link to the actual workspace folder location. The added workspace becomes the current workspace and is displayed in the project explorer.

4.3 Maintenance of Workspace Files

As time goes on, LogView Mobile workspaces can grow considerably in size due to regular activities such as adding new datalogger and sensor configurations, performing regular data downloads etc. It is considered good housekeeping practice to occasionally perform file maintenance by removing files that are no longer needed.


File maintenance processes are hierarchical in nature, as they adhere to the same containment patterns expressed in the project explorer. This means that removal of projects causes the removal of datalogger and sensor configurations, as well as data files contained within removed projects. Similarly, removal of a datalogger results in the removal of sensor configurations and data files contained within it.

To remove sensors, dataloggers or projects (and their respective files) from a workspace, select in the Project Explorer, the workspace item for removal. Tap the "File" menu, then the "Delete" menu item. The only enabled choice should correspond with the current project explorer selection – either "Project" or "DataLogger". Tap the appropriate menu-item and then tap "Yes" when the confirmation dialog is displayed.

5. Working with Projects

There are four different types of resources in a LogView Mobile workspace: projects, dataloggers, sensors and data files. Projects are the highest organizational units of work within a workspace. Projects contain datalogger and sensor configuration information, as well as data files.

5.1 What Is A Project?

Projects organize dataloggers into logical units. Projects allow a LogView Mobile user to group dataloggers into organizational units, which reflect specific installation sites where dataloggers are located, such as mines, or construction sites. This organizational feature makes it easy to find datalogger configurations along with related data files. Projects can be accessed in LogView Mobile by selecting them in the Project Explorer window. Project elements are represented by the project icon  in the explorer tree.


Project configuration includes information that defines each project's individual characteristics, such as the project's name and description.

LogView Mobile stores project configuration in a file with a “.proj” extension in the project folder. Project files are not meant to be edited directly. It is best to let LogView Mobile manage your project files for you.

After creating a project, you can add to and update its information. The project you are currently working with is referred to as the *active project*.

5.2 Adding New Projects

The following steps outline how to add a new project to your workspace:

1. With the HHD stylus, tap and hold the workspace element  in the project explorer pane.
2. From the context drop-down menu, select "Add Project" (see Figure 46).

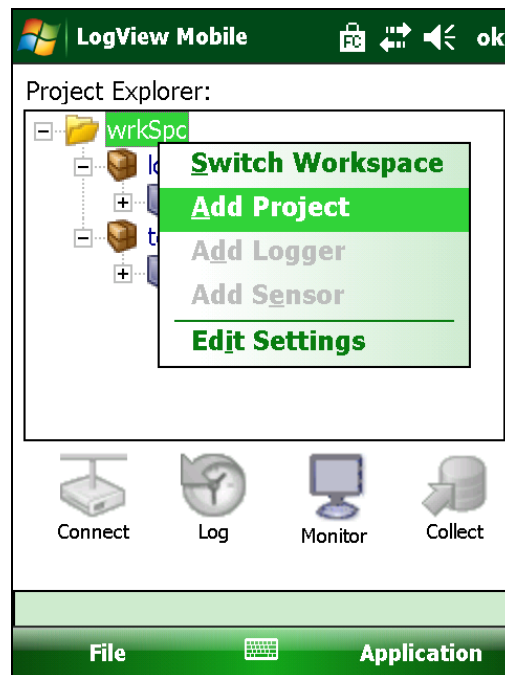
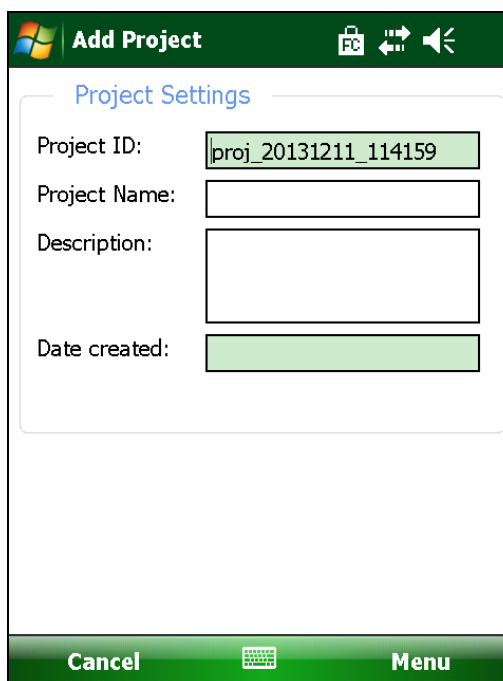


Figure 46 - Adding a Project

3. LogView Mobile will display the Add Project Dialog. Enter a name for the new project and a description (see Figure 47).



The image shows a mobile application dialog titled "Add Project". At the top, there is a green header bar with a Windows logo on the left, the text "Add Project" in the center, and three icons (a folder, a double-headed arrow, and a speaker) on the right. Below the header, the dialog has a white background with a section titled "Project Settings" in blue text. This section contains four input fields: "Project ID:" with the value "proj_20131211_114159", "Project Name:" (empty), "Description:" (empty), and "Date created:" (empty). At the bottom of the dialog is a green bar with three buttons: "Cancel", a keyboard icon, and "Menu".

Figure 47 - Add Project Dialog

4. Save the new project by tapping on "Menu" and then tap on "Save Settings". After saving the new project configuration, a project icon will be added to the workspace tree in Project Explorer. 📁
5. Once the new project has been added, new dataloggers may be added to it.

6. Working with Dataloggers

Datalogger devices are managed by LogView Mobile in the context of their respective projects. Multiple dataloggers can co-exist in a single project.

6.1 What Is A Datalogger?


A datalogger is a device represented within LogView Mobile as a grouping of related datalogger attributes. Dataloggers "contain" the sensors that attach to them and appear above sensors in the Project Explorer hierarchy.

A datalogger contains information that defines each datalogger's individual characteristics, such as the logger model, connection parameters, logging settings, and data correction attributes. Project Explorer marks dataloggers with the following icon:



LogView Mobile stores datalogger information in a file called `.logger` in a folder with the same name as the datalogger ID. Datalogger files are not meant to be edited directly. It is best to let LogView Mobile manage your datalogger files for you.


After creating a datalogger, you can add to and update its information. For example, you might add information on how to connect to the device.

The datalogger you are currently working with is called the *current datalogger*. The *current datalogger* sets the context for all of the LogView Mobile tools. For example, when you tap the button  to connect to the datalogger, you will be connecting to the current datalogger.

6.2 Adding A Datalogger

Datalogger devices exist in LogView Mobile as child elements of a project. Adding a datalogger consists of creating a datalogger configuration under a specific project in the Project Explorer

The following steps outline how to add a new datalogger to an existing project:

1. With the stylus, tap and hold the desired project  in the Project Explorer pane.
2. Tap the drop-down control to display the context drop-down menu.
3. From the context drop-down menu select "Add Logger"(see Figure 48).

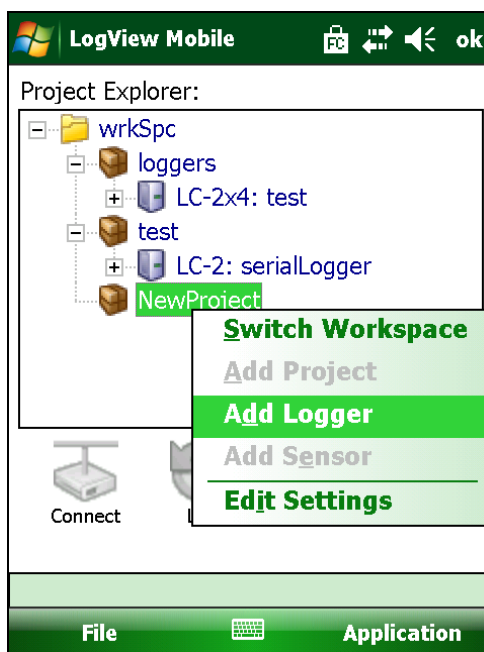


Figure 48 - Adding a Datalogger

4. LogView Mobile will display the datalogger settings dialog (see Figure 49). You will need to specify the datalogger model and name as a minimum. See section 8.3 for more information on all of the "DataLogger Settings".

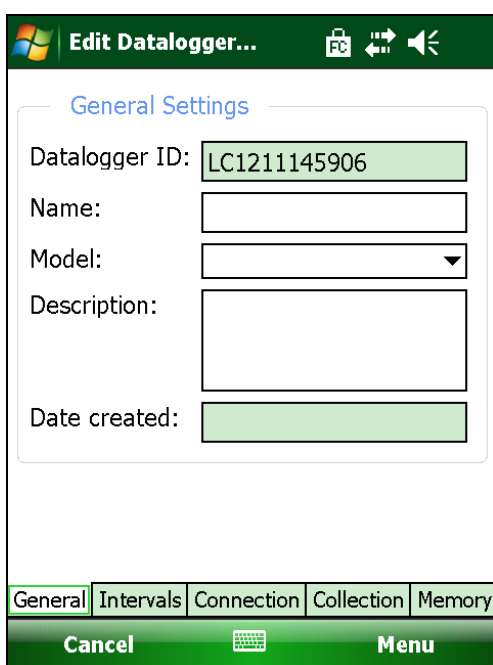


Figure 49 - Edit Datalogger Settings

6.3 Connecting To A Datalogger

After selecting the datalogger to connect to in the Project Explorer, click on the Connect button in the toolbar.

For users that are familiar with LogView, the LogView Mobile connection process is similar. LogView Mobile will attempt to "open" a connection to the selected datalogger by querying the selected COM port to see if there is a recognizable device attached.

Because of the differences between COM port numbering for PC's versus HHD's, the COM port parameter in the Datalogger Connection Settings tab may need to be edited if a datalogger configuration has been imported from a PC. The following table is a good starting point when trying to determine which COM port number is correct for which datalogger:

| Datalogger Type | Nautiz X7 HHD | Archer Field PC |
|-------------------------------------|---------------|-----------------|
| RS-232 Datalogger (Model #8002-X-1) | COM1 | COM1 |
| USB Datalogger (Model #8002-X-2) | COM8 | COM0 or COM2 |

While connecting, the status will display as shown in Figure 50.

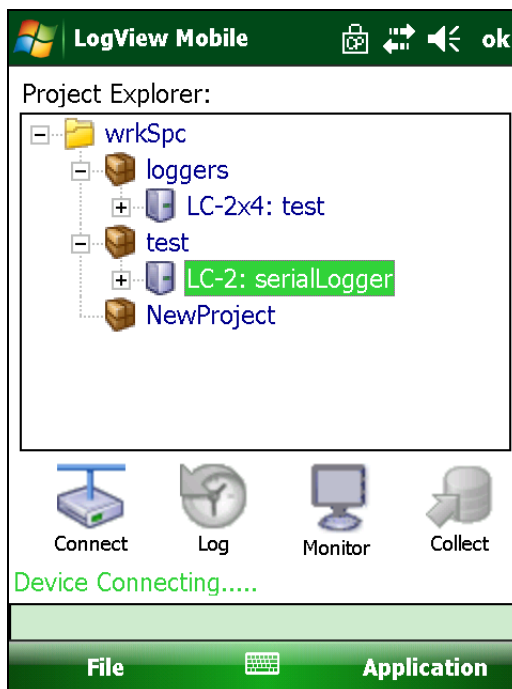


Figure 50 - Device Connecting

If the connection attempt is successful the connection status will change from "Device Connecting..." to "Connected". Data can then be collected from the datalogger and sensors can be read (see Figure 51).

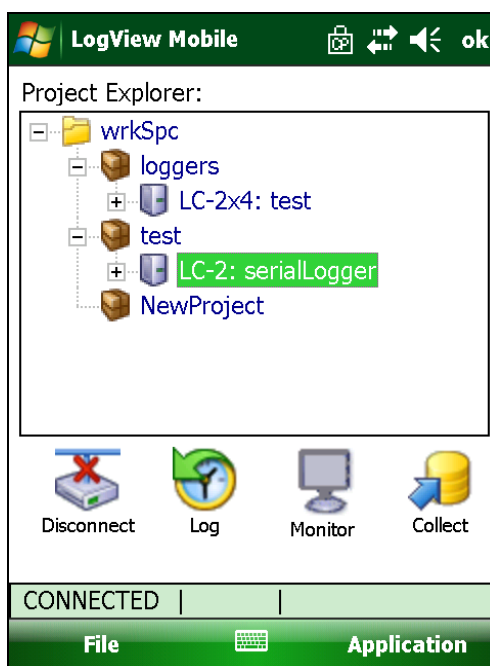


Figure 51 - Datalogger Connected

Should the connection attempt fail because of a mismatched logger configuration, i.e., an LC-2 datalogger was configured in the datalogger settings but an LC-1 datalogger is actually connected, the error shown in Figure 52 will be displayed.



Figure 52 – Mismatched Datalogger Model Error

Should the connection attempt fail due to a cabling issue, the error shown in Figure 53 will be displayed.

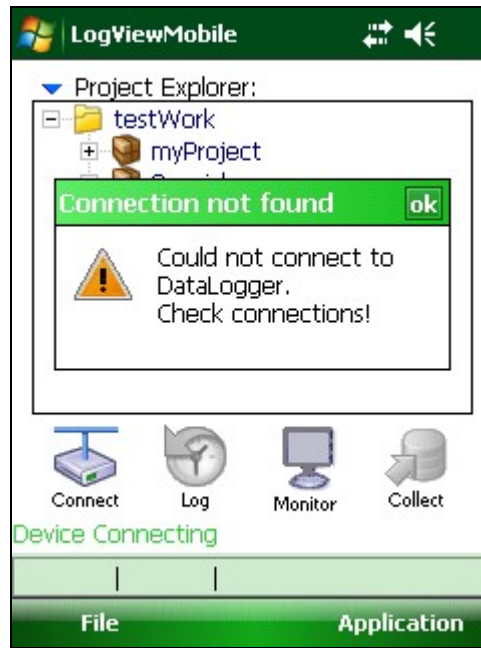


Figure 53 - Datalogger Cabling Problem

When connecting to a datalogger the first time or if an entirely new datalogger configuration has been created for a particular datalogger, the warning shown in Figure 54 will be displayed.

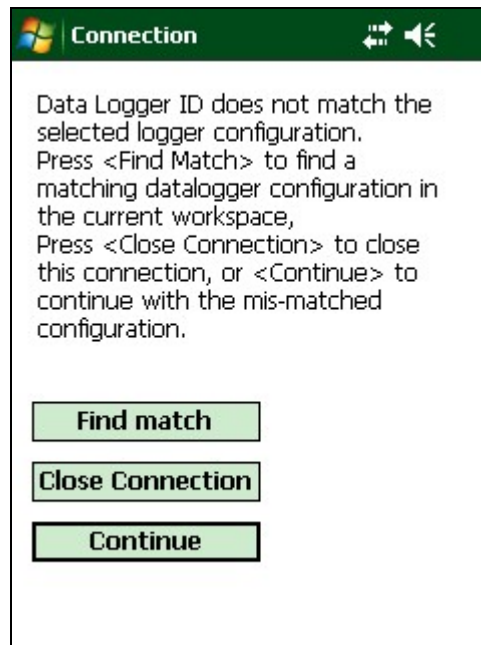


Figure 54 – Datalogger ID Mismatch Warning

If the configuration is new then this warning is normal and only indicates that the ID for the physical datalogger is different than the one created in the configuration. Tap the "Continue" button to finish the connection process, and then use the File->Upload Settings function to synchronize the configuration with the datalogger.

If the configuration is not (or should not be) new, then check to make sure that the correct datalogger is connected, the correct datalogger configuration is selected in LogView Mobile and/or that the correct workspace or project is selected.


6.4 Collecting Data

The datalogger has to be connected in order to collect data. Data arrays collected from the datalogger are automatically stored by LogView Mobile in data files. These data files are stored in the workspace and can be exported to other locations and in other formats using the Data Export function (see section 3.4.5.1). Please see section 3.5.6 “Collect” for more information regarding data collection.

6.5 Monitoring Data


If the selected datalogger is connected AND has logging enabled, data monitoring can be started by tapping the “Monitoring” button in the Tool Bar.

Data monitoring allows the user to watch real-time sensor readings reported by the Datalogger. While the monitoring session is in progress, the user can initiate a read of a single array of data using the “Read Now” button. This commands the datalogger to actuate all connected sensors and data arrays obtained using the Read Now function are not stored in the datalogger's memory and do **not** appear in data files collected from the Datalogger. This is particularly helpful when logging intervals are long and waiting for the next scheduled readout is not practical. Please refer to section 3.5.3 for more information regarding Monitoring.

 **Note:** The selected datalogger has to be connected to LogView Mobile and be actively logging data in order to start a monitoring session.

6.6 Viewing Data

Data collected from the datalogger can be viewed off-line in LogView Mobile, without requiring an active datalogger connection while data is being displayed. The View Data File feature relies on data that has been collected in advance. Data collected from dataloggers is stored by LogView Mobile in data files located in the workspace folder structure.


 **Note:** Data cannot be viewed while another activity, such as monitoring, is ongoing. This ban is enforced to prevent corruption of the data display with multiple data streams coming from conflicting sources.

See section 3.4.2 “View Data Files” for more information.

7. Working with Sensors

Sensors are managed in LogView Mobile in the context of the datalogger that they are attached to.

7.1 What Is A Sensor?

A sensor is a device for taking measurements while connected to a datalogger. Sensors appear in LogView's Project Explorer as an element configured under dataloggers, marked with the  icon.

LogView collects data measured by the sensor through a connection with the datalogger. Once you add a sensor to a datalogger in LogView Mobile, you can specify its attributes. For example, you might specify sensor model, zero readings, measurement units, temperature conversion, measurement conversion method, and coefficients.

Depending on the model of the datalogger, LogView Mobile allows you to configure one or more sensors under a single datalogger. Sensor(s) appear in the project explorer window under dataloggers. Sensor measurements can be viewed in LogView in two modes:

Real-time data monitoring

Sensor data can be monitored real-time, as it is measured, when the datalogger is actively connected to LogView. Data is fed to LogView Mobile based on the preset interval configured in the datalogger settings. While in the monitoring mode, user can use the "Read Now" button to force the next sensor readout. Any *Read Now* activity does not result in a log entry made in the datalogger and does not show up in downloaded data.


Viewing of data files

Sensor measurements collected by the datalogger can be downloaded to LogView and saved in a data file, based on several data collection options. Once the data is collected/downloaded to LogView Mobile, it is stored in a data file and can be viewed off-line. You can view stored measurements from data files in LogView Mobile using the provided textual viewer. Data files remain under LogView Mobile's control and can be exported for further processing in formats acceptable to third party application such as MS Excel.

7.2 Adding Sensors

Sensor information is implicitly connected to a datalogger. LogView Mobile allows you to add sensor(s) to the selected datalogger. Based on the datalogger model, you can add one or more sensors. Single channel dataloggers accept only one sensor, while multi-channel dataloggers accept up to 16 sensors, depending on the model.

The following steps outline how to add a new sensor to an existing datalogger:

1. With the stylus, tap and hold the desired datalogger  in the Project Explorer pane.
2. From the context drop-down menu, select **Add Sensor** (see Figure 55).

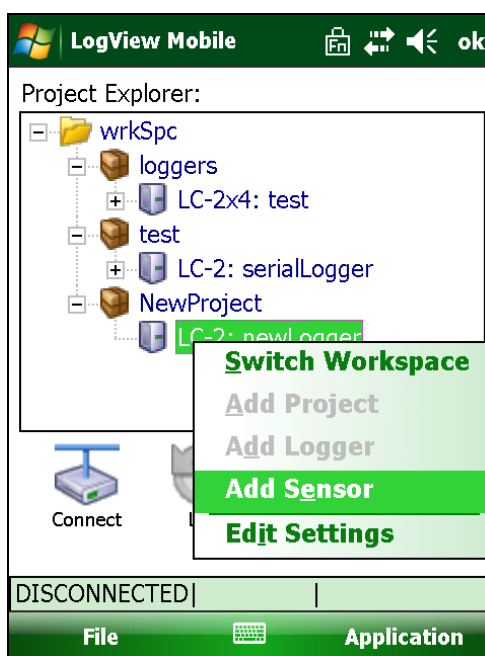



Figure 55 - Adding a Sensor

3. LogView Mobile will display the Sensor Settings dialog (see Figure 56). The sensor model and name are supplied as default values and should be changed. The sensor should also be enabled. See section 8.4 for more information on "Sensor Settings".
4. Tap **Menu**, then **Save Settings** when done.
5. Remember to upload the new sensor information to the selected datalogger.

Figure 56 - Sensor General Settings

Note the sensor channel indices on the bottom edge of the Sensor Settings dialog (see figure above). These correspond to the number of channels a particular datalogger has. For instance, an LC-2x16 will have 16 channel indices displayed, while an LC-2 will only display one sensor index. From the Sensor Settings dialog, parameters for a particular sensor can be viewed/edited by tapping on the number corresponding to the channel index.

 **Note:** Adding sensors and saving them in LogView Mobile has no effect on the selected datalogger until the new settings are uploaded to the datalogger. Until such time, the configuration remains out of sync with the datalogger.

7.3 Zero Reading

Performing a “Zero Reading” requires an active datalogger connection. Tapping the “Application->DataLogger->Perform Zero Reading” menu item will stop any datalogging activity in progress and perform several steps to obtain a zero reading. LogView Mobile sends a sequence of commands to datalogger.


The Zero Reading utility expands to fit the number of sensors attached to the active datalogger. Figure 57 shows the Zero Reading utility for a multiple sensor configuration.

The image shows a 'Zero Reading' dialog box with a green header bar containing a Windows logo, the title 'Zero Reading', and icons for expand, collapse, and OK. The dialog is divided into three sections: 'Current Settings', 'New Settings', and 'Save Readings For:'. The 'Current Settings' section has two input fields: 'Zero Reading:' with the value '0.0' and 'Initial Temperature:' with the value '0.0'. The 'New Settings' section has two empty input fields for 'Zero Reading:' and 'Initial Temperature:'. The 'Save Readings For:' section has two radio buttons: 'This Channel' (selected) and 'All Channels'. At the bottom, there is a row of three tabs labeled '1', '2', and an empty tab. Below the tabs is a green bar with a 'Save' button, a small icon, and the text 'Zero Reading'.

Figure 57 - Zero Reading Dialog

When connected to a multi-sensor datalogger, the Zero Reading utility allows you to selectively set zero readings on per-channel basis. Disabled channels do not appear in the row of tabs at the bottom edge of the display.

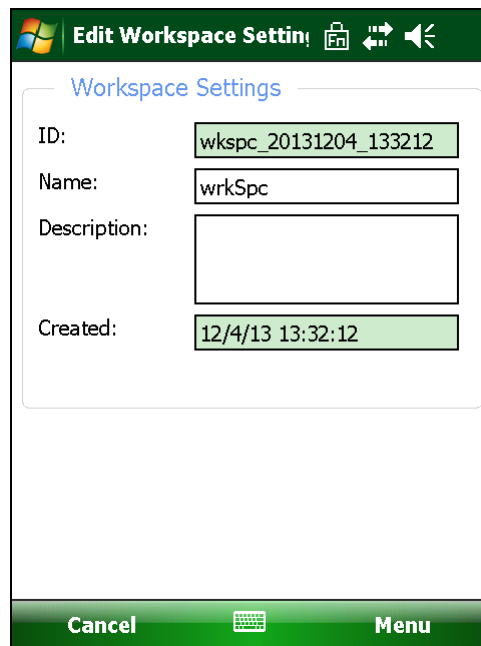
The Zero Reading utility configures the datalogger to record a zero reading by automatically setting the zero reading to 0 and the gage factor to 1. The resultant measurement is then displayed in the Zero Reading "New Settings" window. The new values will only be saved if the user explicitly taps the "Save" menu item.

 **Note:** Like with most other settings, saving the zero reading measurement in LogView Mobile does not set the value in datalogger device. You must upload settings to the datalogger following a successful save of the measurement in order for the settings to take effect.

8. Configuration

8.1 Workspace Settings

The Workspace Settings dialog allows the user to set the workspace attributes shown in Figure 58.



The screenshot shows a dialog box titled "Edit Workspace Settings". It has a green header bar with a Windows logo, the title, and three icons (a folder, a double-headed arrow, and a speaker). Below the header is a section titled "Workspace Settings" in blue. This section contains four fields: "ID:" with the value "wkspc_20131204_133212", "Name:" with the value "wrkSpc", "Description:" with an empty text area, and "Created:" with the value "12/4/13 13:32:12". At the bottom of the dialog are two buttons: "Cancel" and "Menu".

Figure 58 - Workspace Settings Dialog

| | |
|-----------------------|---|
| Workspace id | This is a system generated workspace ID assigned at the time when workspace is first created. This value uniquely identifies the workspace for internal system usage and cannot be changed by the user. |
| Workspace name | This is a user-assigned workspace name which is displayed in the project explorer. A workspace should be named in such a way as to allow the user to quickly identify the workspace. |
| Description | Verbose description of the workspace which can provide further clues to its usage. |
| Date created | System-generated date of workspace creation. This value cannot be changed. |

8.2 Project Settings

The Project Settings dialog allows the user to set the project attributes shown in Figure 59.

The screenshot shows a mobile application interface for editing project settings. The dialog box has a green header with the title 'Edit Project Settings' and three icons: a save icon, an undo icon, and a redo icon. The main content area is titled 'Project Settings' and contains four labeled input fields. The 'Project ID' field is pre-filled with 'proj_20131211_114159'. The 'Project Name' field contains 'NewProject'. The 'Description' field contains 'A new project'. The 'Date created' field is pre-filled with '12/11/13 11:47:05'. At the bottom of the dialog, there are two buttons: 'Cancel' and 'Menu'.

Figure 59 - Project Settings Dialog

- | | |
|---------------------|--|
| Project ID | This is a system generated project ID assigned when the project is created. This value uniquely identifies the project for internal system usage and cannot be edited by the user. |
| Project name | This is the user-assigned project name which is displayed in the project explorer. This name should be brief, allowing for quick identification of the project. |
| Description | Verbose description of the project which can provide clues to what it contains. |
| Date created | System-generated date corresponding to the project's creation. This value cannot be changed. |

8.3 Datalogger Settings

The Datalogger Settings dialog is used to control various configuration settings of the datalogger device. These configuration settings are stored in a dedicated configuration file specific to the selected datalogger.


Making configuration changes to the datalogger device is a 3-step process:


1. Make change(s).
2. Save configuration.
3. Upload settings to the datalogger.

The last step is necessary to configure changes in the datalogger. If the datalogger is not connected, configuration changes can be made off-line then saved. When the datalogger is subsequently re-connected, the new configuration should be uploaded to the datalogger to avoid a configuration mismatch.

The Datalogger Settings dialog is organized into sections, or tabs, where each tab is focused on a related group of options. The Datalogger Settings dialog contains the following tabs:

- General
- Intervals
- Connection
- Collection
- Memory

The settings of two of the tabs, Intervals and Collection, require multi-pane screens to contain all the parameters that pertain to that particular tab. The user can navigate between screens by tapping on the Next arrow, 

or the Previous arrow, 

Sections 8.3.1 through 8.3.5 contain descriptions of the tabs mentioned above along with a detailed description of all parameters in each tab.

8.3.1 General Settings

The General tab of the Datalogger Settings dialog is used to set and/or view the identification attributes shown in Figure 60 and described below:


The screenshot shows a Windows-style dialog box titled "Edit Datalogger...". It has a green header bar with a Windows logo, the title, and icons for a folder, a double-headed arrow, and a speaker. Below the header, the "General Settings" tab is selected. The dialog contains the following fields:

- Datalogger ID:** A text box containing "LC1210153049".
- Name:** A text box containing "serialLogger".
- Model:** A dropdown menu showing "LC-2".
- Description:** A large empty text area.
- Date created:** A text box containing "12/10/2013 15:31:28".

At the bottom, there are five tabs: "General" (selected), "Intervals", "Connection", "Collection", and "Memory". Below the tabs are two buttons: "Cancel" and "Menu".

Figure 60 - Datalogger General Settings

| | |
|------------------------|---|
| Datalogger ID | This is a system generated Datalogger ID assigned at the time when the datalogger configuration is created. This value uniquely identifies the datalogger for internal system usage and cannot be changed by the user. When datalogger settings are uploaded to the datalogger device, this value is used to set the Datalogger ID. |
| Datalogger name | This is a user assigned datalogger name which is displayed in the project explorer. The name should be descriptive enough to allow the user to quickly pick the device from the list. |
| Model | This is the datalogger model. It can only be assigned when the datalogger configuration is first added. If there is a need to change the datalogger model, a new datalogger configuration should be created and then the old one should be deleted. |
| Description | More verbose description of the datalogger device, which can provide clues to the logger location, purpose, etc. |
| Date created | System-generated date of the datalogger configuration creation. This value cannot be changed. |

 **Note:** The datalogger model cannot be changed once the initial logger configuration is saved. If model change is necessary, it is best to delete current Datalogger and add a new one to your project with correct datalogger model selected

8.3.2 Intervals Settings

The Intervals tab is used to define the measurement intervals of the datalogger.

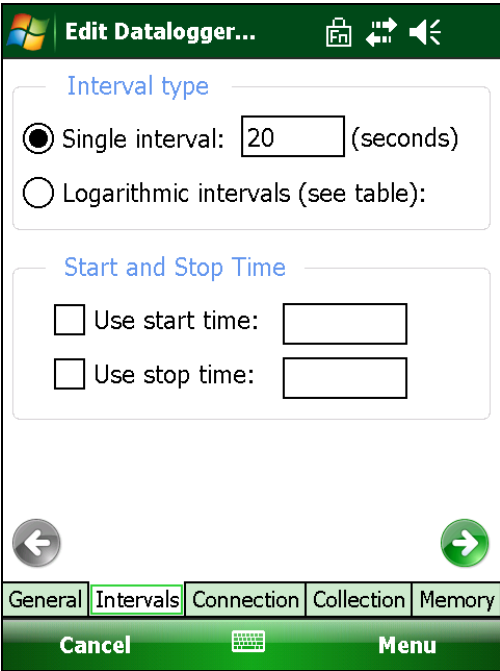


Figure 61 - Interval Settings (screen 1)

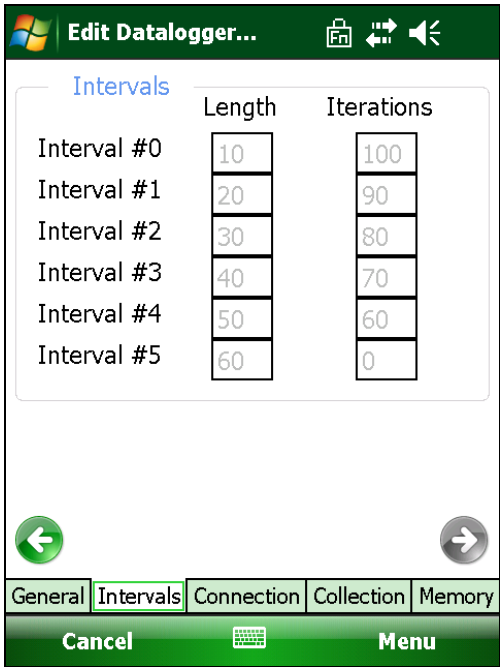



Figure 62 - Interval Settings (screen 2)

Interval type Specify whether **Single interval** or **Logarithmic intervals** are used to schedule readings.

When using **Single interval**, the adjacent "(seconds)" entry box is used to specify the measurement interval (see Figure 61). If the "(seconds)" entry divides evenly into the time then readings will be synchronized to real-time (unless the Start Time feature is being used). For example, entering 3600 will synchronize readings on the hour, every hour.


When using **Logarithmic intervals**, the **Intervals** table is used to schedule measurements (see Figure 62). Up to 6 different interval lengths and iterations can be entered. Interval lengths are specified in seconds and iterations are the

number of times each interval is repeated. Entering a zero (0) for any iteration will cause the datalogger to repeat that interval until logging is disabled. Quite often, the last iteration value will have a zero (0) entry. In this way the entire logarithmic table is used and the last interval will be repeated until logging is stopped.

 **Note:** If the last iterations value in the intervals table is non-zero, the datalogger will log data for the specified number of iterations at the entered interval then stop logging.

Start and Stop Times

To enable the Start or Stop Time (or both) feature, check the corresponding box, then enter the respective start or stop time. The time format is 24 hour. For example, to start the datalogger recording at 8:00 PM, enter a start time of "20:00". To stop the datalogger recording at 9:30 PM, enter a stop time of "21:30". The time format entered must be HH:MM. This feature is useful for synchronizing the start of recording for more than one datalogger.

 **Note:** In the example above, the datalogger will start and stop the logging of data at the specified times **one time only!** The datalogger WILL NOT re-start the logging of data the following day at 20:00 hours.

Intervals

If the **Logarithmic intervals** are enabled, the *Length* and *Iterations* table (see Figure 62) is used to schedule readings. See the following guidelines for the *Length* and *Iterations* entries.

Length - The units are seconds. The maximum interval length is 86,400 seconds or one set of readings per day. The minimum interval length is 3 seconds. An entry of 0 is not allowed. The intervals do not synchronize with real time.

Iterations - The repetitions of each interval length. The maximum is 255. Entering 0 will repeat the interval length indefinitely.

8.3.3 Connection Settings

Connection Options are used to define how the connection is made to the datalogger. LogView supports the connection types outlined below (see also Figure 63):

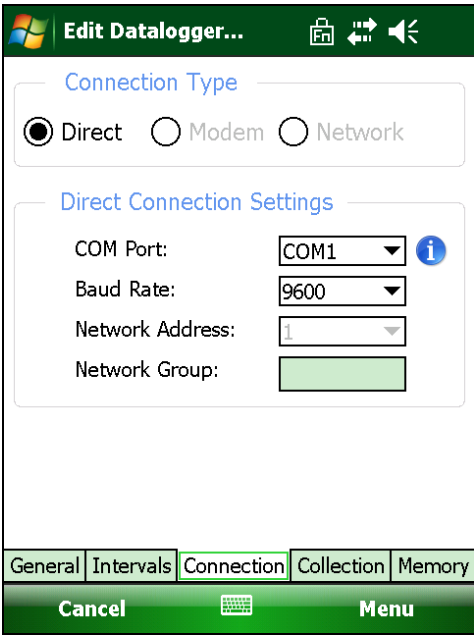



Figure 63 - Datalogger Connection Settings

Direct Direct serial connection via PC COM port. Select the COM port that is being used to communicate with the datalogger. LogView creates the list of available ports by checking the HHD to see which COM ports are installed.

 **Note:** The list may include ports that are assigned to other communication devices installed in the HHD, such as phone modems and Bluetooth virtual COM ports.


Modem

 **Note:** Currently LogView Mobile does not support Modem communication devices.

Network

 **Note:** Currently LogView Mobile does not support Network communication devices.

Direct Connection Settings – As can be seen from Figure 63, the 2 parameters that require attention for a Direct Connection are:

COM Port – A COM port needs to be specified so that the HHD can communicate with the datalogger. Tapping on the “Info” icon,  beside the “COM Port:” selection control (see Figure 63) displays the information dialog shown in Figure 64. (Also see Section 6.3, “Connecting to a Datalogger” for more information on selecting a COM port)

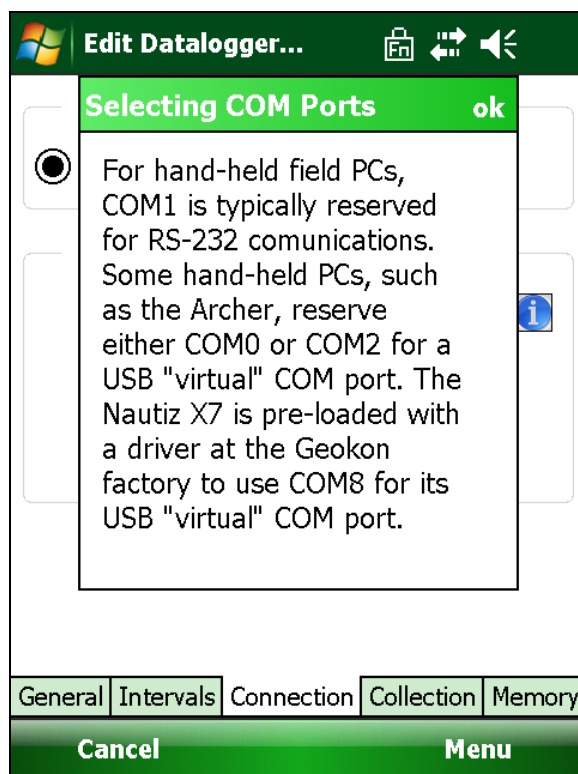


Figure 64 - Selecting COM Port Information Dialog

Baud Rate – For most dataloggers, the best choice for “Baud Rate” will be 9600, however, some older LC-2x4 loggers need 57600 baud for proper operation and all new dataloggers (5.0.X or greater for LC-2, 3.0.X or greater for LC-2x4 and LC-2x16) will operate at 115200 baud, as well as 9600. If any baud rate is selected other than 9600, LogView Mobile will display a warning message with the appropriate firmware version that’s required by the baud rate selection.

8.3.4 Data Collection Settings

Data Collection Options are used to define how data collection is performed by LogView Mobile (see Figures 65 and 66).

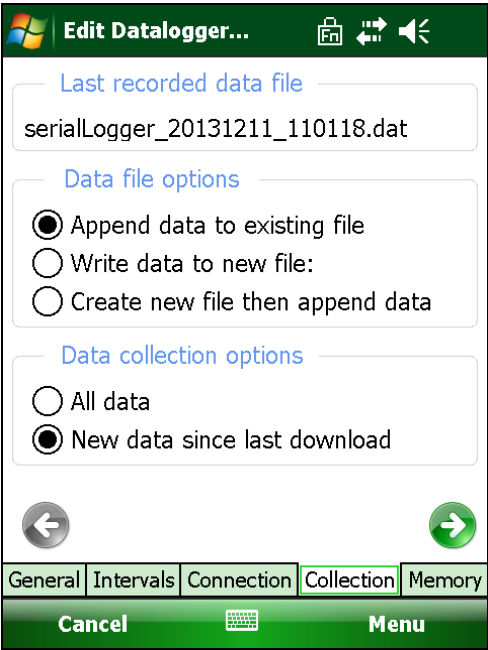


Figure 65 - Collection Settings (screen 1)

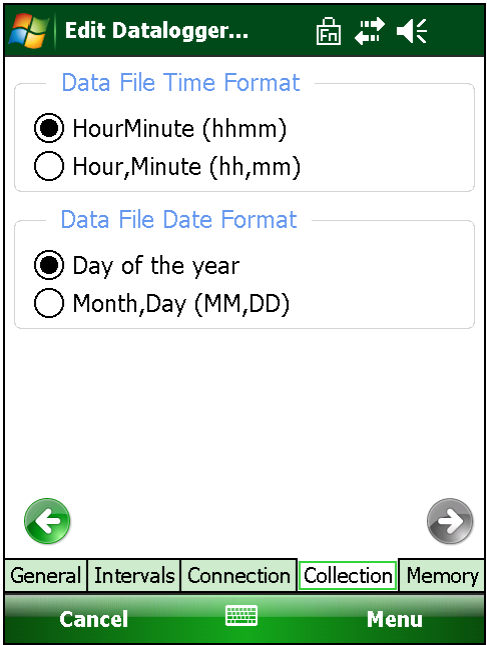


Figure 66 - Collection Settings (screen 2)

| | | |
|--------------------------------|---|---|
| Last recorded data file | Name of the file used in recording of the last data collection (see Figure 65). | |
| Data file options | <i>Append data to existing file</i> | writes data to existing file, appending it sequentially after the last data record. |
| | <i>Write data to new file</i> | creates new file each time data is collected. |
| | <i>Create new file then append</i> | creates a new when data is initially collected then appends data to this file on each subsequent collection. |
| Data collection options | Defines how much data is collected (see Figure 65): | |
| | <i>Collect all data</i> | always collect all data stored in the datalogger's memory. |
| | <i>Collect new data since last download</i> | use the pointers recorded at the Last Data Collection to determine how many arrays need to be collected. If there was no previous data collection ALL arrays in the dataloggers memory will be collected. |

**Data file
time format**

Defines how the time is stored in the data file (see Figure 66):

| | |
|----------------------------|--|
| <i>HourMinute(hhmm)</i> | 4 characters representing time of day. |
| <i>Hour, Minute(hh,mm)</i> | hour and minutes separated by a comma, representing time of day. |

**Data file
date format**

Defines how the date is stored in the data file (see Figure 66):

| | |
|----------------------------|---|
| <i>Day of the year</i> | DDD format, based on the number of days in a year (also known as Julian). |
| <i>Month, Day (MM, DD)</i> | Month and Day format. |

8.3.5 Memory Settings

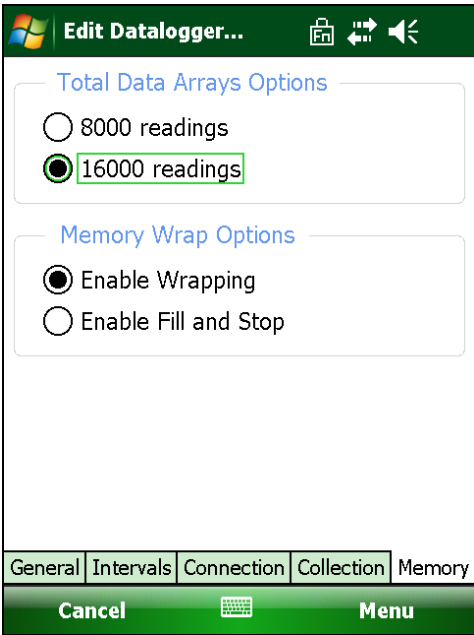




Figure 67 - Datalogger Memory Settings

| | |
|---------------------------------|---|
| Total Data Array Options | Defines the maximum number of data arrays stored in memory. The image above depicts the choices available for an LC-2 datalogger. For all other datalogger models, this value is read-only and cannot be changed. |
| Memory Wrap Options | Defines if readings can wrap in memory once the maximum number of arrays have been reached. |

8.4 Sensor Settings

The Sensor Settings window manages sensor configuration options for both single and multi-channel dataloggers through several different screens.

The user can navigate between screens by tapping on the Next arrow, 

or the Previous arrow, 

The Sensor Settings window enables the user to move quickly through the list of sensors by using the tab bar on the bottom edge of the window. As can be seen below, a tab appears for each possible sensor, as determined by the datalogger model (an LC-2 will have one sensor, an LC-2x4 will have four, and an LC-2x16 will have sixteen). Each sensor can be individually enabled or disabled by using the selection box located at the top-right hand side of the window.

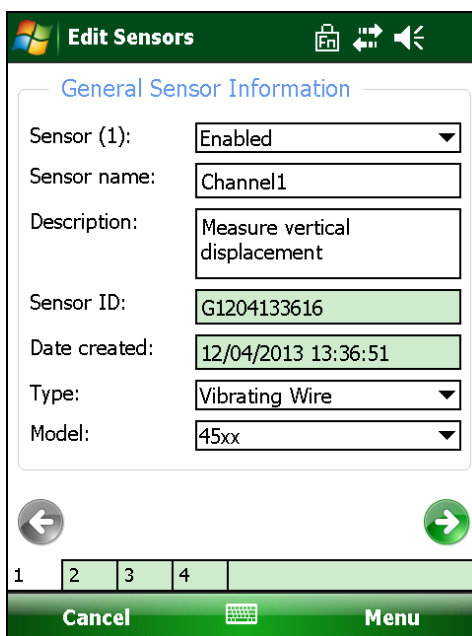


Figure 68 - Sensor General Settings

A detailed explanation of the parameters for the General sensor information window appears below (see Figure 68):

- Sensor (n)** This parameter allows enabling or disabling of each sensor, independent of the others. Valid choices are: "Enabled" and "Disabled".
- Sensor name** This is a user assigned sensor name which is displayed in the project explorer. A descriptive name allows the user to quickly pick the sensor from the list.

| | |
|---------------------|---|
| Description | Verbose description of the sensor which can provide clues to its location, purpose, etc. |
| Sensor ID | This is a system generated sensor ID assigned at the time of sensor configuration creation. This value uniquely identifies the sensor to LogView and cannot be changed by the user. |
| Date created | The system-generated date of the sensor creation is useful for audit purposes. This field cannot be edited and is set to the date when the sensor is enabled. |
| Type | The sensor type - selected from the list of supported sensor types, i.e., Vibrating Wire. |
| Model | Sensor model - selected from the list of supported sensor models, i.e., 45xx. |

The second page of the Sensor Setting window contains parameters that determine how sensors are converted from Digits to Engineering Units. A detailed description of all the parameters on this page appears below (see Figure 69):

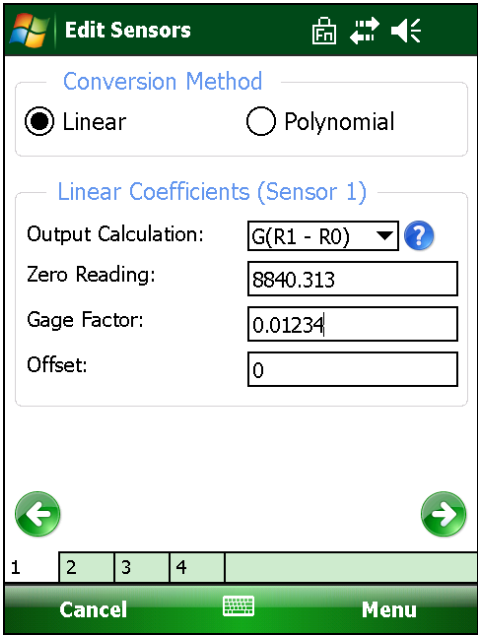



Figure 69 - Sensor Settings (Conversion Method)

Conversion Method:

| | |
|-------------------|---|
| Linear | Selecting this radio button enables the Linear Coefficients parameters (see below) and, after uploading the settings, will cause the datalogger to apply a linear conversion factor to convert subsequent readings from Digits to Engineering Units. See section 9.1 for more information regarding the Linear Conversion method and Linear Coefficients. |
| Polynomial | Selecting this radio button enables the Polynomial Coefficients parameters (see below) and, after uploading the settings, will cause the |


datalogger to apply polynomial conversion factors to convert subsequent readings from Digits to Engineering Units. See section 9.2 for more information regarding the Polynomial Conversion method and Polynomial Coefficients.

 **Note:** When creating a configuration for a sensor attached to an LC-1 AND polynomial conversion method is chosen, ensure that the LC-1 firmware version is 1.6 or greater.

Linear Coefficients:


Output Calculation

This parameter **must** be set for each enabled sensor before sensor settings can be saved. In conjunction with the firmware revision of the datalogger, this parameter ensures that the "gage factor" (below) will be correctly signed if entered directly as printed on the calibration sheet. Valid selections are: "G(R0 - R1)", "G(R1 - R0)" and "Digits Only". When this parameter is set to "Digits Only" no gage factor need be entered below and (after uploading settings to the logger) causes the datalogger to log "raw" digits readings.

 **Note:** Please consult the calibration sheet for each sensor to determine which formula, **G(R0 - R1)** or **G(R1 - R0)**, to select for the setting above.

Zero Reading

This parameter may be set manually from a previously taken reading or it can be automatically set using the "Zero Reading" function of LogView Mobile.

 **Note:** Please consult your sensor manual regarding various techniques for taking a zero reading.

Gage factor

This parameter may be entered directly from the Transducer Calibration Sheet, Linear Gage Factor value. If Output units differ from Input units (see above) then LogView Mobile will multiply the gage factor by the Units conversion factor (see above) before uploading to the datalogger.

Offset

This parameter can be set to any value representing some initial condition. This value will be added to all subsequent readings.

If "Polynomial" is selected in the Conversion Method box then the following parameters will be displayed just below it.

Polynomial Coefficients:

Coefficient A Enter the Polynomial Gage Factor A from the Sensor Calibration Sheet for this parameter.


- Coefficient B** Enter the Polynomial Gage Factor B from the Sensor Calibration Sheet for this parameter.
- Coefficient C** This parameter should be calculated from a field zero reading. Please refer to your transducer manual for further details on how to calculate Coefficient C.

The third page of the Sensor Setting window contains parameters that allow a conversion factor to be applied to data in Engineering Units to convert the data into a user-selected unit of measure. A detailed description of all the parameters on this page appears below (see Figure 70):


Figure 70 - Sensor Settings (Unit Conversion)

Units conversion:

Measurement The choices for this parameter are: DEFAULT (digits), PRESSURE, LOAD, DISTANCE and STRAIN.

 **Note:** If the “Output Calculation” parameter is set to “Digits Only” **OR** the datalogger model is set to LC-3 then this parameter will be have no affect and will be disabled.

Input units Native engineering units of the sensor. Choices are dependent on Measurement selection above and can be metric (SI) or English (US customary) units

 **Warning:** Please consult the calibration sheet that came with your sensor. Selecting Input units that are different from those specified on the calibration sheet may have unexpected consequences.

- Output units** Engineering units of logged values received from the datalogger. The choices for this parameter are dependent on the Measurement and Input units selected above and can be metric or English units.
- Factor** This parameter is dependent on Measurement, Input units and Output units selections above. This value is calculated by LogView Mobile and is display-only. The Gage factor (see above) is multiplied by this factor before uploading to the datalogger.

The fourth page of the Sensor Setting window contains parameters that allow a temperature correction factor to be applied to collected data. A detailed description of all the parameters on this page appears below (see Figure 71):

Figure 71 - Sensor Settings (Temperature Correction)

Temperature corrections:

- Sensor (n) Correction** The choices for this parameter are Enabled or Disabled. Select "Enabled" to enable correction of any errors in the sensor reading due to temperature. This feature does not apply to all sensors and will be disabled (grayed) when certain sensor models are selected, i.e., "44xx".
- Initial Temperature** Initial temperature reading taken when performing a "Zero Reading" of the sensor. This field does not apply to all sensors and will be disabled (grayed) when some sensor models are selected, i.e., "44xx".

Thermal Factor

Factor to multiply temperature difference by.


Formula is:

*Corrected Reading = Sensor Reading - ((Current Temperature - Initial Temperature) * Temperature Factor).*

This field does not apply to all sensors and will be disabled (grayed) when certain sensor models are selected, i.e., "44xx". See section 9.3 for more information regarding Temperature Correction.

Display Temperature in

Selects which units to display the temperature in. The choices are: Celsius or Fahrenheit.

 **Note:** Adding sensors and saving them in LogView Mobile does not take effect until settings are uploaded to the datalogger. Until such time, the LogView Mobile configuration remains out of sync with the datalogger device.


9. Measurements

9.1 Linear Coefficients


When Linear is selected as the Conversion Method (see section 8.4 for more information on Sensor Settings), the **Zero Reading**, **Gage Factor** and **Offset** entered will be used to convert the raw instrument reading to engineering units. The equation follows this form:

$$\text{Output} = ((R - \text{Zero Reading}) \times \text{Gage Factor}) + \text{Offset}$$

The **Gage Factor** is included on the instrument calibration certificate (see note below). The **Zero Reading** should, in most cases, be a field measurement because of differences in elevation and atmospheric pressure when calibrated at the factory. **R** represents the current instrument reading, **Offset** represents a value to be applied to adjust the **Output** to some designated units, i.e., adjust a water level calculation to sea level by entering the instrument elevation as an **Offset**.

 **Note:** Prior to versions V5.2.X (single channel) and V3.1.X (multi-channel), the LC-2 series dataloggers computed sensor output in engineering units as: $\text{Output} = ((\text{Zero Reading} - R) \times \text{Gage Factor}) + \text{Offset}$. When reading all sensors calibrated after 11-02-2011, these earlier dataloggers would require a negation of the gage factor to properly convert raw output in digits to engineering units. With the most recent version, LogView Mobile will now compensate for any output calculation mismatch.

If the Input Units and Output Units feature is being used, then LogView will multiply the **Gage Factor** by a pre-set factor to complete the conversion.


 **Note:** The **Zero Reading** that is entered will actually be rounded to the nearest 1/10 of a digit, i.e. a reading of 9734.16 will be rounded to 9734.2 before updating the datalogger.

9.2 Polynomial Coefficients

When Polynomial is selected as the Conversion Method (see section 8.4 for more information on Sensor Settings), the three coefficients entered as Coefficient **A**, Coefficient **B** and Coefficient **C** will be used to convert the raw instrument reading to engineering units. The equation follows this form:

$$\text{Output} = (R^2 \times A) + (R \times B) + C$$

The **A**, **B** and **C** coefficients are normally included on the instrument calibration certificate. They can also be generated with a spreadsheet program by performing a linear regression on the output units versus reading and reading squared. **R** represents the current instrument reading.

 **Note:** The **C** coefficient can be used to "zero-out" the instrument readings. Enter the appropriate **A** and **B** coefficients in the edit boxes and set the **C** coefficient to 0. Update the datalogger with the modified settings and note the reading displayed. This value can then be entered as the **C** coefficient. Remember to enter the value with the same magnitude but opposite sign.

If the Input Units and Output Units feature is being used then LogView Mobile will multiply the coefficients by a pre-set factor to complete the conversion. See Section 9.3 for more information on Temperature Correction.

9.3 Temperature Correction

The following formula is applied when the temperature correction selection is chosen.

$$\text{Output (corrected for temperature)} = \text{SR} + (\text{K} * (\text{T1} - \text{T0}))$$

Where:

- SR** = the current Sensor Read (taken from the datalogger)
- T1** = the Current sensor Temperature Reading
- T0** = the sensor Temperature Zero Reading (taken at the same time as the sensor's Zero Reading)
- K** = the sensor's Thermal Factor

This formula is applied to the data being stored in the data file on the computer and any data that is displayed during monitoring.

If the Input Units and Output Units feature is being used, then LogView Mobile will multiply the thermal factor (K) by a pre-set unit conversion factor (UC) to complete the conversion (see the Units Conversion Factor in section 8.4, "Sensor Settings", in this manual). The formula below illustrates the process when applying unit conversion to the temperature correction:

$$\text{Output (*)} = \text{SR} + (\text{UC} * \text{K} * (\text{T1} - \text{T0}))$$

Where:

- SR** = the current Sensor Read (from datalogger - units conversion already applied)
- UC** = the Units Conversion Factor
- K** = the sensor's Thermal Factor
- T1** = the current Sensor Temp reading (from the datalogger)
- T0** = the sensor's "Initial temp" (taken the same time as the sensor's Zero Reading)
- *** = corrected for temp & units conversion