LogTag®
Recorders

LogTag® Analyzer

User Guide

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Chapter 1

Introduction

LogTag® Recorders offer a range of recorder and indicator products for temperature and humidity, which are complemented by software and interface products. Some of these products can be used on their own, most often, however, you will use a combination of products to get the best results. LogTag® Recorders offer a variety of different models. The product range is constantly being updated and new models added, so visit the LogTag® Website at http://logtagrecorders.com frequently to get the latest information and news about upcoming product releases.

Typically LogTag® products are configured, put with goods that require monitoring and are downloaded once the goods receive their intended destination.

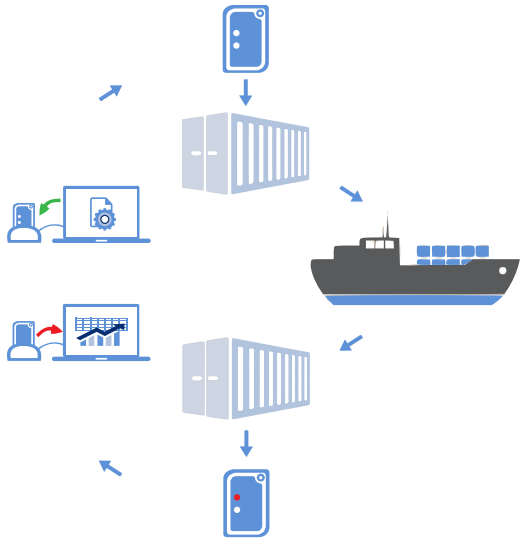


Figure 1: Typical distribution process with recorders and indicators

Other applications may involve stationary recorders placed in warehouses or fridges, such as the Vaxtag®, which can be seen in this video:

Figure 2: Example of a stationary recorder application

Recorders

LogTag® temperature and humidity recorder products are small, battery powered, credit card size devices with built-in sensors and data logging memory. They record between 4,000 and 16,000 samples from anywhere between -80°C and +100°C, depending on the model. For detailed information about individual data logger models please visit the LogTag® Recorders website at http://logtagrecorders.com/products.

Figure 3: Some of the LogTag® recorder products

Indicators

LogTag® temperature indicators are even smaller devices, also battery powered, containing a statistics memory, which can hold minimum and maximum values from anywhere between 20 days and three years. They feature a display for a quick assessment if goods have been exposed to temperatures outside pre-configured temperature limits. For detailed information about individual indicator models please visit the LogTag® Recorders website at http://logtagrecorders.com/products.

Figure 4: Some of the LogTag® indicator products

Software

Recorders and Indicators are downloaded using the LogTag® Analyzer software, which is also used to configure recorders.

This guide will take you through the relevant steps to successfully use the LogTag® products.

You will learn how to:

- install the software,
- configure LogTag® products for recording,
- retrieve the recorded readings,
- display and analyse the data and
- configure the available options in the software so you can make best use of its features.

Experienced users of the software may choose to skip chapters 1 to 3, however if you are about to use a newer version of a LogTag® or Interface Cradle we recommend you at least skim the installation chapter for any relevant changes.

This guide covers version 2.9 of the LogTag® Analyzer software. If you are unsure which version you are currently using, please read the section about Finding your software version (see page 182) included later in this guide.

If you find a feature described in this guide that does not appear in your software, we recommend you update it as explained in the section about Updating LogTag Analyzer (see page 19). You can always get the most up to date version of LogTag® Analyzer from the LogTag® Recorders website at http://logtagrecorders.com.

This guide includes all the relevant information to install and use the product range supplied by LogTag® Recorders, however, the reader is expected to be familiar with using a computer and the Windows® operating system.

Chapter 2

Installing the software

To use your LogTag® products you need to install LogTag® Analyzer on your computer. This will allow preparing your LogTag® for recording, retrieving the readings from memory at the end of a trip and analysing the data.

This chapter will take you through the installation steps. Experienced users may choose to skip this chapter. You should read it, however, if you are new to using a computer or installing software.

In this chapter:

System requirements 17
Getting a copy of the software 17
The installation process 18
Updating LogTag Analyzer 19
Starting the software 21

System requirements

To ensure that the software will work on your computer following minimum specifications are required:

- PC capable of running Windows® 7 or later, or Windows® 2008 Server or later
- 60MB free disk space
- Internet Explorer 8.0 or later
- 1 available USB port (depending on purchased interface you may need an RS232 serial port)
- 1024 x 768, or higher, screen resolution.
- 256 screen colours

The recommended specifications are:

- Processor equivalent to Pentium IV or later
- 512MB of available RAM
- Latest Internet Explorer
- 65535 (16bit), or more, screen colours.

If you are unsure of your computer's specifications, please refer to your operating system's documentation or help function.

Getting a copy of the software

The software can be download from the from the LogTag® Recorders website; navigate to http://logtagrecorders.com/software and click the link for LogTag® Analyzer version 2. Complete and submit the download registration form. Click **Download Now** and confirm whether you wish to open the downloaded file or to save it to a folder on your PC.

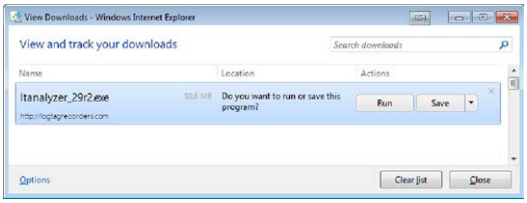


Figure 5: Downloading using Internet Explorer

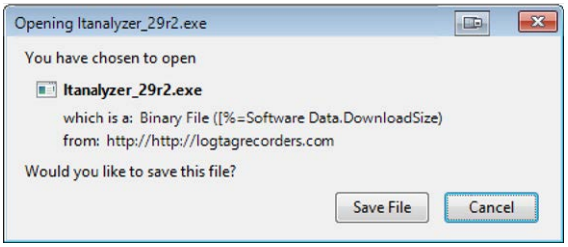


Figure 6: Download Window - Mozilla Firefox

Depending on the type of browser and its version you may get different windows to start and process the download. Modern browsers like Windows® Explorer, Google Chrome or Mozilla Firefox typically have a special directory into which all downloads are copied.

Figure 7: Download progress using Internet Explorer

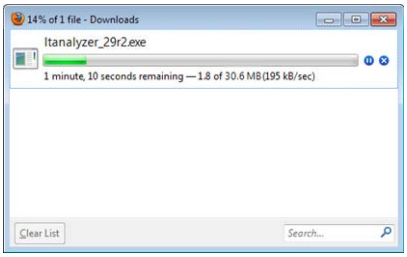


Figure 8: Download progress using Firefox

Figure 9: Download progress using Chrome

If you have an older browser, we recommend you select a folder on your PC that you can easily access (such as the "My Documents" or "Download" folder), but you are free to choose any folder for which you have write permissions. The downloaded file is a single executable installer file; no other files are required for installation of LogTag Analyzer software on your computer.

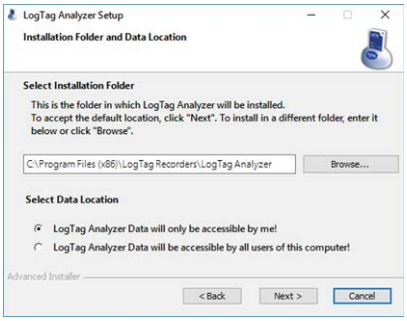
Once the installation process has completed the installer file is no longer required and can safely be deleted.

LogTag® Recorders does not charge for the download and use of this software, or for updates. You are welcome to distribute copies of the LogTag® Analyzer software provided it is distributed unaltered, in the packaged format as originally downloaded from the LogTag® Analyzer website.

The installation process

To install the LogTag® Analyzer software, locate the installation file downloaded in the previous step and execute it (typically by double clicking or selecting the file in Windows® Explorer and pressing **Enter**). Follow the on-screen instructions. Select the installer language and change the program's storage location if desired. You can also choose if the default location for all downloaded data files should be:

- only accessible by you, in your own **Documents** folder. You would use this, if you are the only one requiring access to the downloaded data, or
- accessible by all users of the PC in the **Public Documents** folder. Use this, if all files from multiple users on one PC should be stored in the same location.



Note: You can change the document storage location in LogTag® Analyzer 's option settings once you have started the program, but you cannot change the program location. We recommend you leave all options at their default setting, especially if you are unsure of what option to select or what effects changing the option would have.

To proceed through each step of the installation process, click Next >. If you want to change a previous step click < Back. When all required data have been entered, click Finish to complete the installation process. If you want to stop installing the software, click the Cancel button.

The drivers required to operate your USB interface are installed as part of the main installation process. From time to time updated drivers may be released by LogTag® Recorders. These drivers will be available through the Microsoft Windows® Update feature, as an optional hardware update, or as part of an upgraded installer file (See "Updating LogTag Analyzer" below)

Effective version 2.7r8 you can no longer use the *.exe installer with Windows XP or Windows Vista operating systems. Neither operating system is now officially supported or tested by LogTag® Recorders. You can still use the *.msi installer and the legacy USB drivers, however we strongly recommend you perform your own validation testing. Some functions may no longer work in these operating systems.

Updating LogTag Analyzer

From time to time, LogTag® Recorders will publish updated versions of LogTag® Analyzer to introduce new or enhanced features, or to support new LogTag® models. LogTag® Recorders recommend that you always use the latest version of the software.

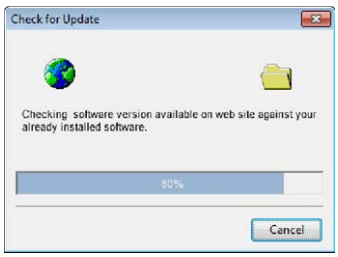
You can get these updates...

- ... automatically, if you have enabled "Automatic Updates" see Software Updates on page 160
- ... by selecting **Check Internet for update...** from the **Help** menu [1]
- ... by downloading an upgraded installer file from the LogTag® Recorders website.

  This requires you check yourself if the version currently offered for download is more recent that the one installed on your PC. You can find the version number of the software in the title bar and via the **Help** menu (see Finding your software version on page 182).

Update process

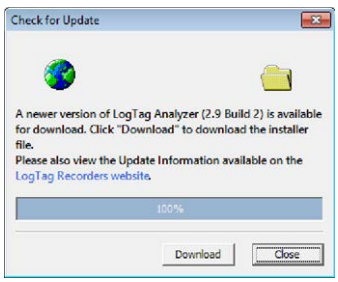
LogTag® Analyzer will check if a newer version is available, independent of whether this process started automatically or via the menu.



It will offer to download a new version if available.

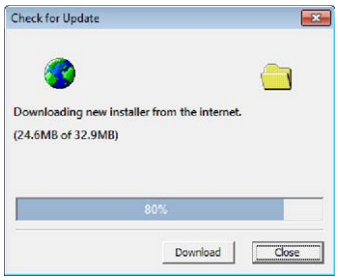
Any important update information will be published on a special page on the LogTag Recorders website, which you can view by clicking the link.

Click Download to download the new installer file to a temporary folder on your PC.

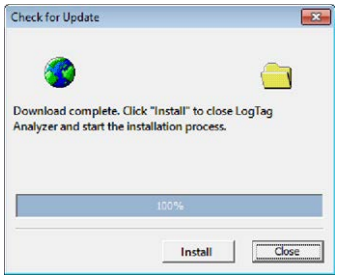


[1] Neither of these two options will transmit any information about you or your system to LogTag® Recorders, so you can rest assured your privacy is maintained.

While the new installer file is downloading you can see the progress indication.

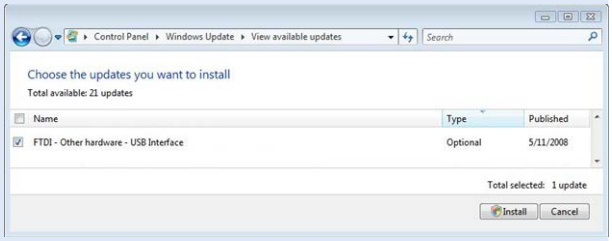


Once the download is complete, click Install to start the installation process. Follow the instructions given on screen. LogTag® Analyzer will be closed before the update starts, and will restart once the installation has finished. The old version of the software will be replaced with the new version.



Installing a newer version will update all the relevant program files. It will not affect any of your LogTag data files or your custom settings of the software.

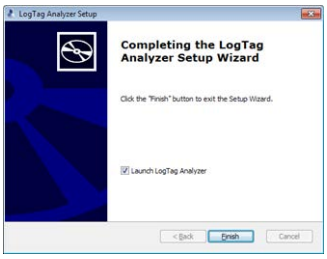
If you are upgrading from version 1.7r10 or earlier, the installed unsigned USB drivers will not be replaced automatically. To replace the USB drivers you will need to go to Windows® Update and select the FTDI - USB Interface update from the "Other hardware" section.



Please refer to your Operating System manual or help on how to access this feature.
You can also update your driver from the Control Panel device manager. Please see documentation or help file of your operating system.

Starting the software

At the conclusion of the installation process click Finish to close the installer window.



At any time you can start the software ...

- ... by double clicking the "Shortcut" on the desktop

- ... by navigating to the "Shortcut" in the "Start" menu system.

  Click on the "All Programs" item to locate the "LogTag® Analyzer" shortcut, similar to the following picture:

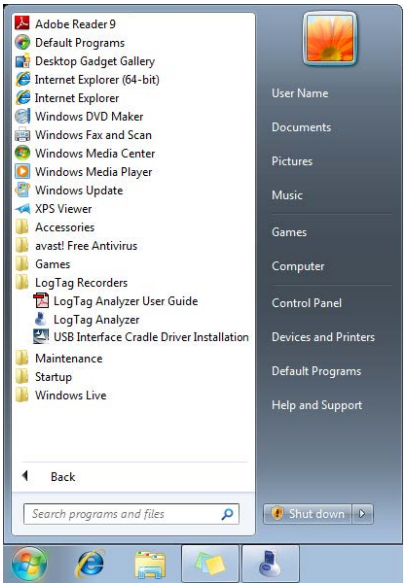
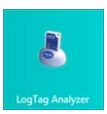


Figure 10: Windows® Start Menu

- ... by selecting the LogTag® Analyzer tile from the Start screen



Please refer to your operating system documentation for further assistance about program locations and how to execute programs.

Chapter 3

First Steps

This chapter will cover how you prepare your LogTag® recorders for use, how to start them and how to retrieve and analyse the recorded information. Subsequent chapters will explain this in more detail, and also show you how you can customise LogTag® Analyzer's settings to make your work easier.

In this chapter:

Connecting the Interface 23
Using the LogTag® with the Interface 24
The Workspace 25
Initial Set-up 26
Configuring a LogTag® for recording 26
Starting and using the LogTag® 35
LogTag® light patterns 35
Retrieve information from LogTag® 37

Connecting the Interface

The interface cradles available from LogTag® Recorders connect to either a serial (RS232) port or a USB (Universal Serial Bus) port, depending on the model you purchased.

The ports for serial (RS232) communication devices are typically located at the rear of the computer as shown here:

Figure 11: Rear of PC with one serial port (RS232)

Insert the plug into the port with the correct orientation. We recommend you tighten the securing screws when the connector is plugged in so that it does not accidentally pull out during use.

The ports for USB devices are typically also located at the rear of the computer, but you may find other ports at the front or sides of your computer. If you are using a USB hub we recommend it has its own power supply.

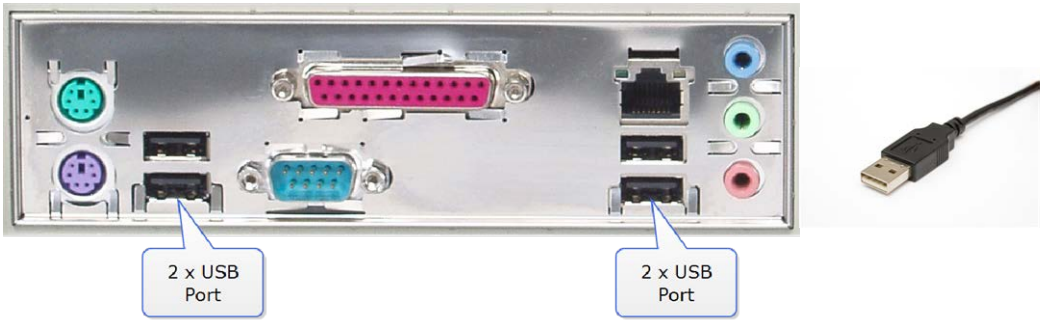


Figure 12: Rear of PC with 4 USB ports

Connectors for USB devices will often display a USB logo so you can identify them easier:

LogTag® Analyzer can communicate with multiple interface cradles at the same time; you may connect as many serial and USB interface cradles as the computer supports, although we find that connecting more than 4 interfaces becomes impractical.

If you install LogTag® Analyzer on a computer with no internet connection you must ensure USB interface cradles are not connected until the installation is completed, since the required drivers are installed as part of LogTag® Analyzer.

If the software cannot identify a connected USB interface cradle there may have been a problem during the installation of the driver software. Please refer to the FAQ on the LogTag® Recorders website for further information.

The LogTag® range of USB recorders do not require an interface to communicate with LogTag® Analyzer.

Using the LogTag® with the Interface

Depending on the product you want to download you will need one of two different interface cradle types.

Figure 13: Standard interface cradle with LogTag®

Figure 14: TICT/TIC20 interface cradle

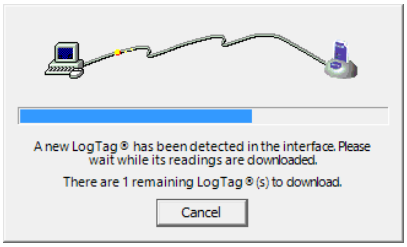
Most products use the standard interface cradle, where the LogTag® is inserted into the slot from the top as shown to enable communication. You will be able to see the contact pins inside the slot that meet with the matching contact pads on the LogTag®. When inserting a LogTag® into the slot you feel a slight resistance as the contacts engage. Removing the LogTag® will cause a slight clicking noise as the contacts snap back into their unloaded position.

The indicator products TIC20 and TICT use a special cradle in which the contact pins are exposed at the top. To enable communication locate the indicator's lug on the interface's boss and firmly press it down, so the contact pins pierce through the rear label. When using the TICT, please remove the adapter from the bottom of the interface and place it as shown; this helps correctly locating the contact pins .

Figure 15: TICT in interface with adapter

You can connect both interface types to your computer at the same time, provided you use different ports.

LogTag® Analyzer will automatically download and display any readings or statistics stored inside the LogTag®.



USB recorder products do not require a dedicated interface; they communicate directly with LogTag® Analyzer when plugged into a USB port.

The download process will only take a few seconds, but you can stop it if needed by clicking Cancel or pressing the **ESC** key.

The Workspace

Once you have started LogTag® Analyzer, the main window will open. From here you have access to menu commands, option settings and many other controls.

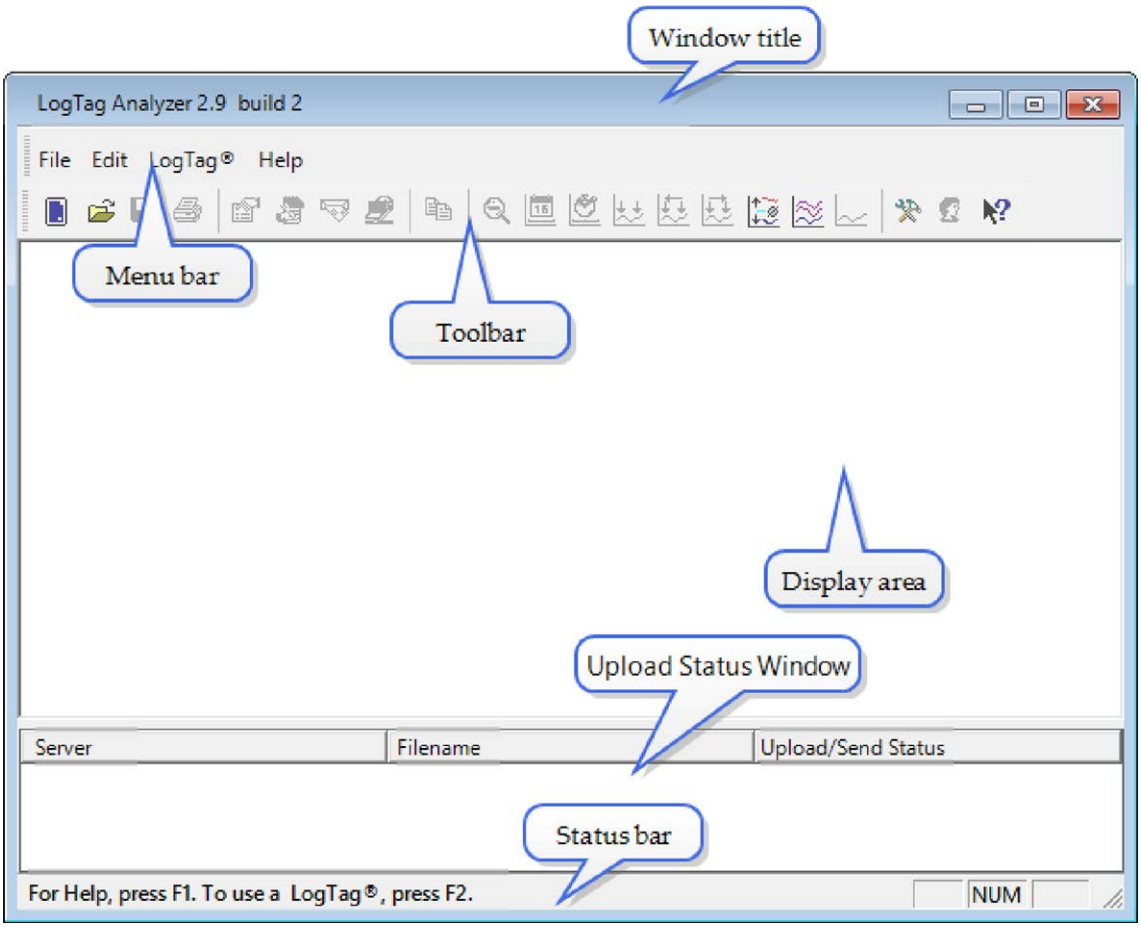


Figure 16: LogTag® Analyzer Workspace, showing areas of interest

You can find more information about the different areas here:

- Information for Menu commands on page 169
- Information for Toolbar commands on page 176
- Information for Upload Status Window on page 177

Use your mouse as usual to click menus, toolbar buttons and dialogues as they appear. You can also use your keyboard to navigate most screens via shortcut keys, indicated by an underlined character. Pressing the character on the keyboard will activate the corresponding control.

Depending on your version of Windows these shortcut keys may not be revealed until you press the ALT key. You can permanently activate these keys via the **Windows control panel** by navigating to its **Ease of Access Center** and selecting **Make the keyboard easier to use**. Here, select **Underline keyboard shortcuts**.

Initial Set-up

Before you start configuring and downloading recorders we recommend you customize some of the settings which are available though the **Edit-Options** menu.

- Define the display language and temperature units used (see General Settings on page 129)
- Choose how time and date are displayed (see Date and Time Format on page 153)
- Select how LogTag® Analyzer names downloaded files and where these are stored (see File and Folder Settings on page 148)
- Decide which communication ports LogTag® Analyzer uses (see Communication Ports on page 157)

Sometimes your network administrator will ask you to import settings from a configuration file. You can read how to do this in the section about Importing and Exporting Option Settings.

Configuring a LogTag® for recording

Some of the LogTag® products are delivered to you ready to start. Others will need to be configured before they can record data. During the configuration process of a recorder you define settings such as:

- how and when to start recording, how many readings to record and at which interval (see Entering Configuration Parameters on page 39)
- whether to stop recording after a defined number of readings or to record continuously (see Continuous operation on page 67)
- what alerts to process and at which temperature limits (see Alarm Processing on page 45)
- if password protection is required for setting up or downloading a recorder (see Restricting Access on page 64).

You can use a Wizard to assist in the configuration process (see Using the LogTag® Access Wizard on the next page) or select **Configure** from the **LogTag** menu (see Using the LogTag® Menu on the next page).

Using the LogTag® Access Wizard

You can use the **LogTag Access Wizard** by either clicking on the toolbar icon ( ) or by selecting **Wizard** from the **LogTag®** menu.

Figure 17: LogTag Access Wizard from toolbar

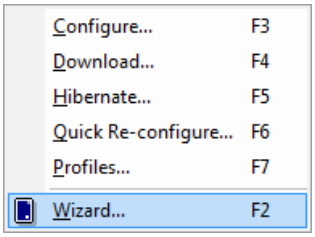


Figure 18: LogTag Access Wizard from menu

The LogTag® Access Wizard performs following tasks:

1. The **Welcome** screen is displayed, giving you information about the process that follows. If you enable the "Do not show me this information again" check box, the screen will not be shown again next time you run the wizard.
2. All connected interface cradles are checked for inserted LogTag® products. If any of them contain previously recorded data these are downloaded and saved.
3. A configuration window is displayed where you can enter details about the next recording trip, such as interval and duration.
4. The configuration data entered are uploaded to connected LogTag® recorders.

Using the LogTag® Menu

You do not need to use the LogTag® Access Wizard to prepare recorders. You can perform the configuration by clicking on **Configure** from the **LogTag** menu or by pressing the **F3** key.

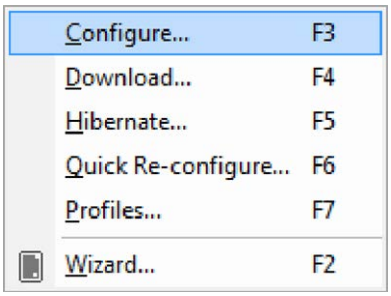


Figure 19: Configure LogTag® from menu

In this case downloading and saving data from a previous trip is skipped.

As soon as a recorder is configured, previous data can no longer be downloaded. Please ensure you have downloaded the readings before configuring to avoid data loss.

1. LogTag® Analyzer finds all communication ports (USB or Serial) with interface cradles attached.
2. It checks all connected interface cradles for inserted LogTag® products.

3. It displays a configuration window where you can enter details about the next recording trip, such as interval and duration.
4. It uploads the configuration data entered into any connected LogTag® recorders.

You can also use pre-configured profiles, or quickly re-configure a LogTag® with the same settings as used for the previous recording. For more details on these options please see Configuration Profiles on page 69 and Quickly re-configuring a LogTag®

Welcome Screen

First the Wizard has a welcome screen (this is "1" on the Action List). This asks you to make sure you the LogTag® is placed firmly in the Interface Cradle.

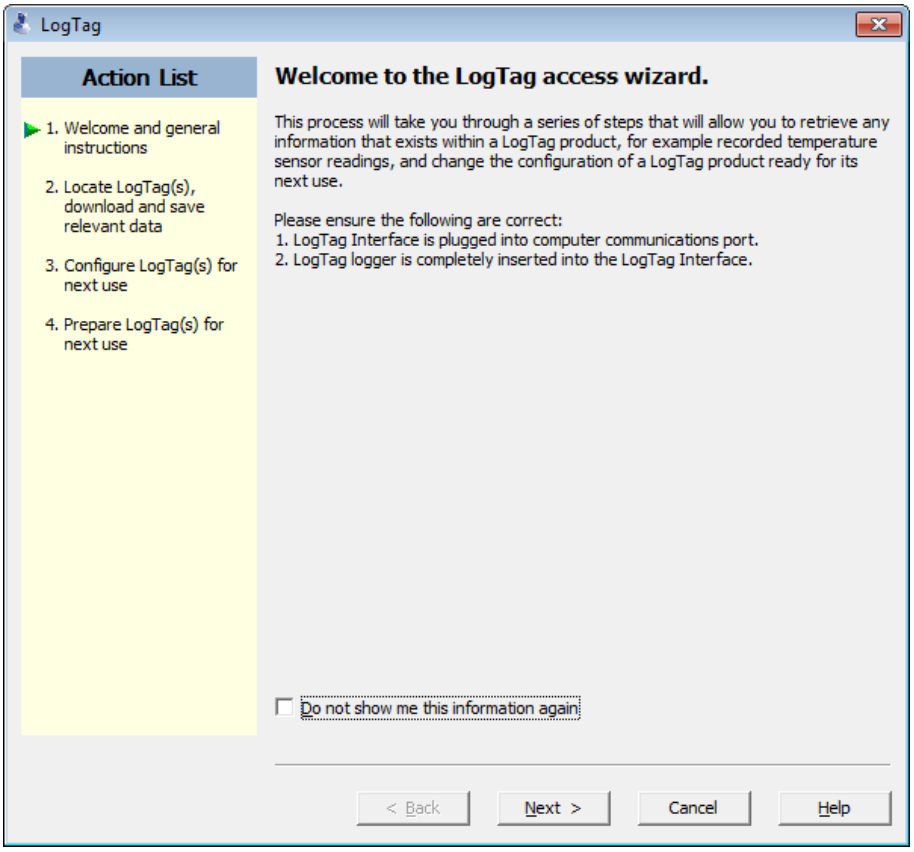


Figure 20: Wizard "Welcome" Screen

The Wizard is responsible for certain "Action Steps" and these are clearly listed at the left in the wizard window.

To get to the next screen, click Next > and the next wizard screen will appear. The green arrow will indicate you have moved to Step 2.

Locate LogTag®(s), download and save relevant data

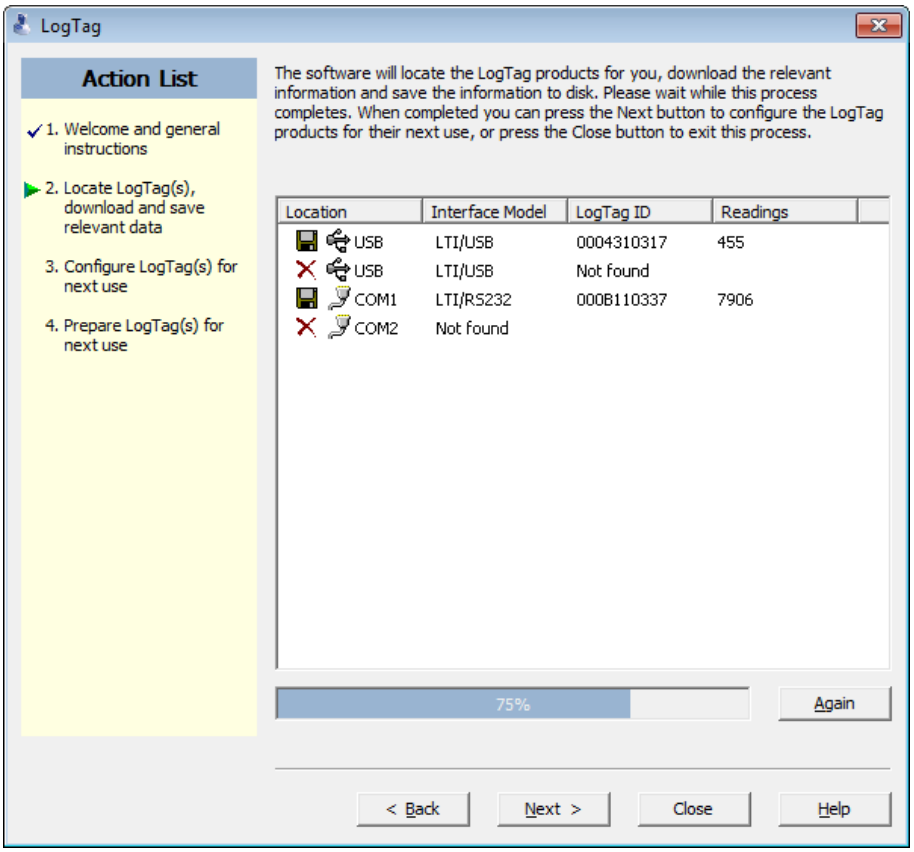


Figure 21: Locate LogTag®(s) screen

In this screen you will see one of the following pictures next to each of the items in the list:

- (no picture) indicates the software is still trying to access this communications port.
- Data were successfully retrieved from the LogTag® and stored/saved to disk.
- Data were successfully retrieved from the LogTag® but there was no need to save the information to disk.
- The software was unable to detect an Interface Cradle connected to the communications port or was unable to detect a LogTag® in the Interface Cradle.
- The LogTag® is a single use recorder and cannot be prepared for use again. It should be returned to the supplying distributor or agent or disposed of in accordance with local regulations. You will still be able to continue to retrieve information stored within the LogTag®.

The LogTag® should be almost instantly recognized by serial number and the number of readings. It is possible to have and use more than one communication port at a time and if so, the wizard will find all the LogTag®s.

The communication ports that are not in use (the ones that initially are reported with the mark) can be removed from view by selecting an option. You don't have to do that now, but you can do it later to clean up the "wizard window" appearance.

To get to the next screen, click on Next > and the third wizard step screen will appear. The software will automatically proceed to the next wizard step, as if the user clicked on Next >, if each of the

Interface Cradles detected have a LogTag® detected in them and any data recorded was successfully downloaded.

USB Recorders

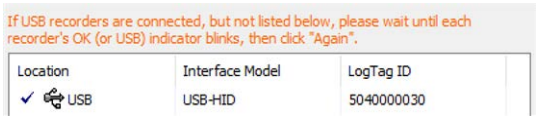
There is a short delay after a USB recorder is plugged in, before it can be accessed by LogTag® Analyzer. This has two causes:

1. As soon as the USB recorder is plugged in, it generates any files it has been configured for. This process is skipped for units that are factory-new, as there are no files to generate, however with subsequent configuration this process can take some time, especially if the unit has a full memory buffer and has been configured to create PDF, CSV and LTD files. While the files are being generated, the green LED is permanently lit. During this time, no communication to the software is possible.
2. After file generation is complete, the recorder starts a registration process with the operating system called **USB Device Enumeration**. It will take a few seconds while the operating system loads the required drivers. During this time, no communication to the software is possible. When this process is complete, the green LED blinks.

LogTag® Analyzer can only detect and communicate with the USB recorder once all files are generated and it has completed USB enumeration (see note below).

As a result, if LogTag® Analyzer detects a USB recorder, it keeps displaying the **Locate and Download** window, rather than automatically advancing. This allows you time to insert the desired number of USB recorders and to wait until they have completed USB enumeration. As soon as all recorders are enumerated, press Again to update the list of devices, then Next > to continue the configuration process.

To remind you of this, an additional message is displayed above the list of recorders and interfaces, if a USB recorder is found:



Note: Newer USB recorders suppress file generation while LogTag® Analyzer is running (see Prioritising Communication over File Generation on page 62). This speeds up communication between software and recorder and is particularly useful for multi-trip recorders, as they can be re-configured quickly without having to wait for all files to be generated. If you wish to access the files on the device itself please close LogTag® Analyzer and wait for the device to be enumerated.

Configure LogTag®(s) for next use

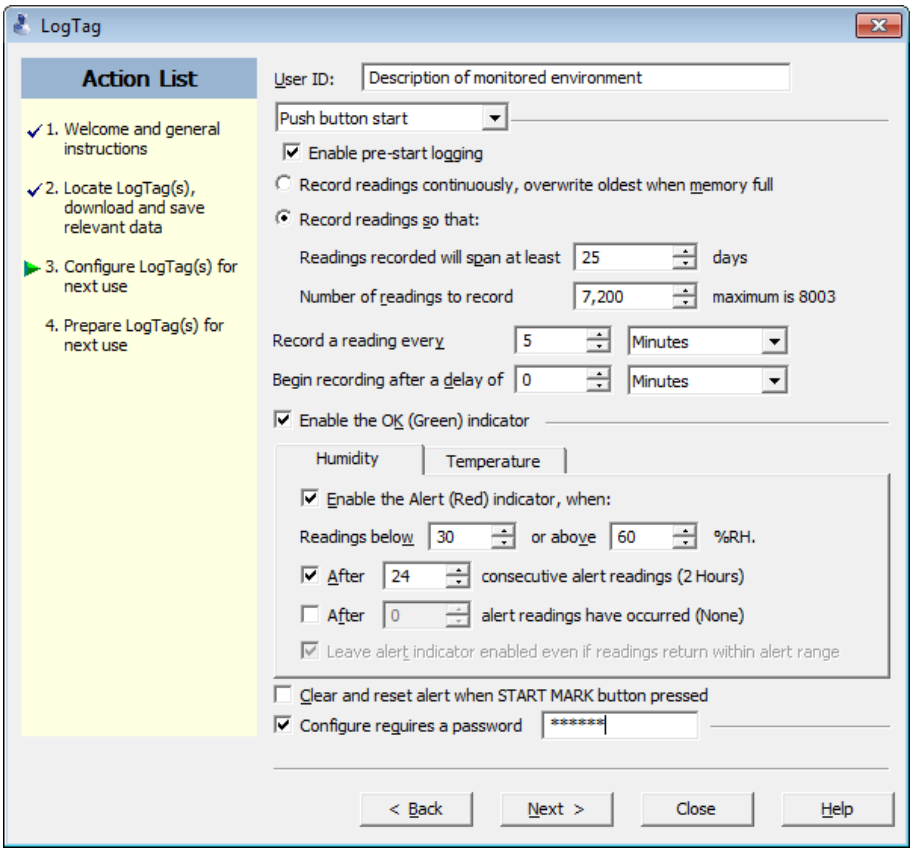
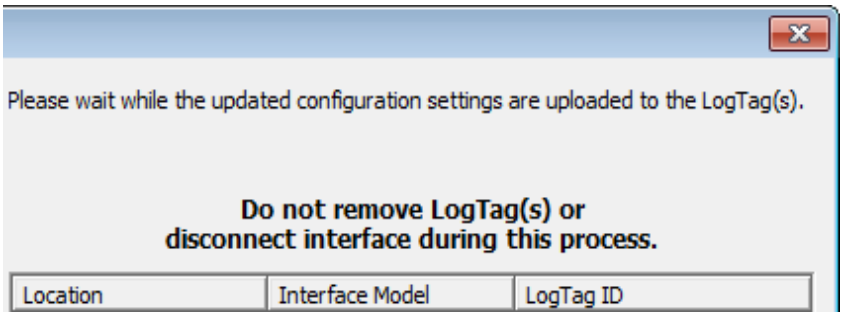


Figure 22: Configuration Screen

The options are available so you have appropriate control over the way the LogTag®s will behave and store data for the upcoming period of recording. These options are explained in more detail in the chapter about Preparing a LogTag® for recording. Click Next > to record the configuration data and you will see the final confirmation screen.

Preparing LogTag®(s) for use

The last Wizard screen involves sending the new configuration data to each LogTag® to prepare them for their next use. While the software is sending the new configuration data to each LogTag® the top of the window will look similar to the following picture. The process of sending the new configuration data to each LogTag® should take less than 20 seconds in total to complete.



Once the software has finished uploading the updated configuration information into each LogTag®, the window displaying the progress will look similar to the following picture.

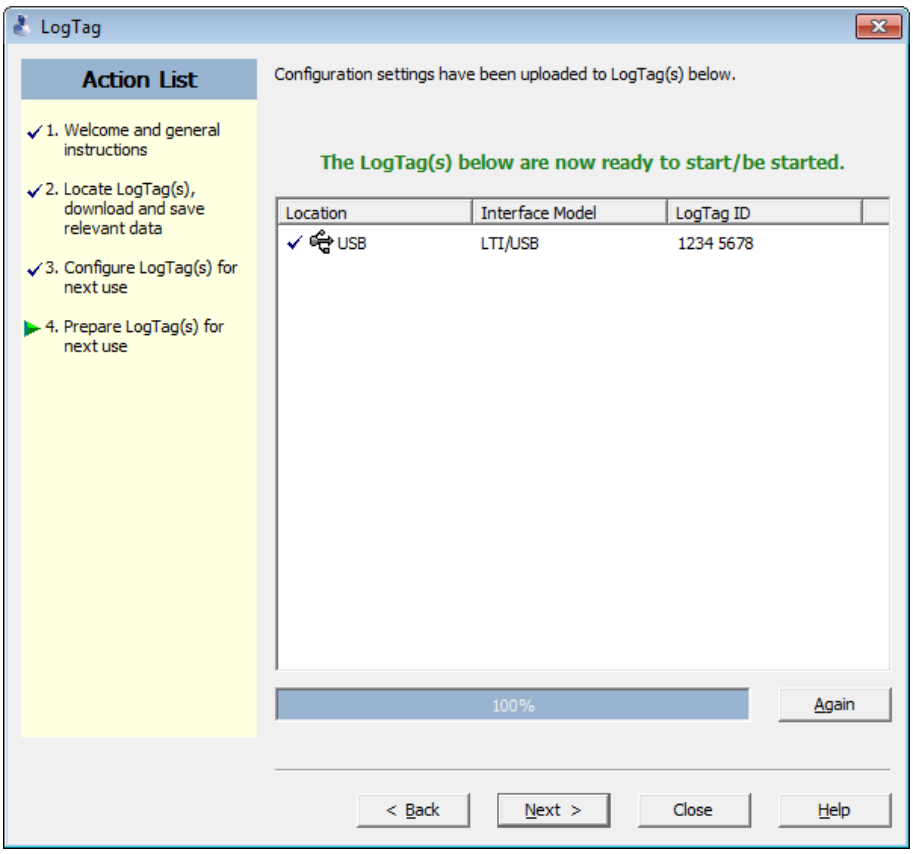


Figure 23: Successful configuration of recorders

In this screen you will see one of the following pictures next to each of the items in the list:

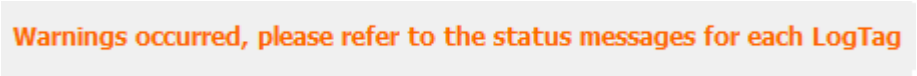
- (no picture) indicates the LogTag® is still in the process of being prepared for its next use.
- ✓ The LogTag® was successfully prepared for its next use.
- This recorder was not configured as its allowed maximum number of trips has been exceeded. You will see this on SRIC-4, SRIL-8, USRIC-4 and USRIC-8 recorders when you attempt to configure them for a second trip.

- The LogTag® failed to be prepared for next use. Press Again to try again.
- This recorder was configured, however not all parameters selected in the configuration window are supported by this model. Only supported parameters were uploaded.
- An upgrade is available for this recorder. Please see Information for Upgrading USB Recorders on page 64.
- The LogTag® s battery is low and is unlikely to have enough capacity to complete another trip. In this situation the LogTag® should no longer be used.

When all LogTag®s have finished receiving their new configuration data, click Close to close the wizard. Your LogTag®(s) are now ready to be started and used.

If you see the following message, one or more of the connected recorders was not configured correctly:

The following message appears if all recorders were configured, but some of them don't support all features set during the configuration.



Please note that the automatic download feature is disabled in this screen. If you use the Again button to configure a different LogTag®, you may update the configuration of a LogTag® with unsaved data.

Starting and using the LogTag®

Once a LogTag® has been successfully configured, it must be started to take readings.

A recorder can start automatically at a date and time set during configuration, or manually by pressing the START button on the recorder.

The different start methods are explained in more detail in the chapter about Preparing a LogTag® for recording.

For exact procedures how to start a recorder or indicator product please refer to the individual **Product User Guides** and **Quickstart Guides**, available for download from the product web pages at http://logtagrecorders.com/products.

LogTag® light patterns

LogTag® products without a display signal different events and convey information with their LED's. The table below contains a summary of the light patterns you may come across during use.
LogTag®

Table 1: LogTag® light patterns

Signal	Sequence	Occurrence
LogTag® wake-up signal	Sequence of four alternate flashes of green-red LED's	• displayed after configuration has been successfully applied to the LogTag®. • when a LogTag® is woken up from hibernation. Not to be mixed up with...
LogTag® start-up signal	Sequence of sixteen alternate flashes of green-red LED's	• displayed when the LogTag® starts its recording cycle.
Mark signal	Sequence of five simultaneous flashes of green and red LED's	• displayed when pressing start/mark button while recording to indicate an inspection mark in the software. • displayed directly after the start-up signal following a push button start where a recording delay has been configured. In this instance the start-up signal is repeated when the actual recording begins.
Logging active, no alert present	Single flash of green LED every 4 seconds (approx.)	• indicates LogTag® is recording. This is not displayed when pre-start is active and the main logging cycle has not yet started. It is also not displayed when the green LED has been turned off in the configuration screen.

Signal	Sequence	Occurrence
Logging finished, no alert present	Single flash of green LED every 8 seconds (approx.)	• indicates LogTag® has finished recording. This is not displayed when the green LED has been turned off in the configuration screen. Will also be displayed when unit has been woken up from hibernation.
Logging active, alert condition present,	Single flash of red LED every 4 seconds	• displayed when the LogTag® has detected an alert condition and the Alert LED has been activated.
Logging finished, alert condition present	Single flash of red LED every 8 seconds	• displayed when the LogTag® has detected an alert condition and the Alert LED has been activated. For non-USB products the Alert LED will still flash every 4 seconds.
Battery test	Green and Red LED's both turn on for approx. 1 second	■ displayed only for some TRIL-8 and SRIL-8 models. This puts a small load on the battery during configuration, which allows the battery voltage measurement to be more accurate.
Communication	The green LED will flash occasionally	• during communication with the interface the green LED will flash occasionally; no information is conveyed in this.
Start button press	red LED glows faintly	• This is by design but conveys no information.

USB recorders signal additional events, particularly when connected to a USB port:

Table 2: Additional USB Recorder light patterns

Signal	Sequence	Occurrence
Ready for USB	One (MSD disabled) or two (MSD enabled) quick flashes of the green LED every second	• A USB recorder is connected to a USB port and waiting for USB communication.
Ready for upgrade	The red LED is on permanently	• A permanently lit red LED light indicates the USB recorder is ready to receive new firmware. Special software is required to upload new firmware to USB recorders.
Generating PDF	The green LED is on permanently	• A permanently lit green LED light indicates the USB recorder is generating a PDF. No USB activity will be observed on the computer screen during this time.
Software priority active	Long green flash	• A USB recorder is connected to a USB port and is prioritising USB communication over file generation.

It is also possible you see no LED lights at all. This could represent one of a number of conditions:

- The LogTag® is ready to start, but has not been started yet.
- The LogTag® has been configured so the LED flashing is turned off.
- The LogTag® is in "Hibernation". Refer to Hibernation - Prolonging battery life for further information.
- The battery is empty and the LogTag® has reached the end of its life.

Retrieve information from LogTag®

When you are ready to view the recording just place the LogTag® into the Interface Cradle as before (if the LogTag® is still recording it will continue to do so without interruption, and you will be able to download the data again later).

The software will automatically retrieve any readings; during the download process an animation is displayed, similar to the following:

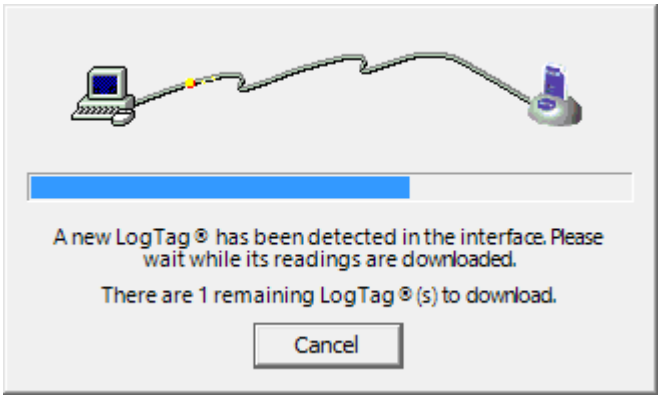


Figure 24: Downloading a LogTag® recorder

Once the readings have been successfully retrieved, the software will display the information. The chapter Results from LogTag® Recorders explains in more detail what information is displayed and how you can influence its appearance.

Your LogTag® may now also be reconfigured for another trip with the same settings as before, if you have this option activated (see Re-configure with same settings after automatic download.)

Chapter 4

Preparing a LogTag® for recording

Before you can use a LogTag® to record temperature or humidity data you need to configure it. The process of configuration allows you to define a number of parameters, including:

- how long it should record data for,
- how frequent it should record the data and
- at what temperature or humidity limits an alert should be displayed.

This chapter explains these steps in detail.

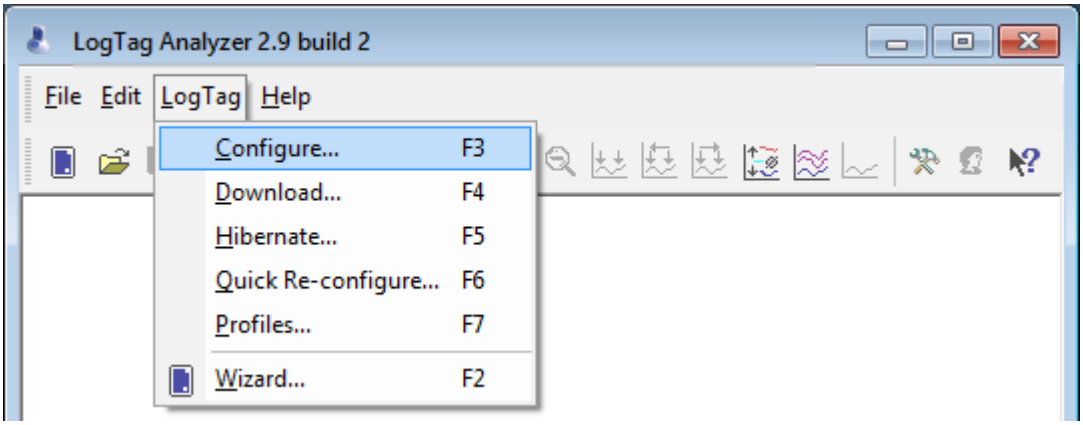
In this chapter:

Getting a LogTag® ready for recording 39
Entering Configuration Parameters 39
Alarm Processing 45
Advanced Display Recorder Options 56
Additional USB Recorder Options 59
Restricting Access 64
Protecting Recorded Data 65
Password Rules 66
Pre-start data collection 67
Continuous operation 67
Working with more then one LogTag® 67
Getting the best from your LogTag® 68
Configuration Profiles 69
Quickly re-configuring a LogTag® 73
Automatic Re-Configuration after Download 74
Hibernation - Prolonging battery life 75

Getting a LogTag® ready for recording

There are two ways to prepare a LogTag® for recording, both of which will achieve the same result. Once a LogTag® has been through the configuration process to get it ready for next use, any readings previously recorded will no longer be available for retrieval.

- Click the LogTag® icon ( ) on the toolbar or the "Wizard..." menu item located in the LogTag® menu.



  This is the safest option, as it will retrieve any readings that are stored within the LogTag® and save them to disk before getting the LogTag® ready for next use. This option is useful when you are unsure whether or not the readings stored within the LogTag® have been previously retrieved and saved to disk.

- Click the "Configure..." menu item located in the LogTag® menu.

  This is the quickest option, as it does not involve the step that retrieves any readings that are stored within the LogTag®. This option is useful when you know you have previously retrieved the readings or you no longer need a record of the readings that are currently stored within the LogTag®.

The wizard will appear once you have selected the option of your choice to guide you through the necessary steps to prepare a LogTag® for next use. While the wizard is visible the "Automatic download" feature will be disabled.

Entering Configuration Parameters

The "Configure LogTag®(s) for next use" allows you to enter all the different options that affect how the LogTag® records data during its next trip. This screen is automatically presented when you use the wizard, however, you can also configure LogTag®s by selecting **Configure** from the **LogTag®** menu.

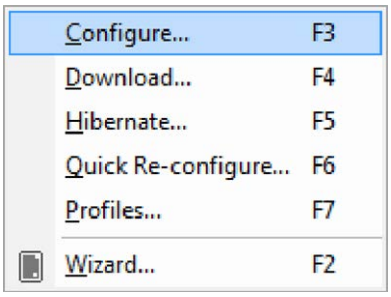


Figure 25: Configuring a LogTag® using the menu

The values initially presented to you reflect the configuration parameters that were used when this recorder was last configured.

When you have entered the details and adjusted the settings as desired, click Next > to send the configuration information to the LogTag®(s).

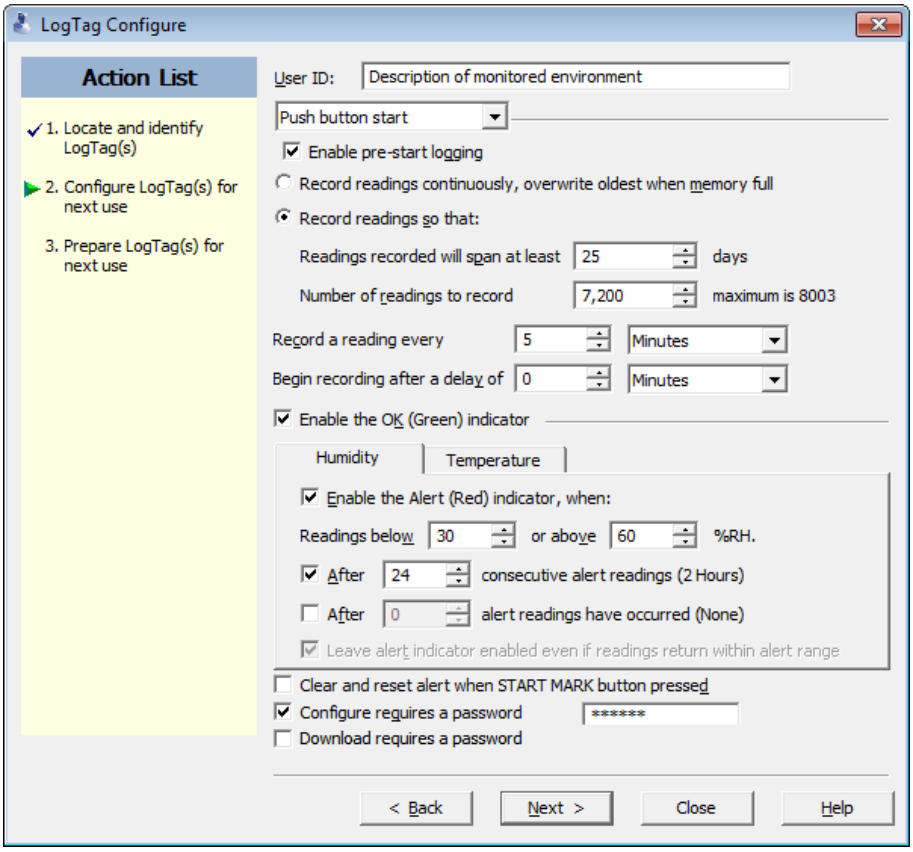


Figure 26: Configuration screen for a HAXO-8

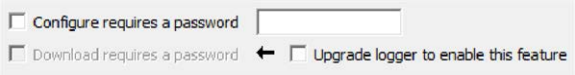
The following table describes each configurable option; please note, however, that not every option may be present for each of the LogTag® models.

Table 3: Logging configuration parameters and start options

Function	Purpose
User ID (optional)	This can be used for identification of the load in transit to be monitored, or simply an identifier that describes the purpose of the monitoring. Bill of Loading information, Shipper, commodity, contact name and other relevant information can be placed here. The User ID can be up to 38 characters long (36 for recorders with a display) and can contain a mix of letters, numbers and special characters. The selected input language of the computer's operating system determines which special characters can be selected. If a user decides to make use of special characters, extra information about the language used is stored inside the recorder. Users will then need LogTag® Analyzer 2.3 Release 7 or later so the User ID is correctly displayed. If you use the special character sets for languages such as Greek or Chinese the maximum number of characters that can be used will be reduced due to the increased memory required to store the characters. Please see Appendix on page 183 for a more detailed explanation. To view the PDF file generated by a USB recorder, the fonts used must be present on the receiver's computer. PDF Reader software typically only installs a small number of fonts, none of which support an extended character set. Therefore, you can only use ASCII characters in the User ID field when configuring a USB recorder.

Function	Purpose
Start method (mandatory)	This is used to determine how/when the LogTag® will start recording its next set of readings. • Date/Time start When the 'Date/Time start' option is selected, the LogTag® will automatically start recording at the date/time defined in the subsequent field. Pressing the **START/Mark** button prior to the start date/time will have no effect. Note: When using the Date/Time start option, the start time must be at least two minutes into the future. This delay allows you to complete the remaining configuration options and gives the software enough time to upload the configuration to the LogTag® before it starts. • Push button start When the 'Push button start' option is selected, the LogTag® will start recording when the **START/Mark** button has been pressed and held until both the OK and Alert lights alternately flash on and off. • Push button start from hibernation When the 'Push button start from hibernation' option is selected, the LogTag® will start as if programmed for 'Push button start'. The difference is that once the configuration is successfully uploaded to the LogTag® it will be placed into hibernation. When the **START/Mark** button is pressed and held, the LogTag® will wake from hibernation and start recording with the parameters as configured. Note: The real time clock inside the recorder is not active with this start option. It is therefore necessary that the computer on which the unit is downloaded is set to the correct time, so the time on the downloaded data is correct.. Please see Prolonging battery life for more information on Hibernation. Not every LogTag® model can support every start mechanism. If a start option is not listed when configuring a particular LogTag®, this option is not available for this model.
Enable pre-start logging (optional)	When you enable Pre-start logging, the recorder starts taking readings as soon as the configuration data have been uploaded. If you forget to press the **START/Mark** button, the data for the trip will still be available. This insures no critical data are lost. This option is further explained in the section Pre-start data collection. Pre-start readings will not be recorded if the start method is 'Date/time' or 'Push button start from hibernation'.
Record readings continuously, overwrite oldest when memory full (optional)	When this option is selected, the recorder initially fills the complete memory with readings, and overwrites the oldest data when the memory is full. If this option is selected, the user cannot select either of the two following options. For a more detailed explanation see Continuous operation

Function	Purpose
Record readings so that: (optional)	If this is selected, the recorder stops taking readings after a pre-determined number of recordings. The following two fields determine the time these recordings will cover. Some LogTag® recorder models cannot be stopped manually.
Readings recorded will span at least X days (optional)	If you know how many days of data you want to record, enter this number here. The shortest possible recording interval that covers this period will be automatically calculated, based on how frequently the recorder takes a reading.
Number of readings to record X (maximum is Y) (optional)	This data box will display the calculated number of readings if you select a time period and an interval. Alternatively, you can select the number of readings desired, and the time period will be calculated based on the interval. "Y" represents the maximum number of readings the LogTag® can store, however with a selected interval and a selected time span, you may not need to use all of the available data space.
Record a reading every X (mandatory)	This determines how frequently the LogTag® records and stores humidity and/or temperature values.
Begin recording after a delay of X (optional)	Enter the time that passes after a user has pressed the **START/Mark** button on the LogTag® until the start of the recording. This feature is useful for example, when the LogTag® could falsely trigger an alert because the environmental conditions to be monitored are quite different to the environment in which it is started. If pre-start logging is enabled, the LogTag® will still continue to record pre-start readings during this delay period.
Enable the OK (Green) indicator	This determines whether or not the green LED should blink while the LogTag® is recording.
Humidity / Temperature	These tab controls will allow the humidity and temperature alert conditions to be configured independently. They will only appear when configuring a HAXO-8.
Configure requires a password	This feature allows the user to define a password that must be provided when the LogTag® is next configured. If this option is enabled and the password changes, the user will be required to verify the new password when the wizard progresses to the next step. Passwords are case sensitive and therefore the passwords "Bob" and "bob", for example, are different. When configuring multiple recorders that already have different passwords set, the password used for configuration will be allocated from one of those passwords. We recommend you type a new password to avoid any uncertainty about which password was used. If you use special character sets for languages such as Greek or Chinese, the maximum number of characters that can be used will be reduced due to the increased memory required to store the characters. Please see Appendix on page 183 for a more detailed explanation. Due to the restrictions in the User ID you can only use ASCII characters in the password field when configuring a USB recorder.

Function	Purpose
Download requires a password	If this option is enabled, the LogTag®'s recorded data can only be downloaded after entering the correct password. Only one password can be provided for each LogTag®. The same password applies to the Configure and Download actions.
Upgrade logger to enable this feature	TRIX-8, TREX-8, TREL-8 and HAXO-8 recorders which do not yet have the "Download requires a password" feature can be upgraded. These units will then require LogTag® Analyzer revision 1.8r9 or later (2.4r4 or later for HAXO-8) to be configured or downloaded, and an error message will be displayed in older versions. If LogTag® Analyzer configures such a recorder, an additional check box is displayed:  The "Download requires a password" is grayed out if the update has not previously been applied to the recorder being configured. Once you tick the "Update logger to enable this feature" box, the "Download requires a password" check box becomes available for activation. You can then select the password functions for either configuration or download. The recorder will be permanently upgraded as soon as the configuration is downloaded. • The update cannot be reversed. • If the "Update logger to enable this feature" is ticked, the upgrade will perform, regardless whether any of the "...requires a password" tick boxes are enabled or not. • If multiple units are configured at the same time using more than one interface, all units will be upgraded if the Upgrade option is selected. • When the "Again" button is used with a different unit, that unit will also be upgraded. If a unit has been upgraded in a previous session, and is now configured using the "Download requires a password" function, units configured with the "Again" button in the same session will not automatically be upgraded; only those units that have already been upgraded separately in a previous session will have the "Password on download" function enabled.

If the battery in the LogTag® reports 'low' the recorder is should no longer be used. The software will display a warning to you in the top right corner, like the following example.

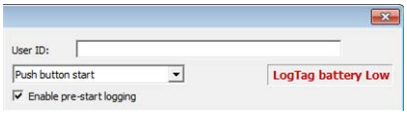


Figure 27: Low battery during configuration

Some LogTag® models display the remaining percentage in this screen once it falls below half capacity. Some models cannot be configured any longer once their battery capacity falls below a pre-determined threshold.

Alarm Processing

The LogTag® can display a visual alert if one or more pre-configured alarm trigger conditions have been met. Each alarm trigger condition consists of a threshold value, an activation type (which can be instant, consecutive or accumulative [1]) and a delay value, if it is not an instant alarm.

If an alarm trigger condition requires readings to exceed an upper threshold temperature it is called an **upper alarm**. If an alarm trigger condition requires readings to go below lower thresholds it is called a **lower alarm**. Readings above the upper or below the lower threshold are called an **alarm reading**.

Alarm trigger conditions can be used to show visual alerts on the recorder itself, and in LogTag® Analyzer once the readings are downloaded and displayed.

Gather as much information about the effects of exposure to different durations of out-of-range humidity or temperature as you can, so you can match these alarms to known conditions of interest in your monitoring program.

As with the other logging parameters these are adjusted in the "Configure LogTag®s for use" screen.

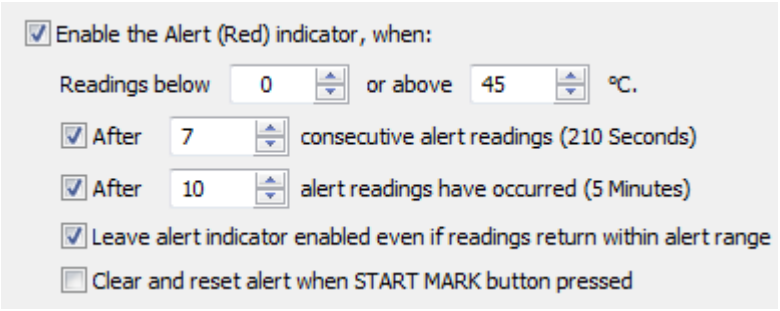


Figure 28: Alarm parameter entry

Some recorders have advanced alarm settings or allow more than two alarms to be configured. Typically these settings can be accessed by clicking on a separate button called Advanced Alarms or similar.

- You can read about advanced alarms for TRIX-8, TRIX-16 and TREX-8 models in Advanced Alarm Settings on page 49.
- Multi-alarm settings can be found in Alarm processing for USB Recorders on page 52.
- TRID30-7, TRED30-7 and TRED30-16R alarm settings are described in Display Recorder Alarms on page 51.

The following table describes each configurable option for the basic alarm configuration found in most recorders. Advanced settings for individual models are described in the relevant sections listed above.

[1] Instant = one temperature reading is above (below) the threshold
Consecutive = temperature readings are above (below) the threshold for the time (multiples of the logging interval) defined in the activation delay without interruption
Accumulative = temperature readings are above (below) the threshold for the total time (multiples of the logging interval) defined in the activation delay time, but may not necessarily be sequential.

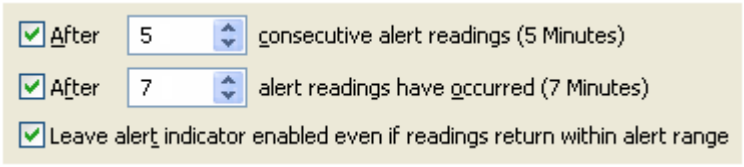
Table 4: Alarm configuration parameters

Function	Purpose
Enable the Alert (Red) indicator when	This defines whether or not the red alert indicator light should activate when an alarm has triggered. When enabled, an active alarm is indicated by this indicator flashing at a regular interval.
Readings below X or above Y (inclusive)	You can set the upper and lower threshold limits by entering values directly into the entry fields, or by increasing or decreasing the existing values using the up/down arrows. As long as readings stay inside the range specified by X and Y the alert indicator will not activate. Charts will highlight the readings above and below the temperatures entered here, regardless of whether the alert indicator is enabled or not. The values entered in these boxes are **included** in the alert range. In the above example 7 consecutive readings of 45°C will trigger an alert, whereas 7 consecutive readings of 44.9°C will not trigger an alert. Please set your alert values with this in mind.
After X consecutive alert readings (W minutes)	Enable this activation type and enter the number of readings into the adjacent field if you want an alarm to be triggered once X number of consecutive alarm readings are recorded. The time shown will be calculated from the number you enter and the recording interval. The maximum value you can enter here is 256, the minimum is 2.
After X alert readings have occurred (W minutes)	Enable this activation type and enter the number of readings into the adjacent field if you want an alarm to be triggered once a total number of alarm readings are recorded. The time shown will be calculated from the number you enter and the recording interval. The maximum value you can enter here is 256, the minimum is 2. You can enter a number directly into the field or increase or decrease the values with the arrows. Please note that certain combinations of accumulative and consecutive readings are not allowed.
Leave alert indicator enabled even if readings return within alert range	If this option is enabled the alert indicator will remain active, even if the current reading no longer meets the alarm trigger conditions specified. If this option is disabled, the alert indicator will remain active only if the current reading meets the alarm trigger conditions. Please note, however, that this setting is only applicable if an immediate alert is configured; if consecutive or accumulative alarm settings are configured this box has no effect, and the alert indicator will always remain visible once an alarm has occurred.

Function	Purpose
Clear and reset alert when **START/Mark** button pressed	If this feature is enabled, any user can turn off an active alert by pressing the LogTag®'s **START/Mark** button. It will also reset the internal alert counters as if no alert condition had occurred at all while the LogTag® was recording. Should the LogTag® subsequently detect a further alert condition, the alert will activate again. Once theLogTag® has finished recording, pressing the **START/Mark** button will not clear and reset any active alert. If the LogTag® being configured does not support this feature, it will be disabled and its setting cannot be changed.

Example:

You wish to configure a LogTag® so an alert is indicated for 5 continuous alarm readings, or 7 total alarm readings. The alarm parameters should therefore be set as follows:



This table shows how different conditions would result in the Alert Indicator flashing or not:

Table 5: Alert examples

What the LogTag® recorded	What the LogTag® indicated
2 readings out-of-range, return to normal, 2 readings out-of-range, return to normal, 2 readings out-of-range, return to normal	Neither alarm condition is met. The maximum number of consecutive alarm readings is only 2 (5 required.) The total number of alarm readings is 2 + 2 + 2 = 6. The alarm trigger condition is 7 total, so the alert indicator remains off. **No Flashing Red Alert Indicator**
4 readings out-of-range, return to normal, 4 readings out-of-range	The first alarm condition is not met, as the the maximum number of consecutive alarm readings is only 4 (5 required.) The second alarm condition, however, is met since the total number of alarm readings equals 4 + 4 = 8. The alarm trigger condition is 7 total, hence the alert indicator flashes. **Flashing Red Alert Indicator**
4 readings out-of-range, return to normal, 2 readings out-of-range	Neither alarm trigger condition is met. The maximum number of consecutive alarm readings is only 4 (5 required.) The total number of alarm readings equals 4 + 2 = 6. The alarm trigger condition is 7 total, so the alert indicator remains off. **No Flashing Red Alert Indicator**

What the LogTag® recorded	What the LogTag® indicated
6 readings out-of-range, return to normal	The second alarm trigger condition is not met, as the total number of alarm readings equals 6 (7 required.) The maximum number of consecutive alarm readings, however, is 6, and since the alarm trigger condition requires 5 consecutive readings, the alert indicator flashes. **Flashing Red Alert Indicator**

Please note following special conditions:

1. If you wish an alert to be indicated on the first reading that is recorded out-of-spec, enable the **Enable the Alert (Red) indicator when** and clear the tick from both **After X consecutive alert readings** and **After X alert readings have occurred**.
2. You cannot enter a number into **After X consecutive alert readings** that is larger than the number in **After X alert readings have occurred**, since the latter alarm condition would always be met first.
3. Similarly, you can not enter a number in **After X alert readings have occurred** that is smaller than the number in **After X consecutive alert readings**. The software will adjust field values as appropriate.

Advanced Alarm Settings

TRIX-8, TRIX-16 and TREX-8 recorders support more detailed alarm settings than described before. When you configure one of these models, an additional Advanced >>> button is visible in the bottom left of the configuration screen.

When you click this button, the alarm configuration screen changes and you can adjust the options in more detail:

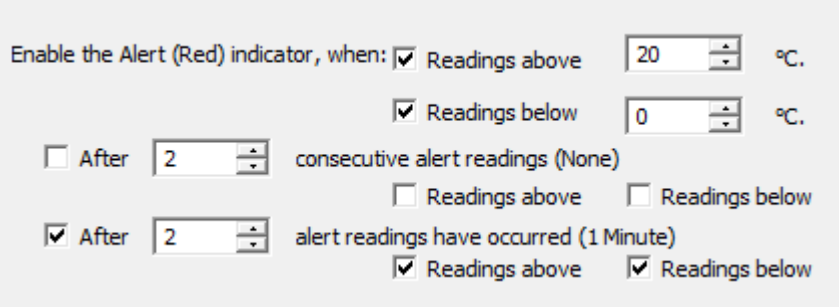


Figure 29: Advanced Alarm Settings

The red alert indicator can now be configured independently for upper and lower alert values.

Table 6: Advanced alarm settings

Function	Purpose
Readings above X Readings below Y (inclusive)	In addition to entering the threshold levels you can now enable the alarm conditions for only the upper or only the lower threshold settings, or for both. If both are enabled, the behaviour is the same as for the standard alarm settings.
After Z consecutive alert readings (W minutes) Readings above Readings below	You can enable consecutive alarm conditions separately for "Readings above" and "Readings below". This will determine if only readings above and including the upper threshold or only readings below and including the lower threshold should count towards the consecutive conditions. If both are enabled, the behaviour is the same as for the standard alarm settings. If the Alert Indicator for either upper or lower alarms is disabled, the respective box for the consecutive alarm cannot be selected.
After Z alert readings have occurred (W minutes) Readings above Readings below	You can enable accumulative alarm conditions separately for "Readings above" and "Readings below". This will determine if only readings above and including the upper threshold or only readings below and including the lower threshold should count towards the accumulative conditions. If both are enabled, the behaviour is the same as for the standard alarm settings. If the Alert Indicator for either upper or lower alarms is disabled, the respective box for the accumulative alarm cannot be selected.

The advanced settings are displayed automatically without the need to press Advanced >>> if an advanced configuration is already found in the recorder to be configured. If you do not wish to use the advanced settings, press <<Simple , and the standard Alarm Processing configuration screen is displayed.

Example:

You wish to configure a LogTag® so an alert is displayed if 5 continuous readings are out-of-range or 7 total readings are out-of-range, but only if the temperature goes to 20°C and above. You wish to see in LogTag® Analyzer if the product has gone to 0°C and below, but you do not wish to trigger an alert for this condition. Alert parameters should be set as follows:

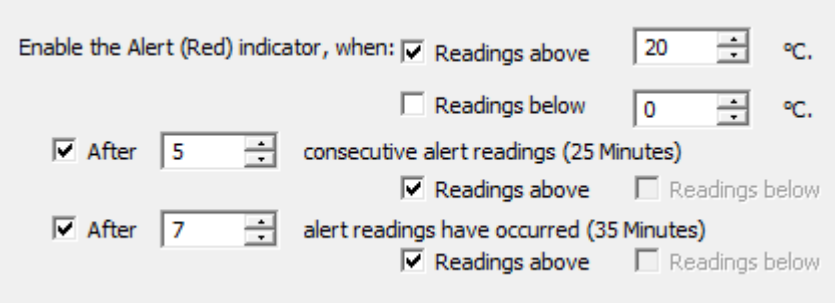


Figure 30: Advanced Alarm Settings - Sample settings

The following table shows how different conditions would result in the Alert Indicator flashing or not:

Table 7: Advanced alert examples

What the LogTag® recorded	What the LogTag® indicated
2 readings of 20°C or above, return to normal, 8 readings at 0°C or below, return to normal, 4 readings of 20°C or above, return to normal	Neither alarm trigger condition is met. The maximum number of consecutive out-of-spec readings is only 2 (5 required, the 8 readings below 0°C do not count towards alarm readings). The total out-of-range events equals 2 + 4 = 6. The alarm condition is 7 total, so there is no visual alert, as, again, the 8 readings below 0°C do not count towards alarm readings. **No Flashing Red Alert Indicator**
4 readings of 20°C or above, return to normal, 4 readings of 20°C or above	The first alarm trigger condition is not met, as the maximum number of consecutive out-of-spec readings is only 4 (5 required.) The second alarm trigger condition, however, is met since the total out-of-range events equals 4 + 4 = 8. The alarm condition is 7 total, so there is a visual alert. **Flashing Red Alert Indicator**

Separate alarm trigger conditions for upper and lower thresholds are useful if you expect the monitored product to encounter temperatures lower than the lowest possible alarm temperature. In this case a flashing alert indicator may not necessarily indicate an unfavourable condition was encountered. In programs where such conditions are monitored the lower alert should be turned off.

Please note that USB recorders and recorders with a display also show an Advanced Settings button, however, for those models the resulting screen is different. Please see the following pages for further details.

Display Recorder Alarms

TRID30-7 and TRED30-7 recorders have a different settings screen.

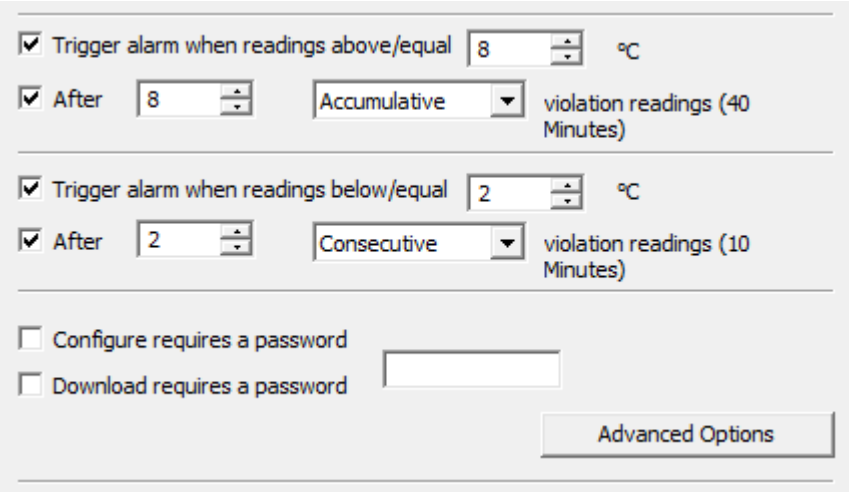


Figure 31: Advanced alarm parameter entry for TRID30-7 and TRED30-7

The settings are similar to the Advanced Alert Settings, hence they are not explained again here. There is, however, one notable exception; for each range (above or below) you can only select either accumulative or consecutive readings, but not a combination of both. This does however give you the option to select a different number of cumulative readings for above and below ranges.

The TRED30-16R has an additional option to enable an audible alarm:

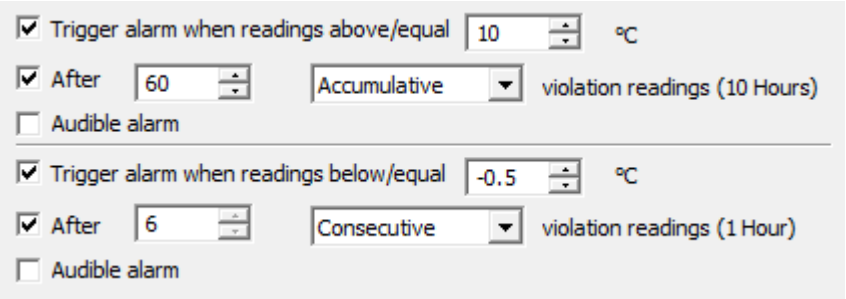


Figure 32: Display recorder with audible alarm setting

If enabled, a buzzer inside the unit will sound when an alarm event has been registered, until the alarm is cleared.

Please note, that continual activation of the audible alarm will reduce the working life of the battery. When an alarm event is triggered, the alarm should be cleared as soon as possible. Please refer to the TRED30-16R Product User Guide for more information.

Alarm processing for USB Recorders

Different USB recorder models offer different alarm trigger conditions.

USRIC-4

The USRIC-4 offers one upper and one lower alarm. Setting conditions for the two alarms is identical to setting up a TRID30-7, except that the minimum and maximum threshold temperatures are model specific and therefore different.

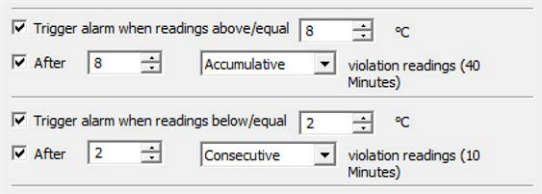


Figure 33: Alarm configuration for USRIC-4

USRIC-8 and UTRIX-16

These models can be configured for up to 6 different alarm trigger conditions.

If you wish, you can retain the traditional single upper and lower alarm settings. This will be sufficient for most clients and is presented in the same way as for the USRIC-4:

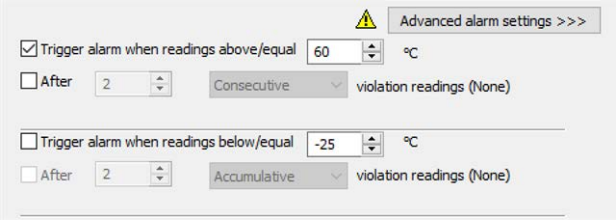


Figure 34: Alarm configuration for USRIC-8, and UTRIX-16

This screen is presented if the recorder's current alarm parameters contain a maximum of one upper and one lower alarm (i.e. both, either, or none at all).

You can, however, add four freely configurable alarm trigger conditions to the primary upper and lower alarms as shown in the next diagram:

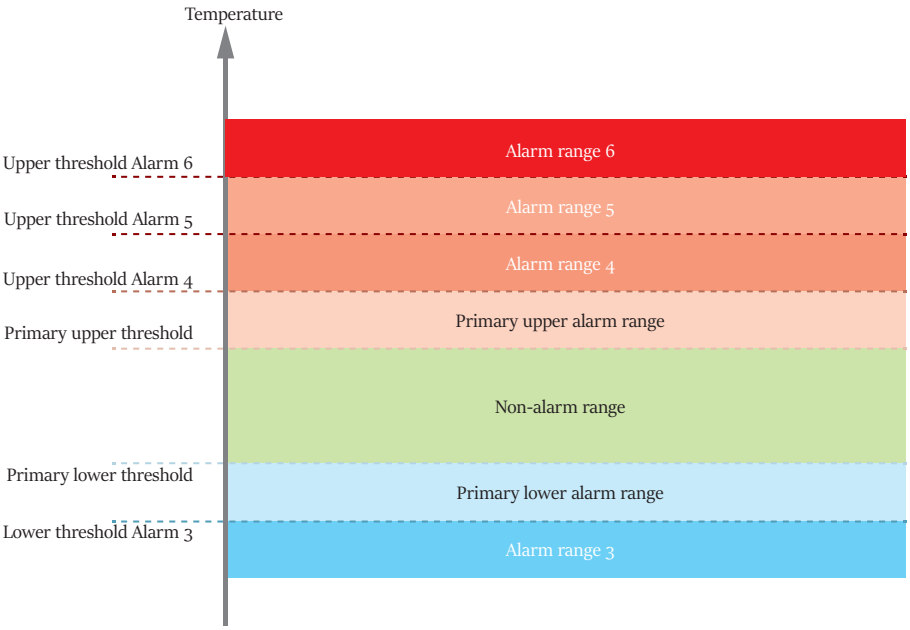


Figure 35: Multiple alarm ranges for USRIC-8

To enter more than two alarm thresholds click Advanced alarm settings, which will expand the dialogue to show you up to six lines, each with the option for instant, accumulative or consecutive settings.

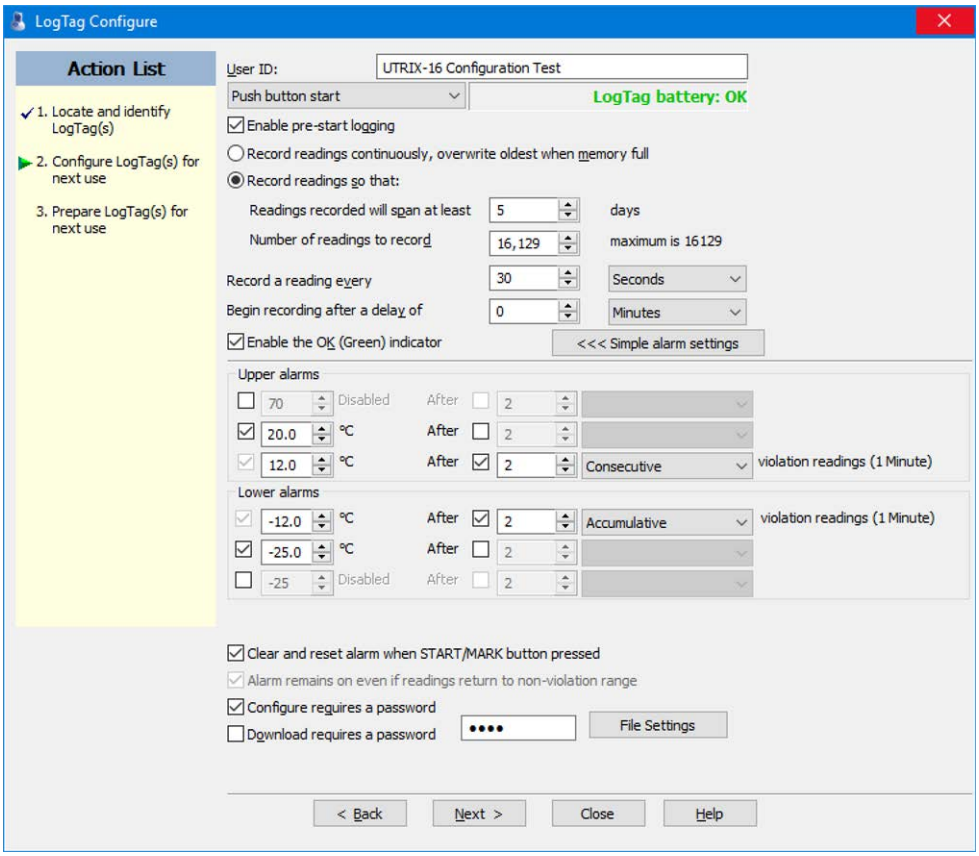


Figure 36: Sample Configuration Screen for UTRIX-16

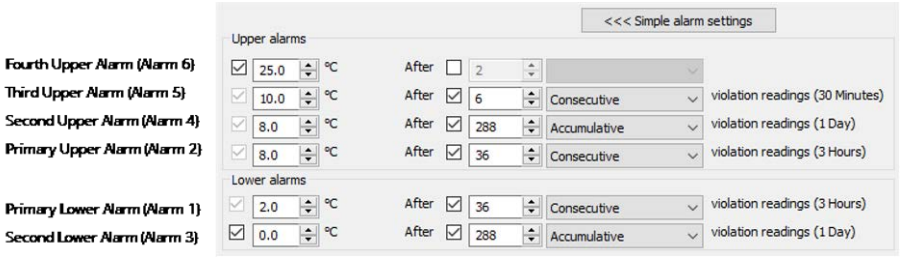


Figure 37: Representation of 6 alarm trigger conditions in LogTag® Analyzer

Initially, start with the primary upper and lower alarms trigger conditions and activate additional conditions separately. For each threshold value you enable, you can set the usual values such as threshold temperature, activation type and alarm delay value.

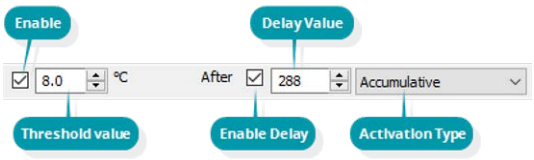


Figure 38: Entry line for alarm trigger conditions

You need to observe some basic rules when entering alarm trigger conditions into the Advanced Alarm Configuration Screen in LogTag® Analyzer:

- A primary upper alarm must be entered before more upper alarms can be entered.
- A primary lower alarm must be entered before more lower alarms can be entered.
- Any additional upper alarms must have the same or a higher threshold value than any previously entered alarm.
- Any additional lower alarms must have the same or a lower threshold value than any previously entered alarm.
- Threshold values for adjacent alarms can be equal when combined with different activation types. For example, you can enter a primary upper alarm with an 8°C threshold and 10 accumulative readings, plus an alarm with an 8°C threshold and 5 consecutive readings. In this instance the alam will be triggered, if either 10 readings in total are above 8°C, or 5 consecutive readings above 8°C have occurred. If a combination is not valid, an error message will be displayed.
- You can enter a different number of upper and lower conditions, or only upper, or only lower conditions, or none at all. You can, however, not make all 6 alarms upper alarms, and you cannot make all 6 alarms lower alarms either.
- A temperature value may contribute to multiple alarm triggers. In the above example, a value of 18°C would be recorded against the 'above 8°C' alarm as well as against the 'above 15°C' alarm.

Any alarm condition that is enabled will be used to indicate an alert on the recorder and will also be shown on the PDF and in the software.

If you only wish to configure one upper and one lower alarm you can do this by only enabling the primary lower and upper alarms. You can also hide any additional alarms by clicking Simple alarm settings.

You can switch between advanced alarms and simple alarms at any time during the configuration process.

- When you switch from simple to advanced alarms, any alarms you have already enabled will remain enabled and become the primary upper or lower alarms in the advanced alarm screen.
- When you switch from advanced to simple alarms, the primary upper and lower alarms will be retained, and all remaining entries will be discarded. If you decide to switch back to advanced alarms again, you will have to re-enter these alarms.

USRIC-8M and UTRIX-16M models

For a short period in 2017, USRIC-8 and UTRIX-16 models with multiple alarm threshold values were sold with the suffix M after the model name, i.e. USRIC-8M and UTRIX-16M. Effective November 2017 this suffix has been dropped from the model designation, and all USRIC-8 and UTRIX-16 models now support multiple alarm threshold values. Models without the M suffix delivered before this date only allow simple alarm settings with one upper and one lower alarm (they can also not be upgraded).

If you are configuring earlier USRIC-8 and UTRIX-16 models that do not support multiple alarm thresholds you will not be able to select the Advanced Alarm Settings.

If you are configuring older and newer units together you will see a yellow warning triangle (⚠) next to the button, reminding you that not all connected units can be configured with advanced (i.e. multiple) alarm settings. In that case, recorders that support the advanced alarm settings will be configured using the values as entered in the advanced alarm screen. For any recorders that do not support the advanced alarm settings, only primary upper and lower alarms will be set. The remaining alarms will be disregarded.

UTRID-16

For the UTRID-16 a slightly different screen is shown. Click Alarm Settings in the configuration screen to open a separate window.

Here, the alarm symbols that appear on the LCD are depicted next to the entries in the software. The rules above are the same, and you still enter the usual values such as threshold temperature, activation type and alarm delay value for each threshold you enable. You can, however, only enter a maximum of three upper and three lower alarm conditions.

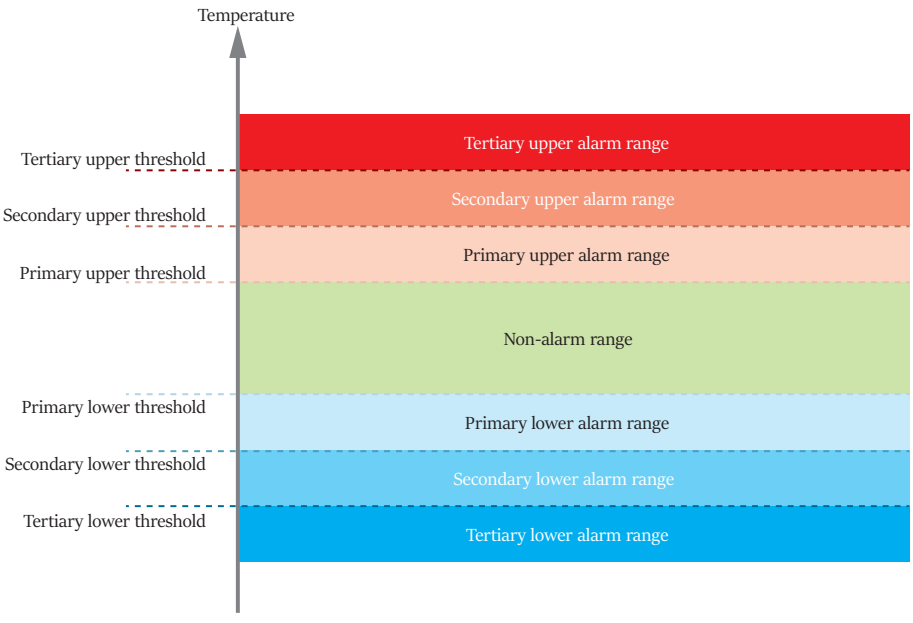


Figure 39: Example Alarm ranges for UTRID-16

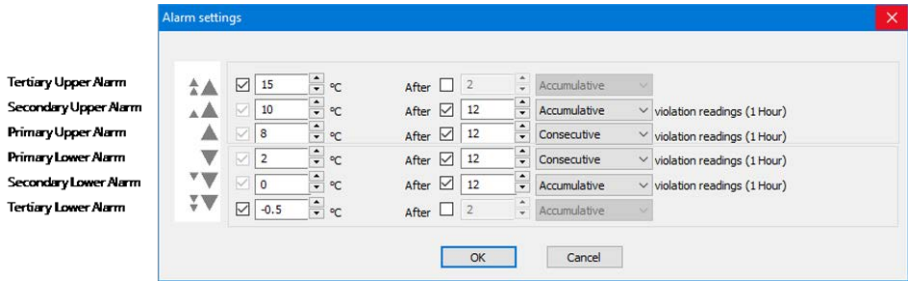


Figure 40: Representation for UTRID-16

Advanced Display Recorder Options

When you click Advanced Options in the configuration screen, following window is displayed, allowing you to enter parameters specific to TRID30-7, TRED30-7 and TRED30-16R recorders.

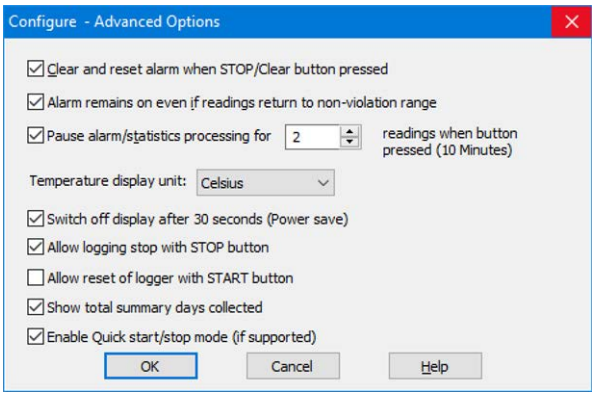
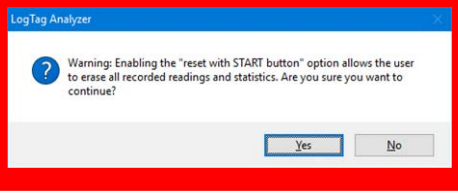


Figure 41: Advanced alarm options for display recorders

Table 8: Display recorder alarms

Function	Purpose
Clear and reset alarm when **STOP/CLEAR** button pressed	If this option is enabled, any user can turn off an active alarm directly on the LogTag® by pressing the **STOP/CLEAR** button. This will turn off the alarm symbol and reset the internal counters as if no alarm had occurred while the LogTag® was recording. When the LogTag® subsequently registers a further alarm condition, the alarm will activate again. Once the LogTag® has finished recording, pressing the **STOP/CLEAR** button will not clear and reset any active alarm. An alarm will always be registered in the day summary and cannot be cleared, regardless of whether the alarm symbol was cleared or not.
Alarm remains on even if readings return to non-violation range	If this option is enabled then the alarm symbol will stay on, even if the current reading does not meet the alarm conditions specified by the previous controls. If this option is disabled then the alarm symbol will stay on only if the current reading meets the alarm conditions specified by the previous controls. Please note: Unlike for units without a display these settings also apply if consecutive or accumulative alert settings are configured. If the Alarm conditions are no longer met, all counters are re-set and an alarm is triggered when the alarm condition is met again. In any case, an alarm will be registered in the day summary, regardless whether conditions re-set or not.

Function	Purpose
Pause alarm/statistics processing for X readings	If this option is enabled, pressing either button on the LogTag® while recording excludes the next reading from the alarm and statistics calculations; PAUSED will now be shown on the display. This allows the user to review the statistics or clear an alarm without causing an invalid reading, alarm or statistic.
Switch off display after 30 seconds	If this option is enabled, the display will turn off after 30 seconds to save battery power.
Allow logging stop with **STOP** button	If this option is enabled, the LogTag® can be stopped by pressing the STOP button. The recorder will no longer take any readings, however you can still review the day statistics and download the logged results to a PC with LogTag® Analyzer.
Allow reset of logger with **START** button	If this option is enabled, TRID30-7 and TRED30-7 recorders can be re-activated and used again for a new trip by pressing the **START** button. ⚠ When re-activating the recorder, all previously recorded readings and statistics will be erased! When this option is enabled, a warning box will be displayed to remind you this is enabled and can result in loss of data. 
Show total summary days collected	If this option is enabled, the LogTag® shows the number of days for which statistics have already been collected on the display.
Enable Quick start/stop if available (TRED30-16R only)	If enabled, starting and stopping a TRED30-16R is faster than that of TRID30-7 and TRED30-7. Instead of holding the start button for 6 seconds (TRID30-7 and TRED30-7), you will only need to press the button for approx. 2 seconds until the unit starts or stops. For more detailed information please refer to the TRED30-16R User Guide, available on the LogTag® Recorders website at http://logtagrecorders.com. If disabled, the standard start/stop method (6-second button press) is used.

Please refer to the **LogTag® Product User Manuals** for TRID30-7, TRED30-7 and TRED30-16R recorders on the LogTag® Recorders website at http://logtagrecorders.com/products for a detailed description of the functionality of these products.

Note: When referring to TRID30-7 and TRED30-7 products, versions with both the fixed (F-suffix) and replaceable (R-suffix) battery are included. The TRED30-16R model is only available with replaceable batteries.

Advanced USB Recorder Display Options

When you click Advanced Options in the configuration screen, following window is displayed, allowing you to enter parameters specific to the UTRID-16 model.

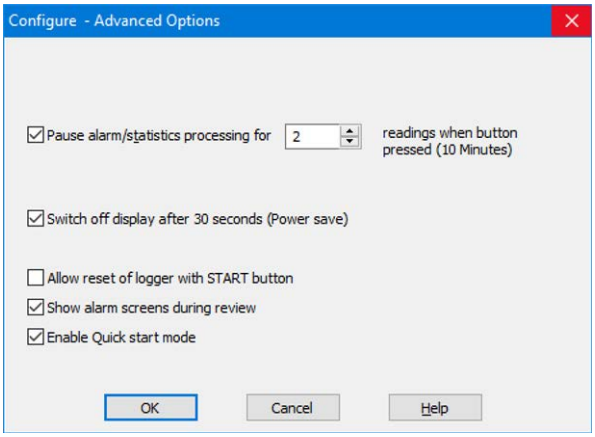
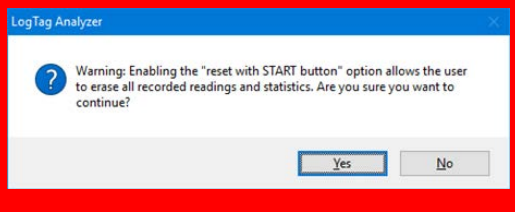


Figure 42: Advanced options for UTRID-16 display recorders

Table 9: Display recorder alarms

Function	Purpose
Pause alarm/statistics processing for X readings	If this option is enabled, pressing either button on the LogTag® while recording excludes the next reading from the alarm and statistics calculations; PAUSED will now be shown on the display. This allows the user to review the statistics or clear an alarm without causing an invalid reading, alarm or statistic.
Switch off display after 30 seconds	If this option is enabled, the display will turn off after 30 seconds to save battery power.
Allow reset of logger with **START** button	If this option is enabled, a UTRID-16 recorder can be re-activated and used again for a new trip by pressing the **START** button. ⚠ When re-activating the recorder, all previously recorded readings and statistics will be erased! When this option is enabled, a warning box will be displayed to remind you this is enabled and can result in loss of data. 
Enable Quick start	If enabled, starting a UTRID-16 is comparable to that of recorders without a display. You will only need to press the button for approx. half a second until the unit starts. For more detailed information please refer to the UTRID-16 Product User Guide. If disabled, the standard start method is used (6-second button press). Ex-factory this feature is enabled by default.
Show alarm screens during review	If enabled, the alarm threshold settings are shown when reviewing the statistics data for the trip. For more detailed information please refer to the UTRID-16 Product User Guide. If disabled, only the min and max screens are shown.

Please refer to the **LogTag® UTRID-16 Product User Guide** on the LogTag® Recorders website at http://logtagrecorders.com/products for a detailed description of the functionality of this product.

Additional USB Recorder Options

LogTag® Analyzer allows you to set additional options for USB recorders, which decide...

- ... which type of files are generated at the end of the trip
- ... settings for time, temperature units, MKT parameters and if the recorder can be stopped and re-started
- ... how the individual elements of the generated PDF file will be displayed.
- ... How many and which alarms are activated
- ... What the display shows during recording and review

The next pages detail these functions.

USB Recorder File Settings

LogTag® Analyzer allows you to set several options that decide which files will be generated when a USB recorder is plugged into a USB port, and how these files will look. [1]

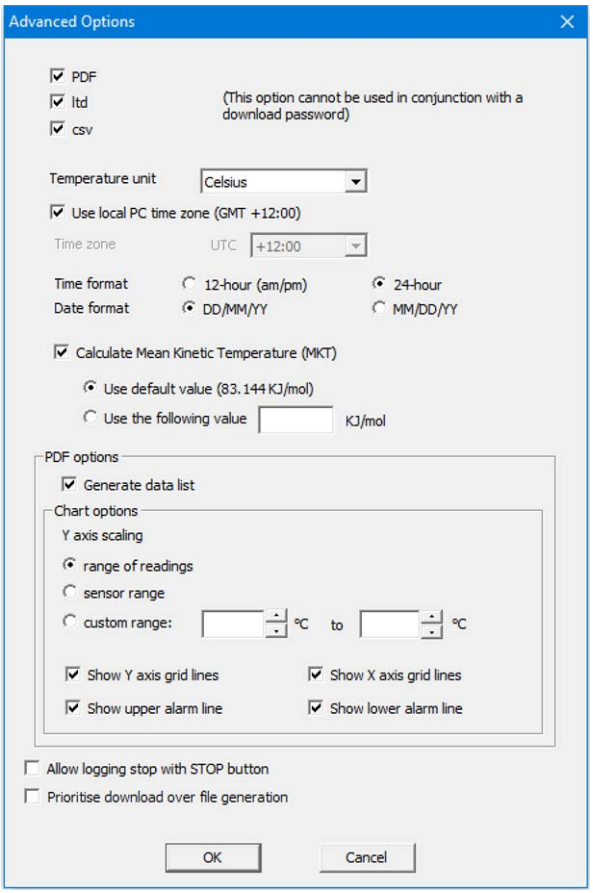


Figure 43: Advanced Option Dialogue for USB recorders

Following options are available:

[1] The USRIC-4 does not generate any files, therefore this dialogue window will not be displayed for this model.

Table 10: Advanced Option Settings - General

Function	Purpose
Generate PDF Generate ltd Generate csv	Select the file types the USB recorder automatically creates each time it is plugged into a USB port. The files are then accessible on a read-only drive or mounted device via your file system. The files created by the USB recorder are not automatically copied to a permanent storage volume on your computer. If you wish to retain the files you need to manually copy them to a location such as your **Documents** folder. Clearing all file selection check boxes means no files will be generated and you will need to access the data with LogTag® Analyzer.
Temperature units	Select the temperature units to be used on the PDF report and in the CSV file.
Use local PC Time Zone	When selected, the PDF file will display times and dates in your local PC's time zone.
Time Zone	You can clear the **Use local PC Time Zone** check box and choose a different time zone. This is useful if you ship to receivers in a different time zone and you wish them to see the times in their local time. If you choose your own time zone settings you will need to adjust the time zone for daylight saving yourself. For example, if you want the PDF data to show the correct time for a user in New York, set the time zone to UTC - 5 during Standard Time and to UTC - 4 during Daylight Saving. The time zone displayed in the PDF cannot be adjusted by the receiver! To view the recorder's data in other time zones the receiver will need to download it with LogTag® Analyzer and adjust the displayed time zone. See Date and Time Format for further details.
Time format	Select 24 hour or 12 hour (am/pm) format.
Date format	Select DD/MM/YY or MM/DD/YY format.
Calculate Mean Kinetic Temperature (MKT)	Selecting this check box calculates and displays the MKT value on the PDF report. If selected, you can choose the value of the Activation Energy to be used for the MKT calculation: • **Use default ΔH value**; if you select this option, the MKT value will be calculated with the default value of 83.144 KJ/mol. • **Use the following value**; you can select this option and enter a custom ΔH value in the box. This value is then used for the MKT calculations. Typical values range from 60.000 to 100.000 KJ/mol. When you use LogTag® Analyzer to download a USB recorder, the custom value can also be used for the MKT calculations in the software. This is controlled by a setting in the customisation for the Mean Kinetic Temperature (see page 117)
Allow stopping with STOP buttonWhen enabled,	When enabled, the user can stop the USB recorder by following the stop procedure.
Prioritise Download over File Generation	When enabled, the recorder attempts communication with LogTag® Analyzer before generating on-board files. Please seePrioritising Communication over File Generation for a more detailed explanation of this feature.

Following options influence the appearance of the PDF file.

The appearance of the PDF file can only be defined during configuration of the recorder. It is not possible to alter the appearance once the USB recorder has completed its trip.

Table 11: Advanced Option Settings - PDF

Function	Purpose
Generate Data List	Select this to show pages in the report containing each recorded temerature reading, along with the date, time and any special events that were recorded against this reading. The PDF file always contains a one page overview report. Please refer to the individual USB Product guides for information about the contents of the report. When you clear this check box only the overview report will be created.
Y-axis scaling	Select one of the following options to scale the chart displaying the recorded readings: • **Range of readings**; this scales the chart so the maximum and minimum temperature displayed is just above/below the highest/lowest recorded temperature reading. If you choose this option the maximum screen area is used to display all recorded readings. • **Range of sensor**; this scales the chart to show the full temperature measurement range of the recorder. • **Custom range;** when you select this option, the entry fields for the two temperature values become active. Enter the values you wish to use as maximum and minimum values for the chart's y-axis. If readings outside your selected custom range are recorded during the trip, the scaling is adjusted so the chart always displays all recorded readings.
Show Y-axis grid lines Show X-axis grid lines	Select which grid line will be displayed on the PDF. Clear the check boxes if you don't wish to see the grid lines. The position of the grid lines is automatically determined; it depends on the Y-axis settings and the time span covered by the readings.
Show upper alarm line Show lower alarm line	Select which alarm line will be displayed on the PDF. Clear the check boxes if you don't wish to see the alarm lines. The chart will not automatically zoom to include the alarm lines, if they lie outside the selected Y-axis scale. If you wish to always see the alarm lines, set a custom range Y-axis zoom which includes the alarm values.

It is possible not all products you wish to configure support all features presented by LogTag® Analyzer. If this is case, any feature that is turned on, but not supported by every product, will be marked with a yellow warning triangle ⚠. You can still configure all units, the features marked may, however, not be uploaded to all attached recorders.

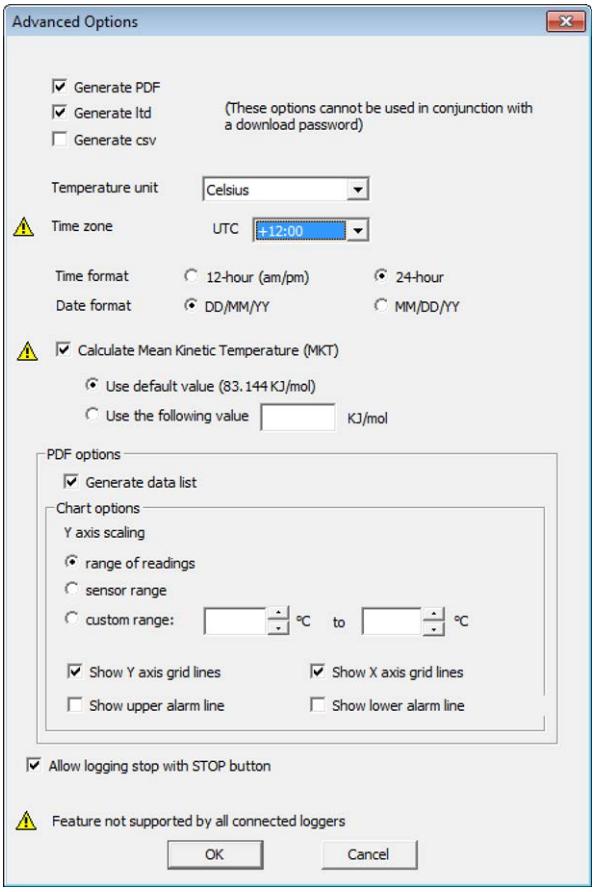


Figure 44: Advanced Options with Warnings

Prioritising Communication over File Generation

When this feature is enabled, a USB recorder will try to establish communication with LogTag® Analyzer before starting to generate the on-board files, such as *.pdf, *.ltd and *.csv. This is particularly beneficial for re-usable USB recorders such as the UTRIX-16, where you do not need to see the PDF file again when re-configuring the unit. The time between inserting the recorder and being able to communicate with LogTag® Analyzer no longer needs to account for the extra step of generating any files on the unit itself and providing them via a new drive letter.

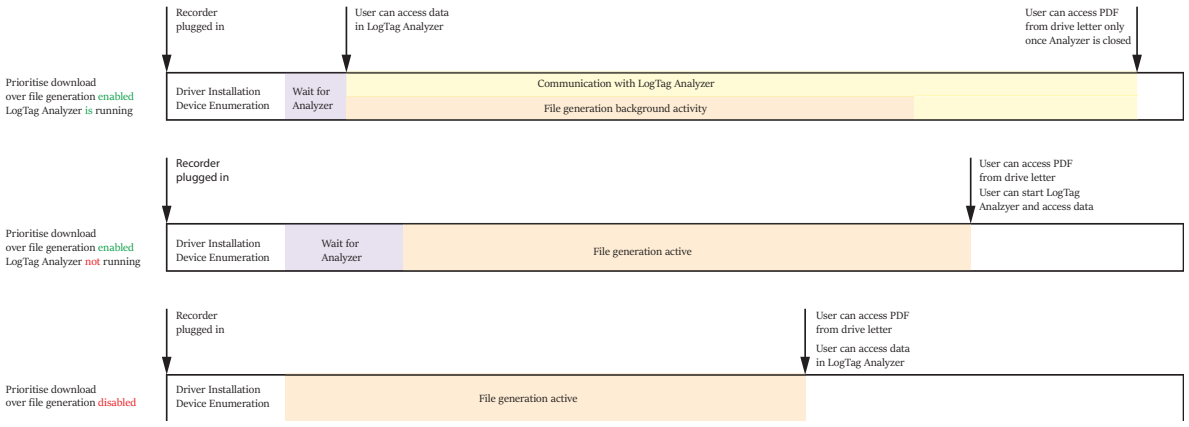


Figure 45: Timing comparison when inserting USB recorders

Some existing models already support this feature. If it is disabled, you can enable it, but please keep in mind that the recorder will then become incompatible with LogTag® Analyzer 2.6 and earlier.

Subsequent disabling of the feature will NOT make the recorder compatible with earlier version again.

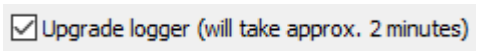
New models may already have this feature enabled ex factory.

Upgrading USB Recorders

LogTag® Recorders will from time to time add new functionality to USB recorders or enhance existing features, allowing you to upgrade exiting units.

Note: You cannot start a recorder upgrade unless .NET 4.0 is installed on the PC.

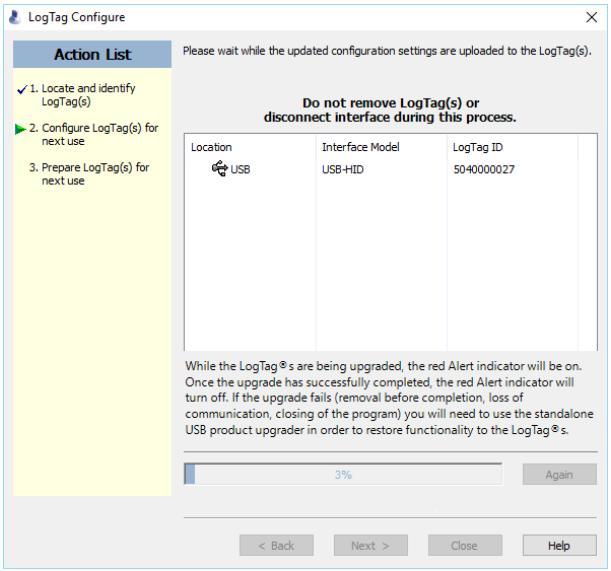
If an upgrade is available for your model, a red information circle (ⓘ) will be shown in the location column of the **Locate** screen. Once you press Next >, an extra selection is available in the configuration screen, below the alarm settings:



This option is selected by default; you can, however, clear the box if you do not wish the recorder to be upgraded at this point.

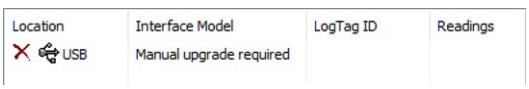
LogTag® Recorders strongly recommend updating the recorder if an upgrade is suggested.

This option is also available when creating and saving a configuration profile , you may need to edit your profile after upgrading from an earlier version of LogTag® Analyzer. If you select to upgrade, the configuration process will take about 2 minutes to complete.



The success screen will tell you if upgrade and configuration succeeded, or if errors occurred. If the red Alert indicator remains lit, you can

- repeat the configuration process. LogTag® Analyzer will detect if the red Alert LED on a USB recorder is still active and try the upgrade process again.
- use the stand-alone upgrader. Close LogTag® Analyzer, click **Start - Programs - LogTag Recorders** and click on the upgrader for you model. You will also need to use this upgrader, if after an upgrade attempt the Configure Screen shows this message:



Restricting Access

Users can enable a password protection feature. Once enabled, a user will need to provide the correct password when next setting up the LogTag® for recording in the **Restricted Access** dialogue.

Figure 46: Password entry

Only once the correct password has been entered can you view the configuration screen, change parameters and configure the unit for a further trip.

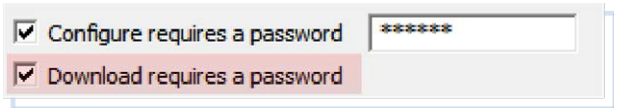
Tip: Sometimes, users tick the password required boxes, but don't enter a password. Such a "blank" password is valid, hence the password request dialogue will appear when re-configuring such a unit. In this case simply selecting OK will advance to the next screen. A warning message will inform you when you are using a blank password.

There is one exception to this rule. If a TRID30-7, TRED30-7 or TRED30-16R is re-configured using the option **Reconfigure with same settings after automatic download** while at the same time the option **Skip configuration password prompt** is enabled (as described in Quickly re-configuring a LogTag® on page 73), a password does not have to be provided, as long as the data download has been successful.

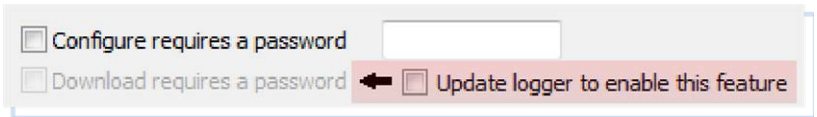
Please note that using this option deletes the data unrecoverably from the recorder. To safeguard your data you need to make sure the file that was saved during the procedure is secure and cannot be deleted by unauthorised users.

Protecting Recorded Data

You can configure most models so they require a password before you can access recorded data. This function can be enabled in the main configuration screen by selecting the check box next to "Download requires password". The same password is used to protect configuration and download.



Some models do not have this feature enabled, but can be upgraded. In this case a further check box appears on the configuration screen:



You cannot select "Download requires a password" if this update has not previously been applied to the recorder being configured. Once you select "Update logger to enable this feature", the "Download requires a password" box becomes available for activation. You can then select the password functions for either configuration or download. The recorder will be permanently upgraded as soon as the configuration is applied.

Following should be noted:

- The update cannot be reversed.
- If the "Update logger to enable this feature" is ticked, the upgrade will perform, regardless whether any of the "...requires a password" tick boxes are enabled or not.
- If multiple units are configured at the same time using more than one interface, all units will be upgraded if the option to upgrade is enabled.
- If this upgrade is applied, LogTag® Analyzer 1.8r9 or later will be required to access the recorders. Older versions will display an error message if communication is attempted.
- When the "Again" button is used with a different unit, that unit will also be upgraded.
- Data files cannot be protected by passwords.
- If a recorder has been upgraded in a previous session, and is now configured using the "Download requires a password" function, units configured with the "Again" button in the same session will not automatically be upgraded; only those units that have already been upgraded separately in a previous session will have the "Password on download" function enabled.

Password Rules

The password can be up to 6 characters long (16 characters for USB recorders and can contain a mix of letters, numbers and special characters. The selected input language of the computer's operating system determines which special characters can be selected.

If a user decides to make use of special characters, extra information about the language used is stored inside the recorder. Users will then need LogTag® Analyzer 2.3 Release 7 or later so the password is correctly interpreted.

This feature is not available in USB recorders.

If you use special characters for languages such as Japanese or Chinese the maximum number of characters that can be used will be reduced due to the increased memory required to store the characters.

Please see see Code Pages on page 185 for a more detailed explanation.

Verify Access Password

If the Configure requires a password option was enabled or the password was changed during the configuration process the user is required to verify the password before it will be stored in the LogTag®. A window similar to this will appear:

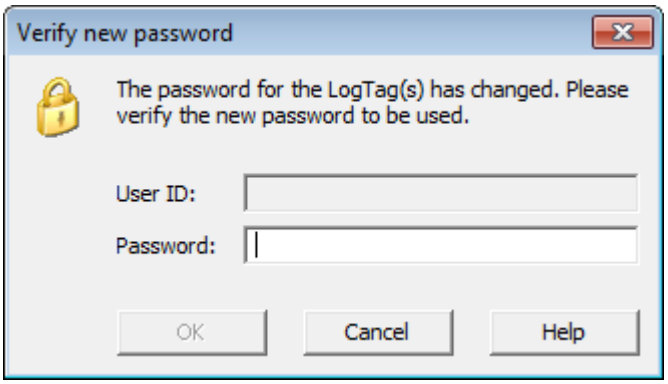


Figure 47: Password confirmation

Once a password has been stored in the LogTag®, further access to it can only be achieved by providing the correct password. Therefore, if a password is forgotten further access to the LogTag®

will not be possible. Passwords are case sensitive and therefore the passwords "Bob" and "bob", for example, are different.

Pre-start data collection

LogTag® products support a feature called **pre-start logging**, which can be selected during configuration.

When pre-start logging is enabled, the LogTag® will automatically start logging as soon as configuration is completed. It will record at the sampling interval defined in the configuration and will continue to record until the user starts the LogTag® by pressing the **START/MARK** button. While the LogTag® is recording pre-start readings the Alert LED will not activate, even if an alert condition is present.

Pre-start logging is useful as a fail-safe recording setting so if the LogTag® is not started at the appropriate time, the readings will still be available to view later.

Once the LogTag® has been started, it will record as per the configuration settings. When the readings are retrieved from the LogTag®, any pre-start readings will be separately displayed, so the user can quickly identify the readings recorded before and after the LogTag® was started.

While the LogTag® is recording pre-start readings the LogTag® will operate continuously as explained further in the section aboutContinuous operation. Once the LogTag® memory is full, the oldest pre-start reading will be overwritten with the latest pre-start reading, or the latest reading if the recorder has been started.

If a LogTag® has been configured to start recording at a certain date/time, or for push button start from hibernation, no pre-start readings will be recorded.

Continuous operation

All LogTag® products have a limited amount of memory to store the readings they record. When selecting the option to **Record readings continuously**, the LogTag® will not stop once the memory is full; instead it will replace the oldest reading stored with the newest reading so that only the most recent readings are retained in memory.

Not every model supports continuous operation. If the LogTag® being configured does not support this feature, you will not be offered to select this setting.

Working with more then one LogTag®

At some stage you may need to perform a similar task on multiple LogTag®s, whether it is retrieving readings or preparing them for a new trip. The LogTag® Analyzer software has been designed to make working with multiple LogTag®s easy.

To retrieve a copy of the recorded readings from multiple LogTag®s, simply insert each LogTag® into the Interface cradle. The software will automatically retrieve the recorded data from the LogTag®, save it to disk and then display the information for you (see Automation on page 136). You can repeat this for each LogTag® without needing to interact with the software.

To prepare multiple LogTag®s for logging you can use the "Wizard..." or the "Configure..." from the "LogTag®" menu, depending on whether or not you want to retrieve and save a copy of the previous readings. Simply prepare the first LogTag®(s) as per usual and at the conclusion of the last step replace it with the next LogTag® and click Again. Therefore, you will be able to prepare multiple LogTag®s for use with minimal interaction with the software and/or computer. You can also use a pre-configured Profile (see Configuration Profiles on page 69) or the Quick Reconfigure feature (see Quickly re-configuring a LogTag® on page 73).

Getting the best from your LogTag®

Many users of humidity and/or temperature recorders are used to attaching the recorder to a hook or tie-wrapping them to a monitored object. A wide variety of attachment methods can be used with the hole on upper right hand corner of the LogTag®, such as bolting the LogTag® in position, attaching it to a packaging strap, using a car-seal for security or other means.

The hole is quite strong, so most means of attachment will not compromise the structural integrity of the LogTag®. We do, however, recommend that the dead weight stress on the hole itself not exceed 5 pounds (2 Kg).

The sensor for the LogTag® is also very responsive, so we recommend you position the LogTag® in a location, where it will not be susceptible to changes in temperature due to operational activities. For example, it is not recommended you place a LogTag® beside a door way, as every time someone passes through the door, the LogTag® will register the change of environmental temperature due to the breeze that will be generated by the person, which does not necessarily reflect the overall temperature of the environment being monitored.

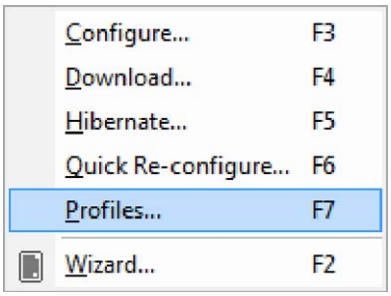
Figure 48: LogTag® features

Configuration Profiles

To simplify the task of configuring multiple recorders with the same parameters, you can store the settings you would enter during configuration (such as alert limits, logging interval, number of readings etc...) in a Configuration Profile, and then apply them to recorders as required.

Configuring a recorder with a pre-defined profile requires only three steps:

1. Select **Profiles** from the **LogTag®** menu



   The window now displayed gives you an overview of the profiles already installed. You can also add new profiles or edit and delete existing ones.

2. Select the profile you wish to use in the Configuration Profiles main window

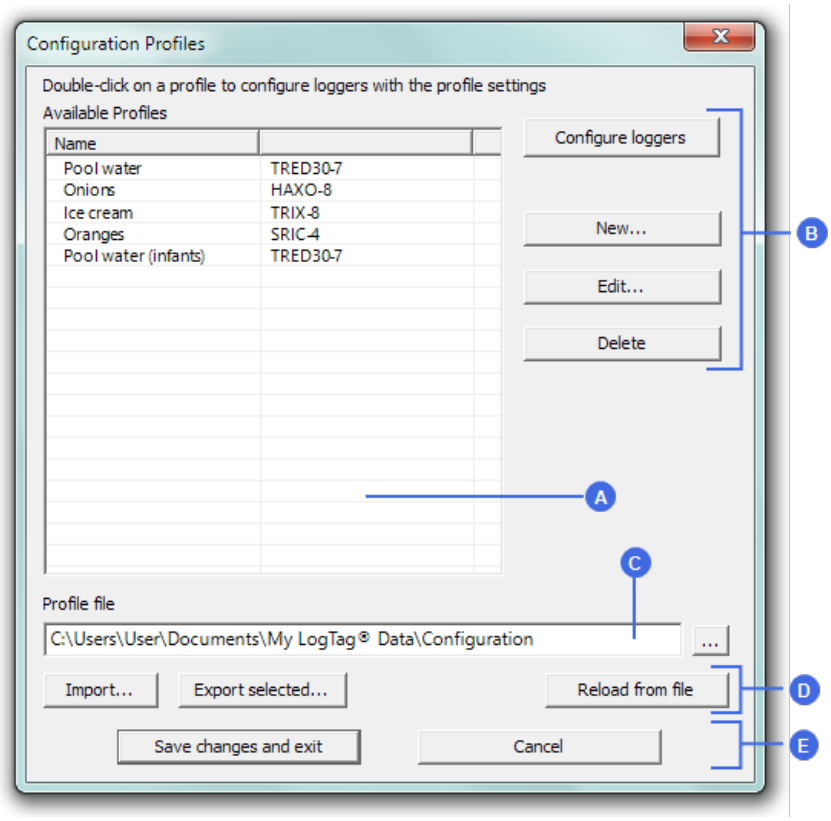


Figure 49: Configuration Profiles Main Window

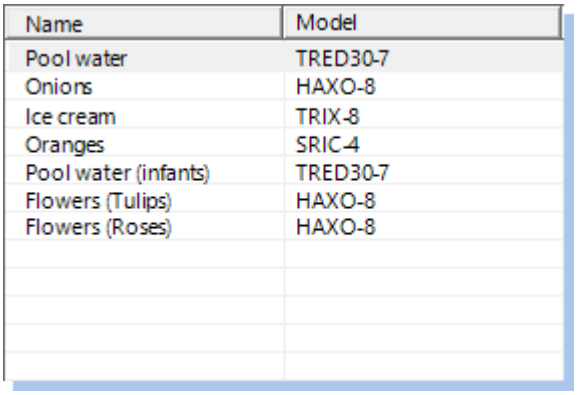
A Profile grid
B Profile control buttons
C Profile storage file path and name
D Profile file controls
E Dialogue controls

3. Click **Configure loggers** to configure all recorders currently in connected interfaces using the parameters stored in the configuration profile highlighted in the grid. You can also double-click the profile name.

The next few pages detail the steps required to add and manage configuration profiles.

Profiles Grid

When you first select this feature the profiles grid will be empty (just like above). You will fill the grid by adding profiles or importing profiles.



Name	Model
Pool water	TRED30-7
Onions	HAXO-8
Ice cream	TRIX-8
Oranges	SRIC-4
Pool water (infants)	TRED30-7
Flowers (Tulips)	HAXO-8
Flowers (Roses)	HAXO-8

Figure 50: Profiles in the profile grid

Profiles from the grid can then be used to configure recorders. A single click on the column title will sort the profile using this column. Double-clicking on a profile will configure all recorders currently in connected interfaces using the parameters stored in the configuration profile. You can select multiple profiles for export or deletion when you hold down the **CTRL** key while clicking, but you cannot edit or apply more than one profile at the same time.

Profile Control Buttons

Use the control buttons to add new profiles, and to edit or delete existing profiles.

Clicking the New... button will bring up the "Edit Profile" window.

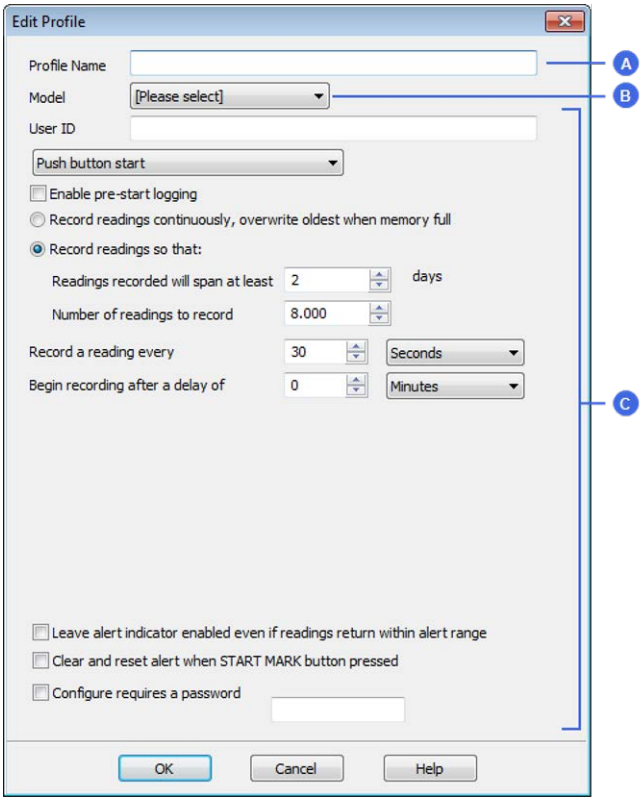


Figure 51: New profile window

A Profile name

B Recorder model

C Configuration parameters

This window contains all the controls you can find in the configuration window, plus one entry field at the top where you need to enter the new name of the profile, and a drop down box where you need to select the model type of the recorder.

The same window will be displayed when you press the Edit button. Every entry field is now populated with the saved value for this profile. Any entry field can be edited, with the exception of the model type.

You can click OK to save the profile or Cancel to discard any changes.

Profile Storage File Name and Path

The collection of profiles displayed in the profiles grid is saved in a single file on your PC, which is called the profile file. This file is typically stored in a folder called "LogTag Configuration Profiles" inside the "My LogTag Documents" folder. Every time you open LogTag® Analyzer this profile file is activated.

You can select alternative collections by opening different files. This can be useful if for example you want to keep different profiles for different customers, or you prefer to separate and organise your profile collections.

You can click on the ... button and select a different profile file. If you have unsaved changes you will be asked to confirm if you want to first save these changes. An explorer window will then open, where you can select a new profile file.

Note: To create a new profile file, export one or more profiles to a new profile file. You can then open the new profile file and add, edit or delete profiles as usual. Alternatively, you can download an empty profile file template from http://logtagrecorders.com/download/software/analyzer/Blank_Profile.ltp.

Profile File Controls

If you have stored your profiles in different profile files, you can transfer data between different files with the import and export buttons.

When you click Import..., an explorer style window will open. Select the profile file from which profiles will be imported and confirm your selection by clicking Open. All profiles from the selected profile file will be imported into the currently active profile. If a profile is imported that has the same name as an already active profile, you need to confirm whether you wish to skip the import of this profile or overwrite the active profile with the imported profile.

You can export selected profiles to a new file by highlighting a profile and clicking Export selected.... An explorer style window will open, where you can enter a new profile file name (the file will be created when you click Save), or overwrite an existing profile. If a profile is exported, and a profile file already exists, you need to confirm whether you wish to cancel the export of this profile or overwrite the profile file. You can export more than one file at the same time by selecting the desired files while holding down the **CTRL** key.

You cannot amend a profile file by exporting a profile to it. Exporting a profile will always overwrite the target profile file.

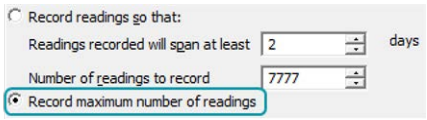
Profile Dialogue Controls

Clicking Save changes and exit will store the profile in the location entered above. Clicking Cancel will discard any changes and return you to the main window.

Please note there are some restrictions when you work with configuration profiles:

- Configuration profiles cannot use the date/time start mechanism. If a defined start time were to be applied to a profile, this time would most likely have passed by the time the profile is applied. If you need to configure a number of recorders and you want them all to start at the same time you should use the standard configuration screen and the Again button.
- You cannot configure one type of recorder model with a profile written for another model.
- You cannot have multiple profiles with the same name.
- If you have exported a profile to a profile file, canceling the main edit window will not undo the changes.
- If you try to apply a profile to a recorder with a password protected configuration, this same password must be provided in the profile. There is no separate password confirmation dialogue.
- Recorders that can be upgraded to use a download password will automatically be upgraded when a profile is applied using this feature.
- Values marked with a warning triangle ⚠ will be stored in the profile, however they will only be applied during configuration if the product supports this feature.

Also, some profiles can be applied to models with different memory sizes (such as TRIX-8 and TRIX-16). Profiles for these models include an extra option to record the maximum number of readings. This ensures that the recorder will always use the maximum number of readings permissible for the size of memory fitted and means that you can apply such a profile to both the 8K memory model as well as the 16k memory model with the maximum readings adjusted to suit.



If the recorder is configured to record readings continuously it will always use the maximum available memory.

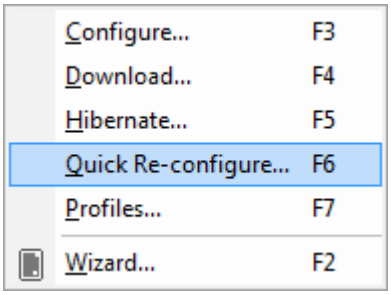
Sometimes a recorder cannot be configured using a particular profile. In this case one of the following errors will be displayed:

Table 12: Profile error messages

Message	Description
"Logger does not support advanced alert settings"	You have selected a profile which has separate upper and lower alert settings, but the recorder you wish to configure does not support this. You will need to use a different profile, or use a different recorder if this feature is important for this trip.
"Logger cannot record more than X readings"	You have selected a profile that requires the recorder to take more readings than fit into its memory. You will need to use a different profile, or use a different recorderif this feature is important for this trip.
"Password in profile does not match logger password"	You have selected a profile with a password, and the password currently stored in the recorder is different. You will need to use the normal configuration process to remove the password; after that you can use the profile function to configure the recorder with the new password. If the recorder does not allow the password to be changed, you will need to use a different profile.
"A password cannot be applied to this logger"	You have selected a profile with a password, but the recorder is factory configured so the user cannot change or enter a password. You will need to use a different profile that doesn't have a password protection, or use a different recorder if this feature is important for this trip.
"Logger only supports latched master alarm"	Recorders typically can have a setting applied that allows an alarm to reset if conditions go back to within specification. Some older TRID30-7 recorders do not support this feature, and if you attempt to configure such a recorder with a profile using this setting you will see this error. You will need to use a different profile or use a later model TRID30-7 if this feature is important for this trip.
"Profile logger type does not match"	You are trying to configure a unit with a profile that was created for another model. A profile is specific to a recorder model, so you will need to use a different profile.
"Lease expired. The max. number of starts has been reached."	You are trying to configure a unit which has no more trips left. You will need to use a different recorder.

Quickly re-configuring a LogTag®

You can configure a LogTag® recorder without first displaying the configuration screen. To do this, you can use the "Quick Re-Configure" function from the LogTag® menu, and you will see the "Upload configuration" screen where a recorder will simply be re-configured with the settings used for the previous trip.



You can also use the **F6** function key.

There are certain rules when using this function:

- You can use multiple interfaces. Each LogTag® detected in an interface is re-configured with the same data used for its previous trip. Recorders do not have to be of the same model, and can each have different configuration settings.
- Re-configuration is only possible for recorders which used the "Push button" or the "Push button from hibernation" start method for their previous trip. If the recorder's previous trip was started by the date/time start method the quick re-configure option will result in an error message being displayed.
- If a recorder requires a password for configuration you will be requested to provide this password. If you enter an incorrect password, the configuration process will be aborted.
- If the LogTag® is still logging when you reconfigure it, you will be asked to confirm whether or not you wish to stop the current trip.

You can automate this further by setting an option in **Edit - Options - Automation**. When you enable **Reconfigure with same settings after automatic download**, any recorder that is downloaded successfully will automatically be re-configured with the settings used for the last trip. This is particularly useful for recorders in stationary applications, where regular download and subsequent re-configuration is required.

The rules as listed above also apply to this feature. For TRID30-7, TRED30-7 and TRED30-16R recorders you can, however, disable the requirement for providing a configuration password by enabling the **Skip configuration password prompt** feature. In this case the re-configuration will proceed without you needing to provide the password.

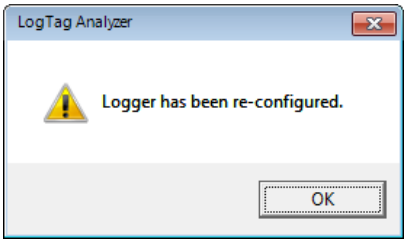
⚠ Please note that using this option deletes the data unrecoverably from the recorder. To safeguard your data you need to make sure the file that was saved during the procedure is secure and cannot be deleted by unauthorised users.

Automatic Re-Configuration after Download

To process recorders even faster you can now set-up an option to re-configure a recorder with the same settings after it has been downloaded using the automatic download option.

This feature is set up in the Automation section of the general options by enabling the check box "Re-configure with same settings after automatic download".

Once enabled, a LogTag® is automatically downloaded once inserted in the interface cradle, and immediately re-configured with the same settings as the trip just completed. You will receive the following feedback once the configuration is complete:



Please note this option only works when a LogTag® is automatically downloaded when inserted into the interface, i.e. the "Enable automatic download of readings from LogTags" option must be enabled, and the download triggered by inserting the recorder into the interface. This does not apply when the LogTag® is downloaded through the menu of by pressing F4.

A word of caution: If the LogTag® you have downloaded does not have a configuration password and has also finished logging, the only visual feedback on the PC will be after the recorder has already been re-configured for a new trip. You will only be able to access the data from the trip just downloaded on the PC, but not within the recorder. Therefore it is important you make sure the file location for storing data is always accessible to avoid loss of data.

Hibernation - Prolonging battery life

If your LogTag® is not going to be used for extended periods of time you should set it to "Hibernation". While in "Hibernation" the LogTag® will consume minimal power, which will extend the battery life when compared with leaving an idle LogTag® operating.

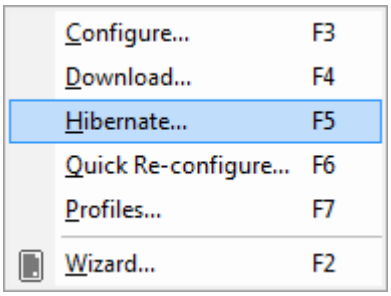
While a LogTag® is in "Hibernation" it will:

- Not record and store any new readings.
- Not activate the Alert and OK lights.
- Not respond to the START MARK button being pressed.

The only exception is when the LogTag® has been configured for 'Push button start from hibernation' in the configuration screen. In this case pressing the START MARK button will 'wake' the product and commence logging according to the configured settings. Not every model supports this feature.

To 'wake' a LogTag® from "Hibernation" to normal operation go through the usual process of Entering Configuration Parameters (see page 39).

To set a LogTag® to "Hibernation", select **Hibernate...** from the LogTag menu.



You can also use the **F5** function key.

You will see this screen when hibernating a recorder.

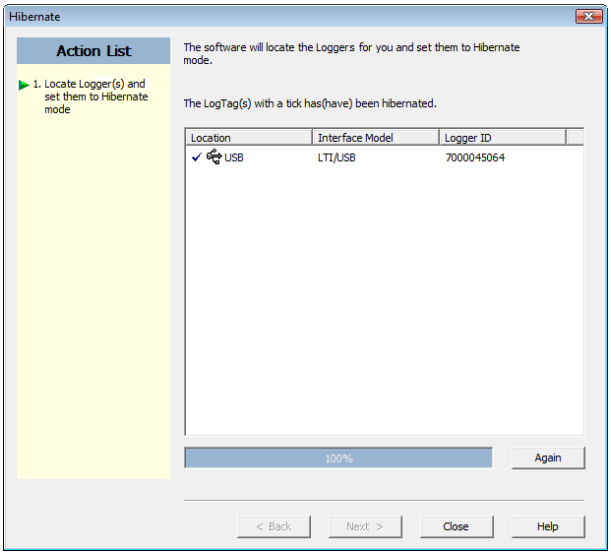


Figure 52: Hibernation successful

You will see one of the following pictures next to each of the items in the list:

- (no picture) indicates the LogTag® is still in the process of being hibernated.
- ✓ The LogTag® was successfully set to hibernation.
- ✗ The software was unable to set the LogTag® to hibernation.

Once a LogTag® has been successfully set to "Hibernation" it should be removed from the Interface Cradle before pressing any other button. As soon as the software communicates with a LogTag® in "Hibernation", (for example through automatic download it will be returned to normal operation.

The extent to which the Hibernation will prolong the battery life of a LogTag® may vary between different models and versions of LogTag® products. Some LogTag® models may not support Hibernation.

Chapter 5

Results from LogTag® Recorders

Once a LogTag® has finished recording, you can

- download the data to a PC, using the LogTag® Analyzer software and an interface cradle,
- view and analyse the information and
- print the information or save it to other formats.

This chapter explains these steps in detail.

In this chapter:

Getting results from LogTag®s 78
Saving LogTag® Data 80
Analyzing the results 87
Combining charts onto a single chart 109
Automatically calculated statistics 115
Displaying statistics 118
Printing the results 119
Emailing a file directly from LogTag® Analyzer 121
Calling up previous results 122
Digital signatures 124
How secure is my data 125
Viewing file properties 126

Getting results from LogTag®s

LogTag® products store all recorded data non-volatile memory. You can download the data as many times as you want, as long as the recorder is not re-configured or hibernated.

When you download the data, a file is **automatically** created in a pre-defined folder. Typically this is the **C:\Users\User\Documents\My LogTag Documents** folder, but you can customise it to your requirements (see File and Folder Settings in File and Folder Settings on page 148)

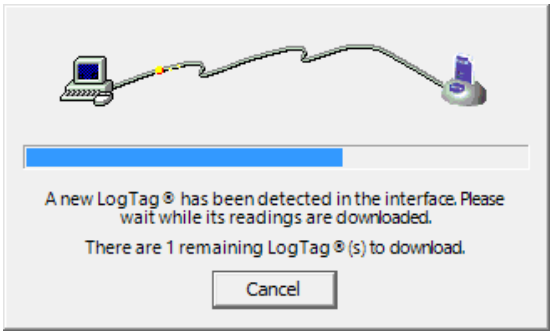
Downloading data stored in a LogTag® does not erase the data from memory, however if you have enabled the "Automatically re-configure..." option you will no longer be able to access the data in the recorder once this process has started. In this case you need to open the data file to access the information.

If the LogTag® is currently recording while you retrieve the information, it will continue to record without interruption. If the recorder is in the process of taking a log you may see a slightly longer download time as communication pauses to allow the log to be taken.

There are three ways to retrieve the recorded results from a LogTag®:

- **via automatic download**

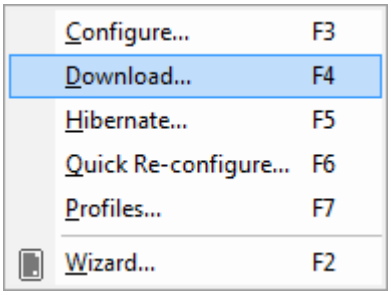
  Slot the LogTag® into the interface cradle while the LogTag® Analyzer software is running (this can be in the background, or even minimized). If the automatic download feature is enabled, the software will automatically retrieve the recorded readings, save the information to your disk drive and display the information to you. While the software is automatically retrieving the readings you will see an animation, similar to the following picture.

  You can also enable the option to automatically re-configure the LogTag® with its current settings (see see Automatic Re-Configuration after Download on page 74).

- **via the menu system**

  Click **Download...** from the **LogTag** menu.

  You can also press the F4 function key.

- **Using the Wizard**

Click the LogTag® icon ( ) on the toolbar or click on **Wizard...** from the **LogTag** menu.

The wizard will guide you through the necessary steps to retrieve the readings stored in the LogTag® and then offer to prepare the LogTag® for its next use. If you do not need to configure the LogTag® at this time you can cancel the process, however if you do not intend to configure units directly after downloading you may find it quicker to use the previous option.

Note: While the wizard is visible the "Automatic download" feature will be temporarily disabled. You will not be able to access any of the Wizards while an "Automatic download" is in progress.

Saving LogTag® Data

This section shows the different ways data can be saved and presented to you.

Saving LogTag® Data files

Every time you download a LogTag® Recorder to your computer the data are automatically saved to a file with a *.ltd file extension (LogTag® Data). This type of file is unique to LogTag® data recorders and can only be read by LogTag® Analyzer software.

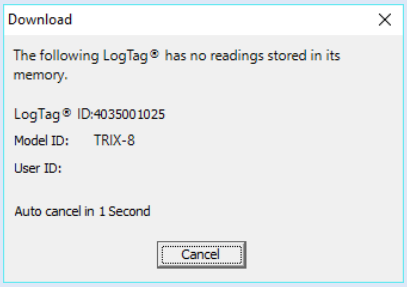
You can customise the conditions for which the file is generated in the **Edit - Options** window:

- You can determine the file's name by specifying the key details about the recorder it was downloaded from (see File Name on page 1)
- You can decide if existing files with older data should be overwritten or kept (see Uniqueness on page 151)
- You can automatically have files sent to email recipients and FTP sites (see Automation on page 136)
- You can decide which additional other file formats are created (see Exports and Reports on page 151)

You can also save all or part of the data in other files to make them accessible to other users (for example as Selected LogTag® Data files (*.sltd) and PDF files).

Please refer to the respective sections in this user guide for more information.

Note: If the recorder you are downloading has not taken any readings, a message similar to this is displayed:



Saving a Multi Chart file

If the main LogTag® Analyzer window currently displays a Multi Chart as explained in Combining charts onto a single chart, you can save the current configuration by clicking on the toolbar icon or selecting **Save** from the **file menu**. Select a file name and location for your Multi Chart file. The file extension for Multi Chart files is "*.multi".

A Multi Chart file does not contain any recorded data. Instead, it contains a collection of information that describes which data files need to be opened, and in which relation to each other the data inside these files should be displayed, such as chart colors and time offset when Shifting chart start times.

Therefore, if any of the data files referenced in a Multi Chart file are renamed, deleted, or moved to a different folder, this Multi Chart file will display error messages.

A Multi Chart file must be saved in the same folder as the individual data files. It is not sensible to store relative path information inside the file, as it would make it difficult to email a Multi Chart file if the recipient would have to re-create the exact folder structure as the sender for the file to be displayed. From version 2.4 onwards you can select any folder for storing your Multi Chart file. If

this file references *.ltd files not stored in this folder, a dialogue box will appear requesting you to confirm that all files will be copied to the chosen folder.

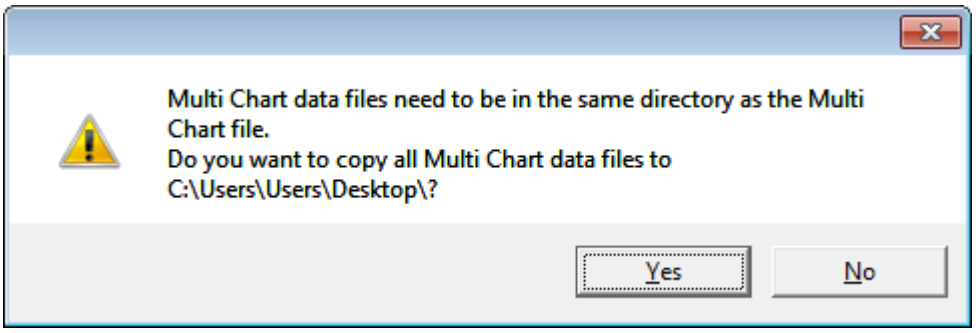


Figure 53: Confirm Multi Chart file copy

Any annotations added to the Multi Chart display are saved in a separate annotation file with the file extension ".anno". This file must be located in the same folder as the Multi Chart file to be included in the Multi Chart display.

To open a previously saved Multi Chart configuration file, click on the toolbar icon or select **Open...** from the **File menu** , then select the "*.multi" file to be opened.

To save a Multi Chart file under a different name, select the Save As... command from the **File menu** and enter a new file name.

Note: You can save a Multi Chart file as a PDF, but not as any of the other export file types.

LogTag® indicator products such as the TICT or TIC20 do not have date/time related readings and therefore do not appear on the multichart.

Selected LogTag® Data files (*.sltd)

Users can save data to a "Selected LogTag® Data" file, which -when opened again- will display a smaller time window of the recorded data. This window is defined through the zoom settings of the currently active tab, or can be entered in the dialog box displayed when when clicking **Save as...** from the **File menu** with 'Selected LogTag® Data (*.sltd)' as the file type.

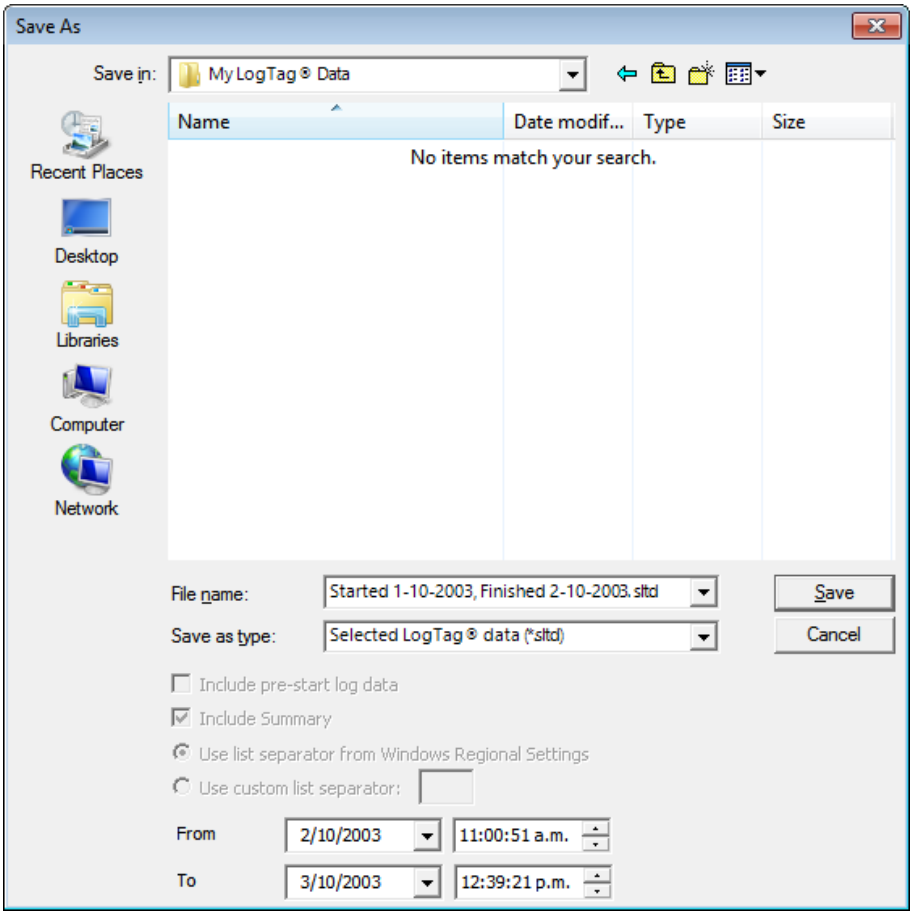


Figure 54: Saving a file as a *.sltd file

Select a file name and location for your file.

The chart of this file, which contains pre-start readings, has been zoomed to show only a small proportion of the readings:

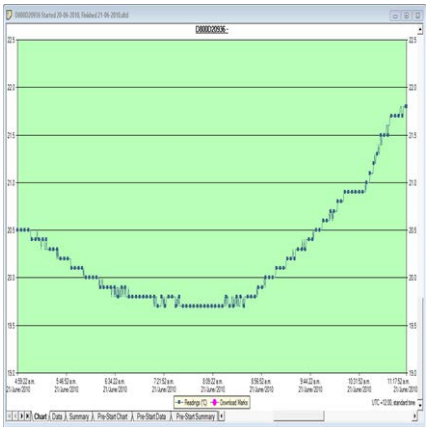
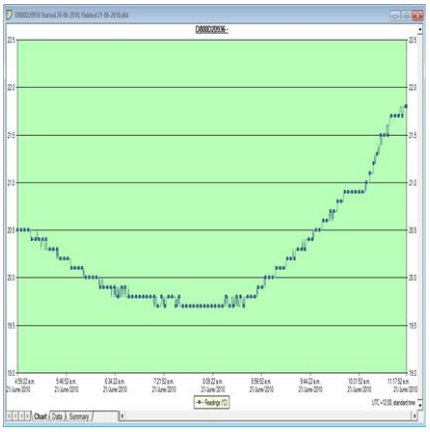


Figure 55: Zoomed chart display

The window slider shows there are still readings earlier and later than the displayed data.

When saved as a *.sltd file, it will be automatically re-opened and now only displays the previously zoomed readings. You will note that the pre-start readings are no longer displayed and you cannot zoom out or display any readings before and after the selected time frame.



Note: Those readings which are no longer displayed are still present in the file. Any *.sltd file can be saved as a *.ltd file, and when re-opened, all readings taken by the recorder during this trip will become available for viewing.

This can also be achieved by simply re-naming the file from *.sltd to *.ltd.

Files with a *.sltd extension cannot be read by versions of LogTag® Analyzer earlier than 2.0, they can however be read once renamed to *.ltd.

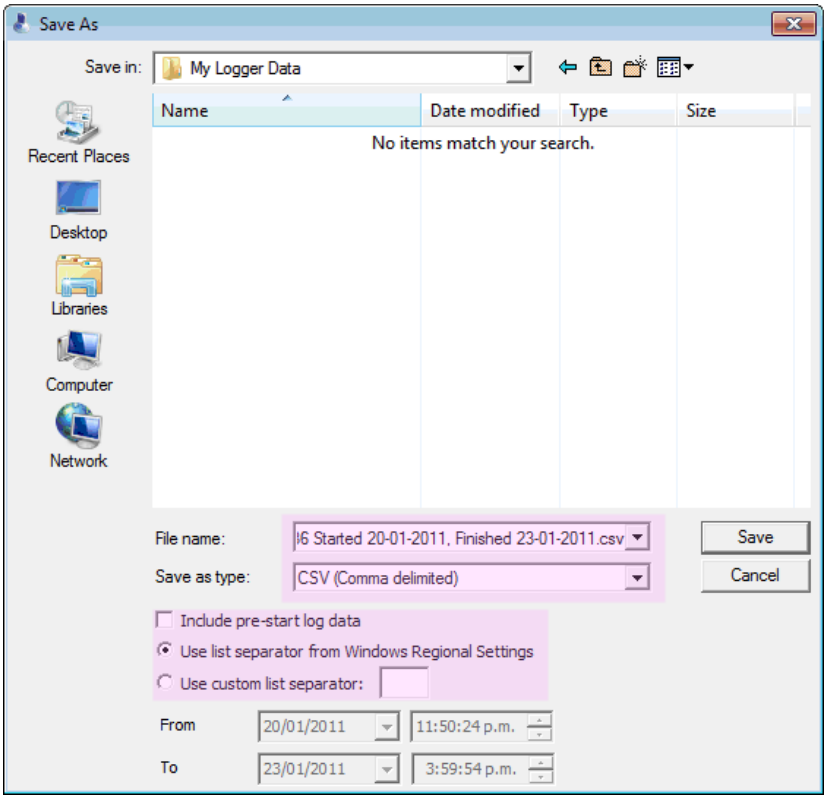
*.sltd files can also be opened directly from email attachments or by double clicking the file in Windows Explorer, as the installer forLogTag® Analyzer registers this file extension and associates it with LogTag® Analyzer.

For TRID30-7, TRED30-7 and TRED30-16R the *.sltd files no longer show the summary tab.

Saving a file for use in spreadsheets

Occasionally you may wish to export a LogTag® data file so you can analyse it in more detail using a spreadsheet program such as Microsoft™ Excel. You can choose between a few different options to achieve this:

- You can use the **File - Save as** command from the menu, and select the *.csv option. You can include pre-start data by ticking the box.



CSV files can be read by most spreadsheet programs.

> Please note that files created by LogTag® Analyzer may not always be true CSV files (**C** omma **S** eparated **V** alues), as they use the list separator from the Windows operating system. It does however mean the file can be opened with MS Excel without going through the data import facility. To create a true CSV file select "Use custom list separator" and enter a comma in the adjacent field. You can also use the custom list separator to generate files for applications which require other list separator characters.

- Select the Data tab and press **CTRL-C** or choose **Edit - Copy** from the menu. Open an empty worksheet in your spreadsheet program and select **CTRL-V** or choose **Edit - Paste** from the menu. The data will be pasted in the cells and you can save the file in the format of your spreadsheet program.
- Automatically export the data into a CSV file when a recorder is downloaded. Please see Exports and Reports on page 151 for further details.

LogTag® Recorders also offer a conversion program, which you can use to bulk convert *.ltd files to *.csv files. You can download this utility called LogTag® *Convert* from the software download page at http://logtagrecorders.com/software.

PDF files

LogTag® Analyzer can save the currently active LogTag® data window to a PDF file. One single file will be generated which contains chart images, summaries and a data list.

PDF files can be generated automatically, or by selecting **Save as** from the **File** menu and selecting a file name and location for your PDF. Automatic generation of PDF files is enabled in the section about Exports and Reports. Here you can also define the composition of the PDF file.

Click Customize *.pdf; the following dialogue is displayed, allowing you to select, which content of the PDF file will be created.

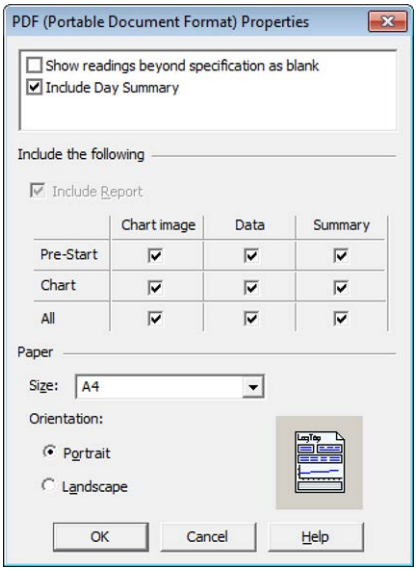


Figure 56: Customisation options for PDF files

Note: Only one single Data listing will be created. Depending on which sections are enabled, pre-start only, chart only or all readings will be included.

Note: The report page is always included in the PDF. For display recorders, the day summary will also be always included.

Each section can be identified by its heading. If a chart is zoomed, the PDF file will also contain a zoomed setting.

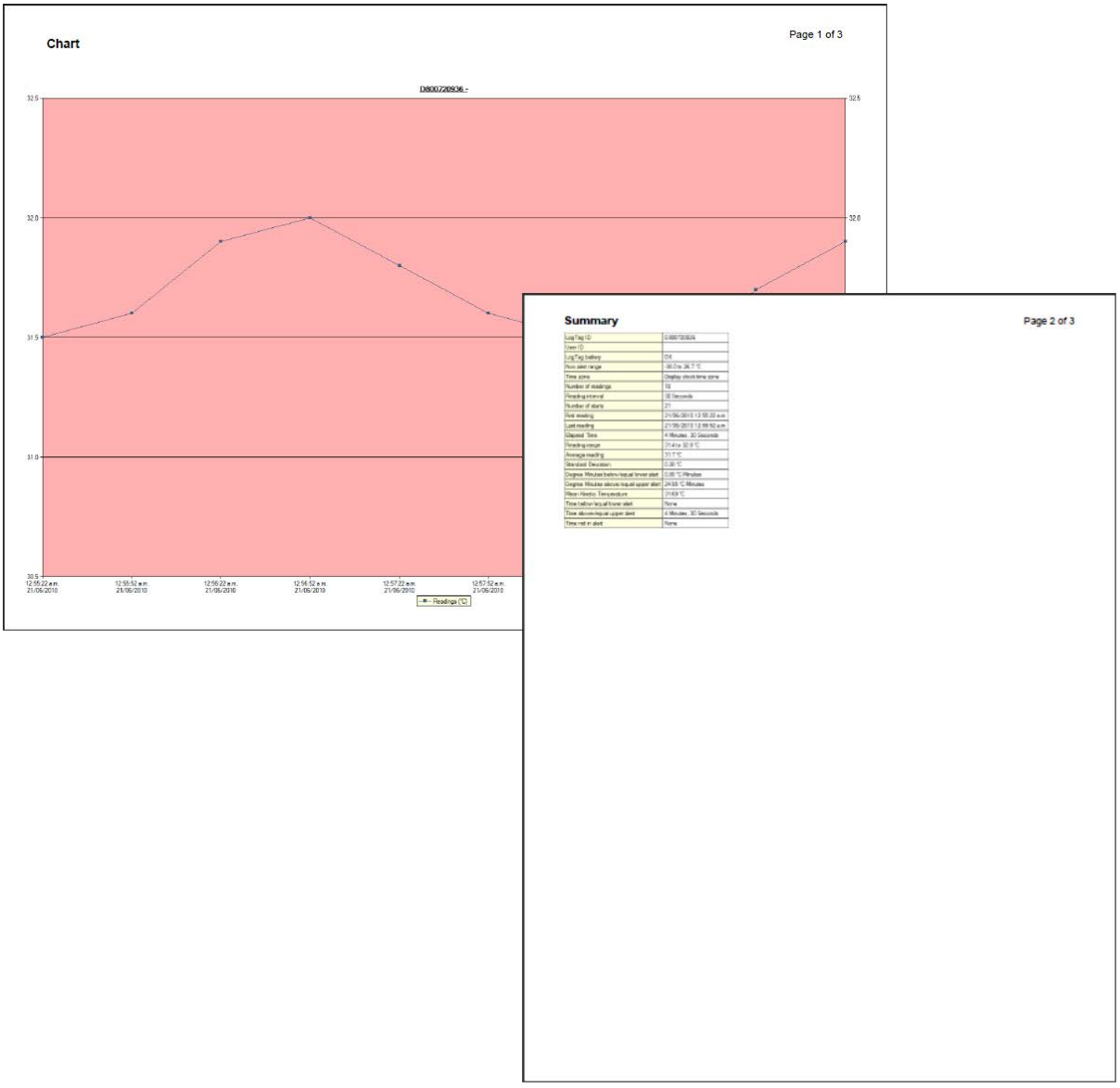
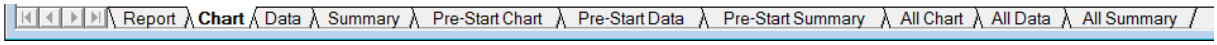


Chart
Page 1 of 3
Summary
Page 2 of 3

Analyzing the results

Data are displayed and analysed in **file windows**, which appear inside the main LogTag® Analyzer window. Each file window displays the data of a single recorder and has a series of tabs along the bottom. Clicking on a tab changes the way the information is displayed; different windows can display different tabs.



You can activate Multi Chart display, and all open file windows are combined into a single window. You can find more information about this feature in Combining charts onto a single chart.

These are the different ways to display the information in the file windows.

Table 13: Tab summary

Tab selected	Information displayed
Report Tab	A summary display of the downloaded data, including a summary of the important trip information and an overview graph.
Chart (or Log Chart)	A display of the data in a humidity and/or temperature versus time chart.
Data	A listing (spreadsheet style) of the time versus humidity and/or temperature data.
Summary	A summary of the data, including averages, ranges, alert results, LogTag® identification data, and other information.
Day Summary	A summary of the day statistics for display recorders.
Day Summary Chart	A display of the minimum/maximum data in a temperature versus time chart; for the iSo°Tag indicator only.
Pre-Start Chart	Same as the "Chart", but limited to only show pre-start readings.
Pre-Start Data	Same as the "Data", but limited to only show pre-start readings.
Pre-Start Summary	Same as the "Summary", but limited to only show pre-start readings.
All Chart	Same as the "Chart", but showing both regular and pre-start readings.
All Data	Same as the "Data", but showing both regular and pre-start readings.
All Summary	Same as the "Summary", but showing both regular and pre-start readings.

The most used tabs will typically be the report tab or the chart tab, as the information displayed in either of them gives an instant overview of the data, whether just recorded and downloaded from a LogTag®, or retrieved from previously stored data files.

In some cases not all tabs previously described will be displayed. You may for example see only Report, Chart, Data and Summary, if the LogTag® has been configured not to record any pre-start data.

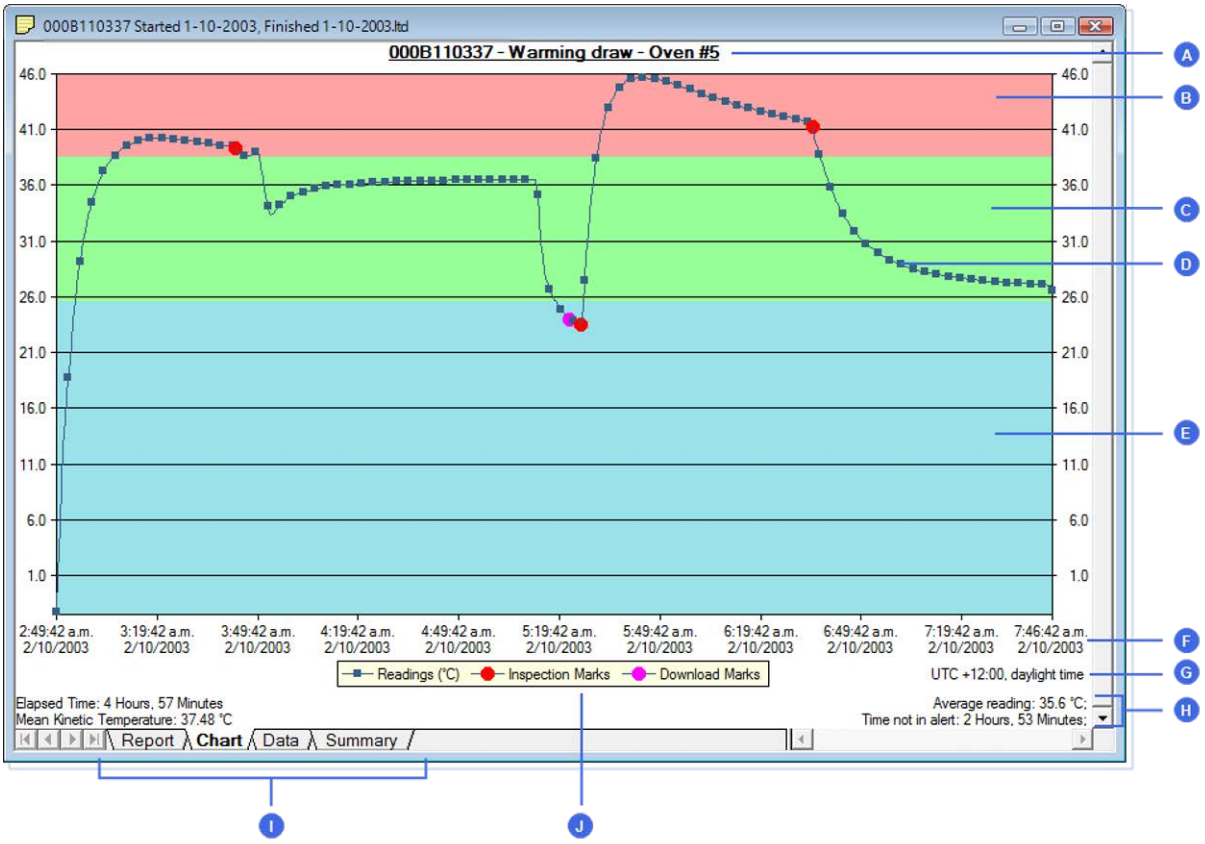
Note: Indicator products such as the TICT or TIC20 only display the Report and Day summary tabs. The iSo°Tag indicator displays Report, Log Chart, Data, Day Summary and Day Summary Chart tabs.

The following sections describe each type of information display (Report, Chart, Data, Summary, Day Summary and Day Summary Chart) in more detail.

Chart Display

Clicking on the **Chart** tab presents the information in the file window as a 2-D line chart with markers. When you first start LogTag® Analyzer, this tab is activated by default, but you can change this in the **Options** .

Note: for iSo°Tag indicators this tab is called **Log Chart**, so it can be distinguished from the **Day Summary Chart** (see Indicator products on page 99).



A	Chart title	F	Time line
B	Above alert area	G	Time zone
C	No alert area	H	Chart Statistics
D	Graph line	I	Tabs
E	Below alert area	J	Chart legend

Figure 57: Chart display

You can see how humidity or temperature changed over time. If you want to see parts of the graph in more detail, you can zoom in and display a smaller section of the data. Move the cursor to the upper left corner of the area you wish to magnify, hold down the left mouse button and move the cursor so it covers the area you wish to see:

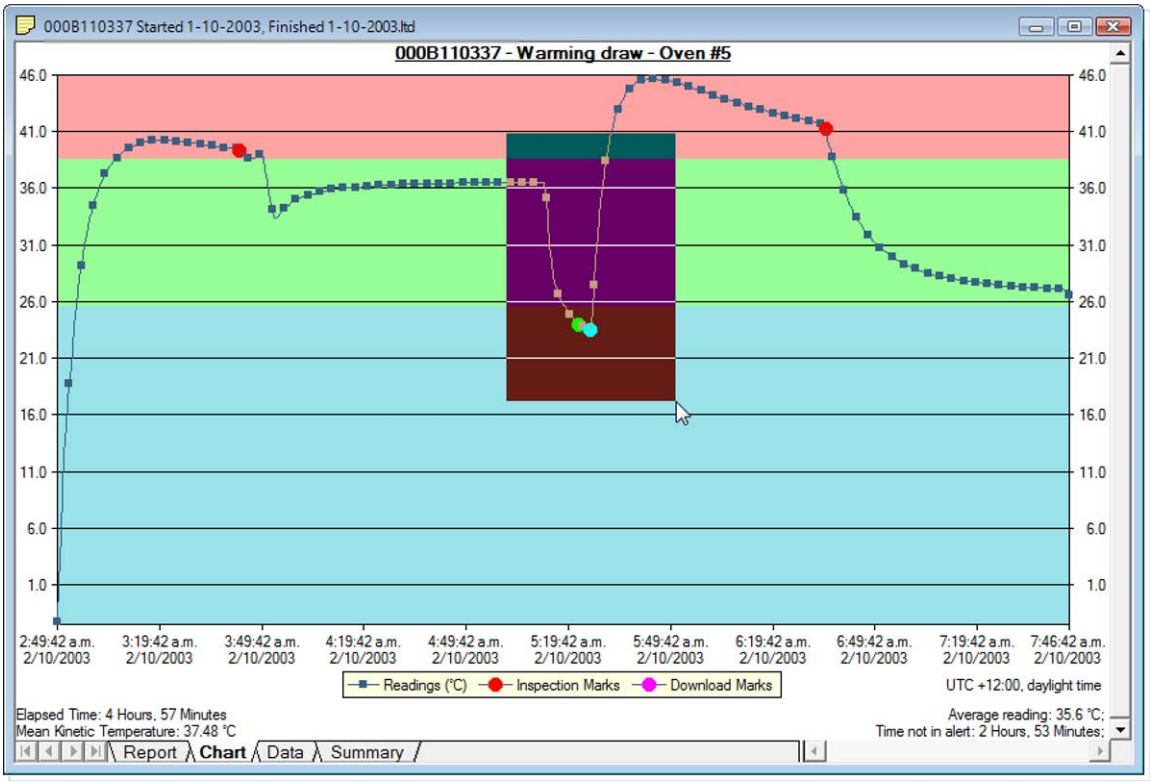
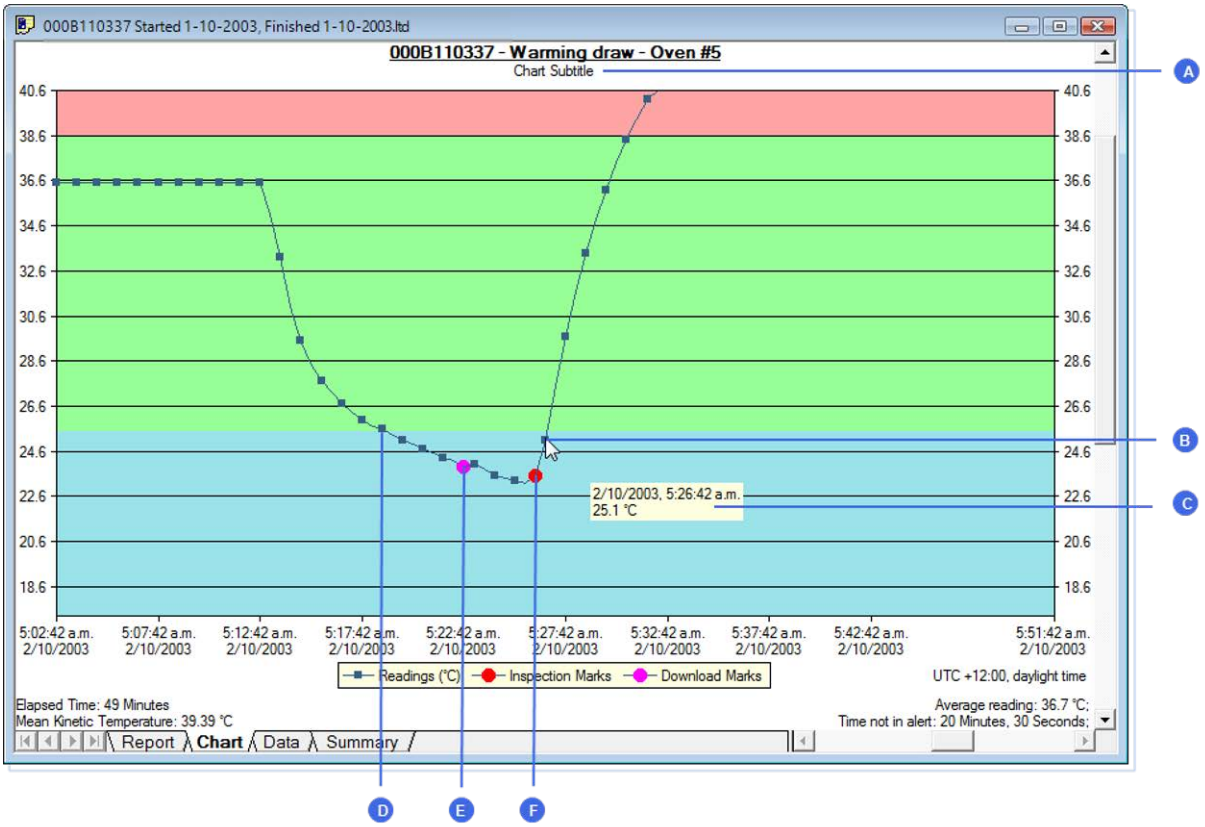


Figure 58: Chart display while zooming with the mouse

When you release the left mouse button, the area highlighted now fills the window:



A	Chart sub-title	D	Marker
B	Mouse cursor on data point	E	Download mark
C	Tooltip	F	Inspection mark

Figure 59: Zoomed area

Depending on the zoom level not every data point may have a marker displayed. LogTag® Analyzer intelligently adjusts the display of markers so the graph line is still visible. These markers can also be turned off, and their appearance can be altered. You can learn more about this in the Charts Section. You can also see a number of other marks. Inspection marks are recorded in the LogTag®'s memory each time its START MARK button is pressed. Download marks are recorded in the LogTag®'s memory each time it is downloaded to a PC.

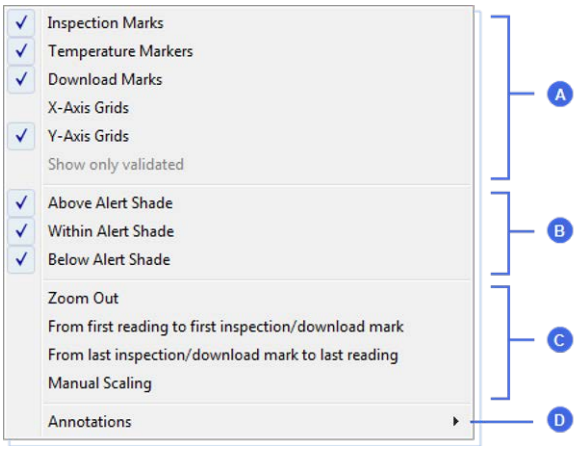
When the mouse pointer is moved over the chart, a tooltip is displayed near the mouse pointer (as shown in the example). It displays the reading closest to the mouse pointer position. If the readings are very close together, you may want to zoom in further and then inspect individual readings with the help of tooltips.

The tooltip will always show date and time of the recording, even when elapsed time is chosen for the x-axis display. This will allow you to get the date and time information quickly without having to change the setting in the options for Charts.

You can add annotations (Chart annotations) and a subtitle (Chart subtitle) to the chart.

The chart area displayed in the window can now be copied to the clipboard by either pressing CTRL-C, selecting **Copy** from the **LogTag** menu or clicking on the Copy icon ( )in the toolbar. This picture can then be pasted into any Microsoft Windows® application. For example, if you are writing a letter and want to illustrate a point based on chart data from a LogTag®, you can paste the picture of the chart directly into the letter.

You can change the appearance of all charts permanently by changing the options in Charts. If you wish to temporarily change the appearance of only a single chart in the file window you can use the context menu, which is accessed by right clicking while the mouse cursor is in the graph area.



A Appearance controls
B Shade controls
C Zoom controls
D Annotations

The appearance controls influence general items on the chart, such as turning on and off marks and grid lines; these can be useful for finding information on the chart easier. Clicking on an enabled item will disable it and vice versa.

The shade controls can be used to highlight the alert and non alert areas of the chart for easier identification.

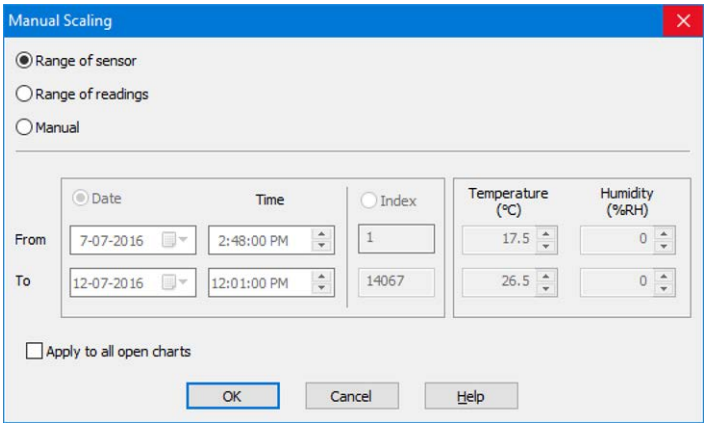
You can use the zoom controls to define which part of the data is displayed on screen (see Zoom Control) and the Annotation menu to display text on the chart (see Chart annotations).

Zoom Control

Manual Scaling

You can zoom into any detail of the chart by using your mouse, until you only see a single reading. If you want a more refined control over the temperature and humidity scale or the range of readings displayed you can use direct data input from the context menu.

Right clicking anywhere on the chart area and select **Manual Scaling** . The following dialog will be displayed:



You can select:

- **Range of sensor**
  The chart is zoomed to the minimum and maximum values for each sensor. These values are dependent on the recorder model.
- **Range of readings**
  The chart is zoomed to the minimum and maximum reading values.
- **Manual Scaling**
  When selecting this option you have complete control over which part of the graph is displayed.
  You can specify
  - the date and time range for which the readings will be shown. Please note that you cannot enter dates and times outside the span of the recorder's logged data.
  - Alternatively you can specify an index range for the readings. You can see each reading's index in the data tab. This is useful if you wish to display a certain part of multiple files that do not cover the same date and time range.
  - The temperature (and humidity ranges if applicable) for the y-axis.

  Initially the dialog shows the current zoom settings.

If you select the check box **Apply to all open charts**, these settings will be applied to all currently open charts as follows:

- The Y-axis scaling (temperature and humidity) will be applied to every open chart. **Range of sensor** and **Range of readings** use the currently active chart's sensor range or reading range for all charts. If you want each chart to display its own sensor or reading range, please select the corresponding option in **Default Zoom** in the chart options.
- The X-axis scaling (time) will be applied to every chart with readings inside the selected time frame, including pre-start readings.
  - If a chart's readings fall completely inside the specified range, the X-axis will not be scaled.
  - If a chart's readings fall partially inside the specified range, the X-axis will be scaled so only those readings inside the range will be displayed.
  - A chart will always display the readings at the time they were recorded. As a result the first and last readings may not always align perfectly with the selected time frame, particularly with long log intervals.
- No scaling will be applied to files where the active tab is the summary tab, day summary tab or one of the data list tabs.

  The zoom range is also not applied to TIC20 and TICT indicator products.

If you clear the check box **Apply to all open charts**, the chosen settings will only be applied to the currently active chart.

Click OK to apply your selected settings.

To return to the previous zoom level, use the Zoom Out ( ) command in the Edit menu, on the toolbar or by right clicking anywhere on the graph area and selecting **Zoom out** in the context menu. You can do this individually for each chart.

Tip: If you are planning to zoom in on multiple charts, bring the chart covering the longest date and time range to the front. This will allow you to enter the widest possible parameters for a date and time zoom.

Inspection and download mark zoom

You can also zoom directly to certain parts of the chart by using the inspection mark zoom icons on the toolbar and in the context menu.

Zoom out

Zooms out one level of the chart in the currently active window. If you are displaying a chart and this function is not available, then all available data are already being displayed and you cannot zoom out any further.

Zoom to inspection marks

This zooms the chart so readings are shown between the oldest reading recorded and the first inspection mark that exists in the data. If this function is not available then there are no inspection marks in the data currently being displayed.

The next two commands will not be available until this command is activated.

Previous inspection mark group

This zooms the chart so readings are shown which were recorded between the first inspection mark currently being displayed and the previous inspection mark.

This function is disabled when either the oldest reading is already being displayed, or the "Zoom to inspection marks" function has not been activated.

Next inspection mark group

This zooms the chart so readings are shown which were recorded between the last inspection mark currently being displayed and the next inspection mark.

This function is disabled when either the newest reading is already being displayed, or the "Zoom to inspection marks" function has not been activated.

In addition to zooming out and manually scaling the chart the context menu gives you some additional functions not available through the toolbar.

From first reading to first inspection/download mark

This zooms the chart so readings are shown between the oldest reading recorded and the first inspection mark **or** download mark that exists in the data. This is different from the "Zoom to inspection marks" feature as it also evaluates download marks. You can use this function to look at the first set of data where a recorder is downloaded more than once during a trip, for example in a cold chain transport where goods are transferred from a cargo ship to a distribution truck and you are only interested in the shipping portion of the trip.

From last inspection/download mark to last reading

This zooms the chart so readings are shown between the last inspection mark **or** download mark and the newest reading in the data. This is different from the "Zoom to inspection marks" feature as it also evaluates download marks. You can use this function to look at the last set of data where a recorder is downloaded more than once during a trip, for example on a distribution truck which has multiple drop off points and you are only interested in the last portion of the trip.

If either of the two menu points are greyed out you are either already looking at this part of the data, or there are no inspection or download marks present.

In the **General** section of the **Options** you have the opportunity to define either of these two settings as the default when files are opened or recorders are downloaded.

Chart annotations

To include additional information in your chart you can add chart annotations. These will be displayed and printed with your chart. Click the right mouse button at the location where you want to add the annotation. The context menu will open, allowing you to select **Annotations** .

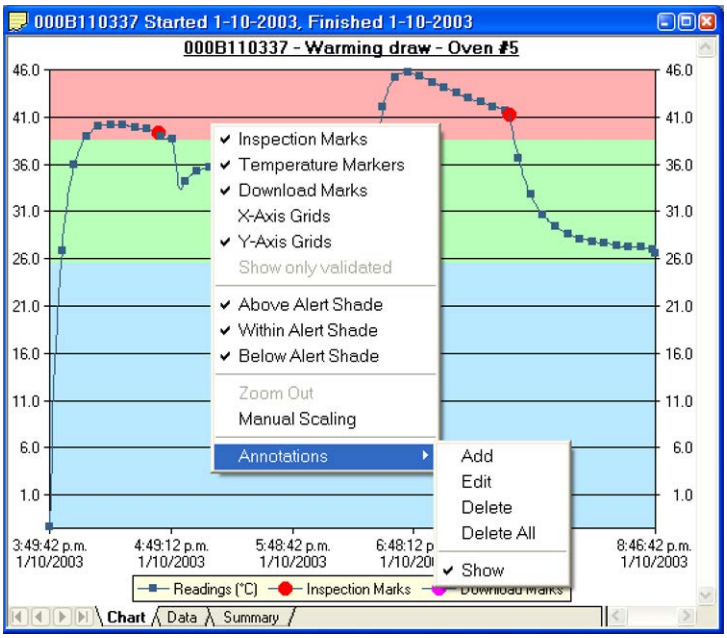


Figure 60: Chart context menu

Select **Add** , enter the annotation text and click OK. The annotation will be displayed in the chart. When you zoom the chart display, the annotation will stay on screen as long as the point to which the annotation was attached is also displayed.

To edit an annotation, click the right mouse button while the cursor is at the annotation's location and select **Edit** from the annotations menu. Edit the text and click OK to display the edited annotation.

To delete an annotation, click the right mouse button while the cursor is at the annotation's location and select "Delete" from the annotations menu. The annotation will be deleted. To delete all annotations, select **Delete All** .

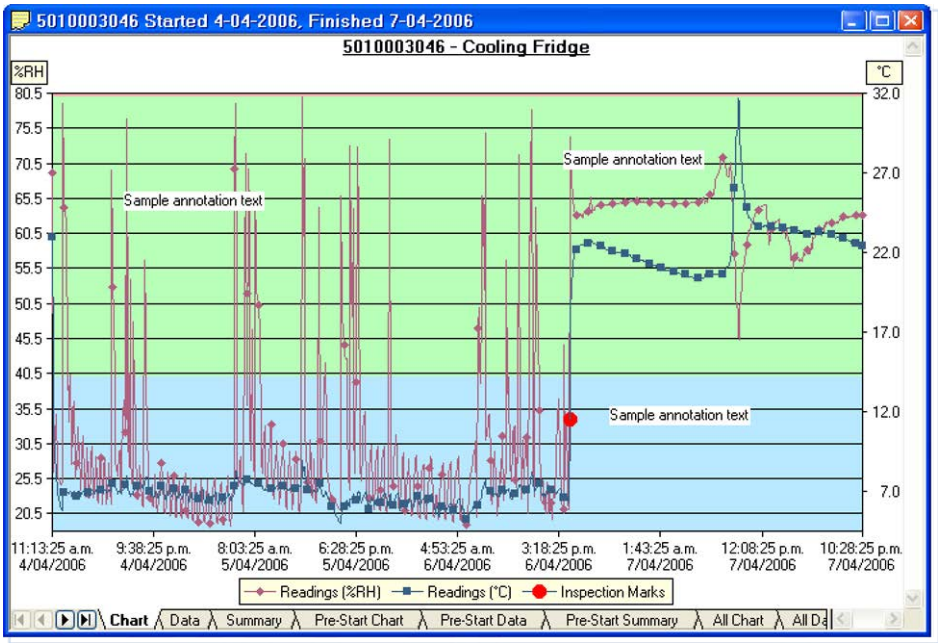


Figure 61: Chart with annotations

Selecting the "Show" command from the Annotations popup context menu will show or hide all of the annotations on the chart.

To save the annotations, click the toolbar button or select the **Save** command from the File menu. The annotations will be saved in a file with the same name as the data file and the file extension ".anno".

When saving annotations in Multi Chart mode, the software will ask you to specify a file name for the Multi Chart configuration, if you are saving this configuration for the first time.

Note: The contents of the original file are not changed. If the ".anno" file is accidentally deleted, the annotations will no longer be displayed, but the recorded data will still be intact.

Chart subtitle

The chart subtitle is displayed and printed underneath the chart title.

To edit the subtitle, right-click on the area above the chart and select **Edit Chart Subtitle** from the popup context menu.

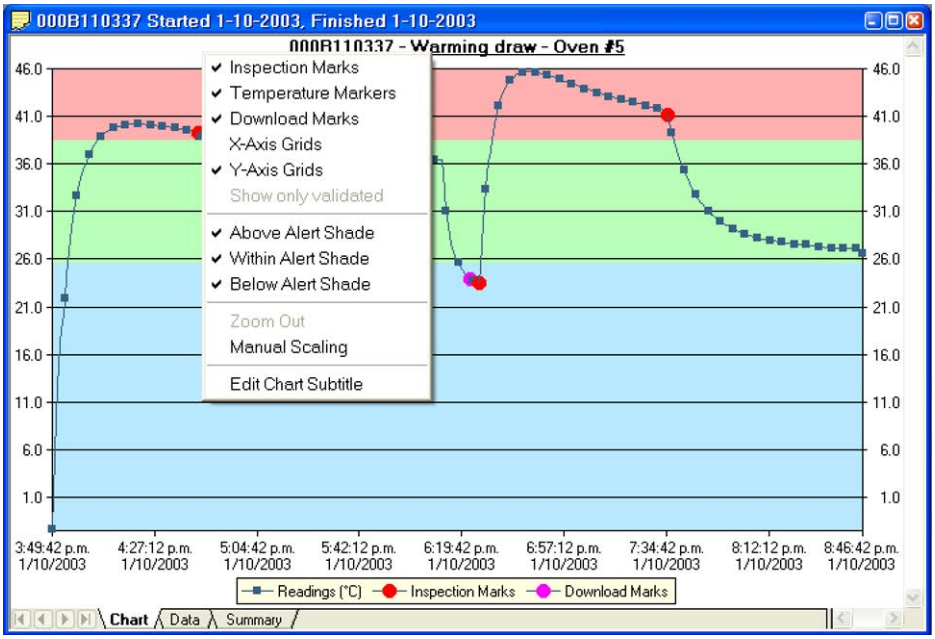
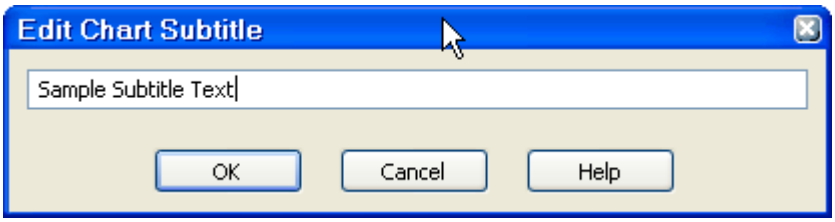


Figure 62: Chart title context menu



Enter or modify the text, then click OK to display the edited subtitle. To remove the subtitle, delete the text in the Edit Chart Subtitle dialog and click OK.

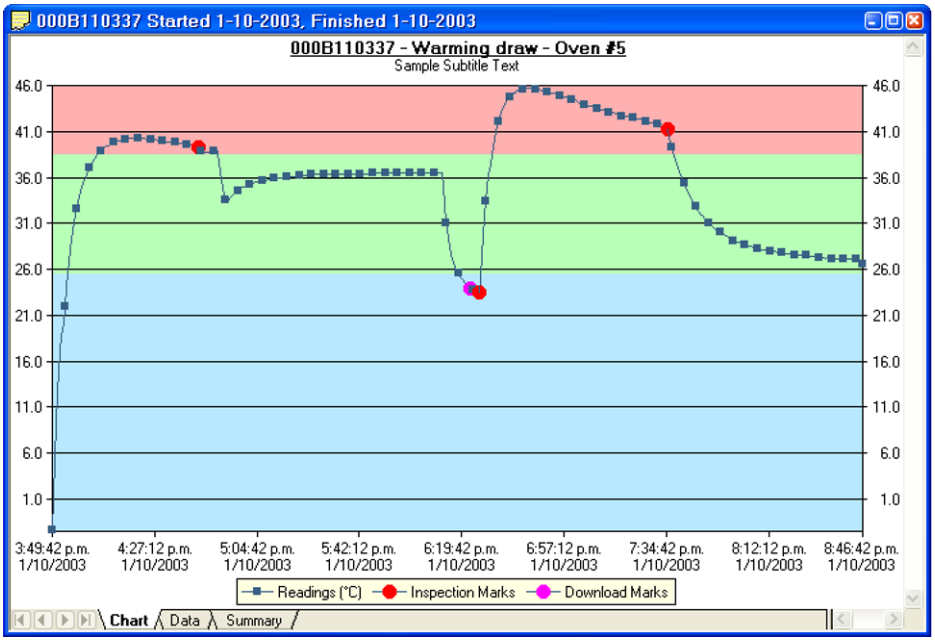


Figure 63: Chart with subtitle

To save the chart subtitle click on the toolbar icon or select the Save command from the File menu.

If the LogTag® Analyzer application is in Single Chart mode, the subtitle (and annotations) for the currently active chart will be saved in a file with the chart file name and the file extension .anno.

In Multi Chart mode, the subtitle is saved in the Multi Chart configuration file (file extension .multi). If you are saving the configuration for the first time, you will be asked to specify a file name for the Multi Chart configuration.

Report Display

The Report display provides a convenient and quick way of seeing all important information for a trip in one single screen.

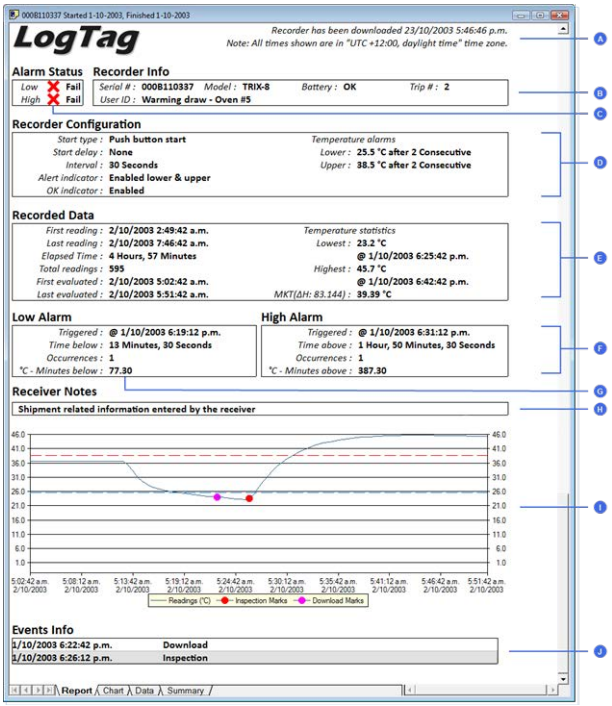


Figure 64: Report Tab

A	Download and time zone information	F	High Alarm information
B	General information	G	Low Alarm information
C	Alarm pass/fail	H	Receiver notes
D	Configuration information	I	Graph area
E	Trip information	J	Event information

The graph area shows a smaller version of what you see in the chart tab. The zoom controls are linked to those in the chart tab; if you zoom in to a particular area on the report's chart area, the same area will be displayed in the chart tab and vice versa. You can use the same zoom controls as in the chart, with some exceptions to the context menu controls.

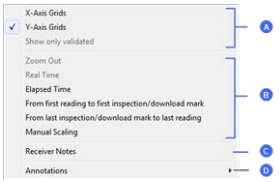
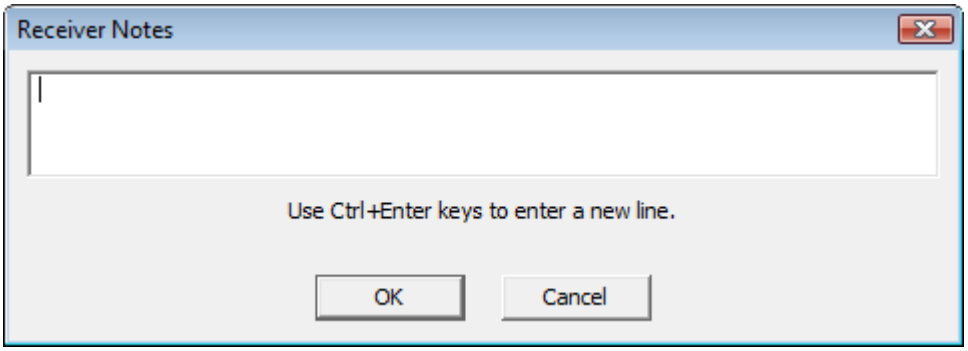


Figure 65: Report context menu

A	Grid control	C	Receiver notes
B	Zoom control	D	Annotations

The grid and zoom controls as well as the annotation function work the same as they do in the chart tab. Annotations added in the chart tab will be displayed in the report chart and vice versa.

When you select **Receiver notes** an entry dialogue box will open where you can add text, which is displayed in the report's **Receiver Notes** section every time the file is opened.



These notes are stored in the "*.anno" file together with the chart annotations. This file must be present in the same directory as the "*.ltd" file.

The **Events Info** section lists all events that have taken place during the trip. You will see if a recorder was previously downloaded, when an inspection mark was placed, when readings were paused or when the clock was manually changed on a recorder with a display. For each block of paused readings in a USB recorder only the first and last reading is shown.

If you enlarge the width of the window sufficiently, the report will be displayed in landscape format.

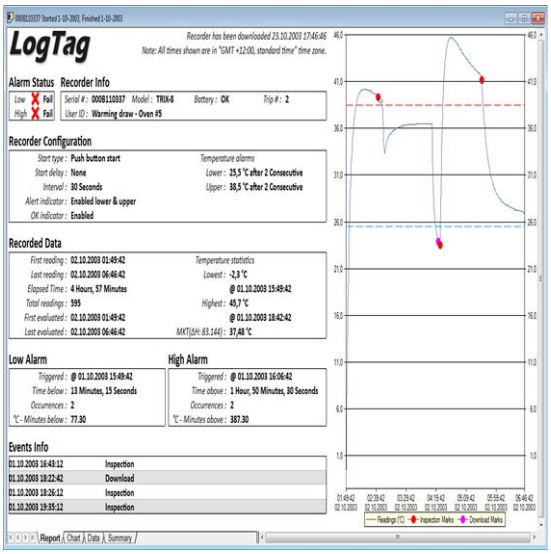


Figure 66: Report tab in landscape format

Indicator products

The report will have a different look for TIC20 and TICT products, since they do not store continuous temperature data:

Figure 67: Report tab for TIC20 and TICT products

- A Download and time zone information
- B General information
- C Alarm pass/fail
- D Alarm Configuration information
- E Trip information
- F Alarm information
- G Receiver notes
- H Alarm trigger events
- I Temperature bars
- J Graph area with alert shading

The iSo°Tag indicators feature two charts instead of the temperature bars.

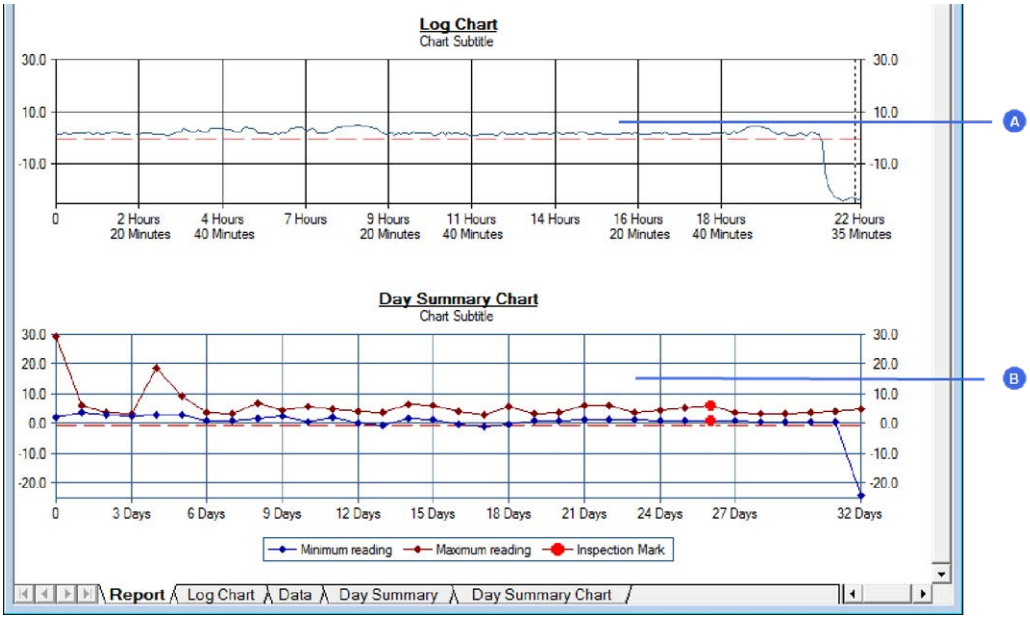


Figure 68: Chart display in Report tab for iSo°Tag indicators

A Log Chart

B Day Summary Chart

For USB recorders with multiple alarms, the alarm section of the report shows one summary row for each activated alarm:

High Alarm

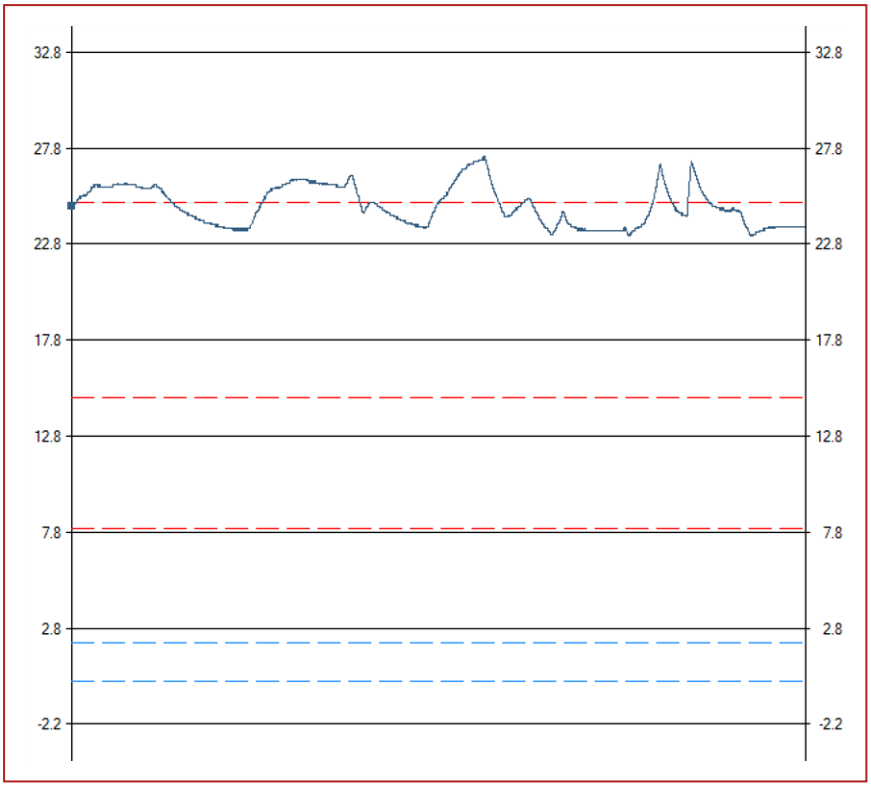
Alarm	Allowed Time	Total Time	Occurrences :	°C - Minutes	Status
>25.0 °C	Instant	1d, 13h, 31m	15	1976.88	Fail
>15.0 °C	4m (Consecutive)	3d, 18h, 6m	1	52960.48	Fail
>8.0 °C	2h, 24m (Consecutive)	3d, 18h, 6m	1	90802.48	Fail

Low Alarm

Alarm	Allowed Time	Total Time	Occurrences :	°C - Minutes	Status
<2.0 °C	2h, 24m (Accumulative)	(none)	(none)	0.00	OK
<-0.5 °C	Instant	(none)	(none)	0.00	OK

Figure 69: Multi-Alarm report section

The graph also shows the lines for each of the activated alarms.



Data Display

When you click on the data tab the readings are displayed in a list in chronological order from top to bottom, also showing index, date & time and elapsed time. On the list you can also identify any special marks attached to the reading, such as download marks (identified through purple background) and inspection marks (identified through red background). The colour of the text identifies if a reading has been above the upper alert value (red), below the lower alert value (blue) or within specification (black). You can scroll through the readings with the arrow, page up/down, home and end keys, or use the mouse to move the readings with the scroll bar. The zoom controls from the chart tab are inactive in the data tab.

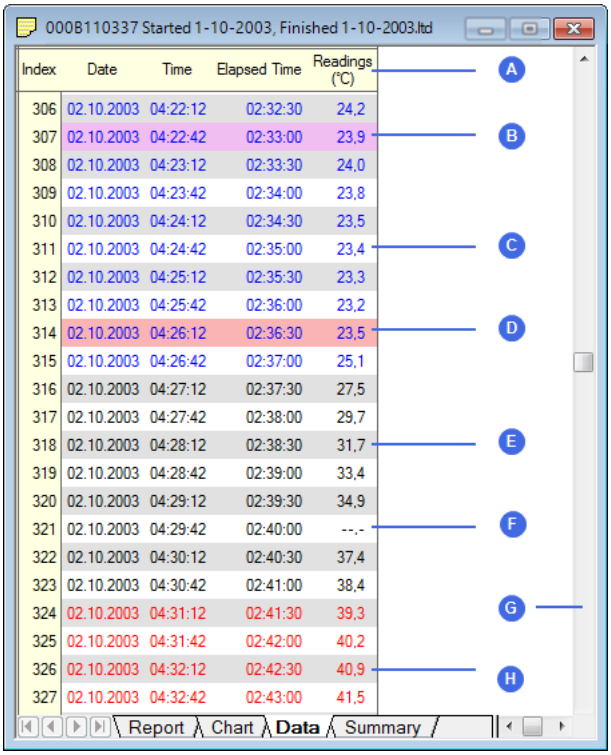


Figure 70: Data tab

A	List header row	E	In spec readings
B	Reading with download mark	F	Reading with sensor unplugged (TRED30-7 models only)
C	Reading below lower alert value	G	Scroll bar
D	Reading with inspection mark	H	Reading above upper alert value

The data tab will only display those readings shown on the corresponding chart. If the chart is zoomed in, the data tab gives access to only the zoomed readings. You cannot use the scroll bar or arrow keys to display readings before or after the currently zoomed readings.

The list grid can be copied to the Windows clipboard and pasted into other windows applications such as spreadsheets, including the list header row. When the corresponding chart is zoomed in, only those values will be copied.

Summary Display

The summary tab offers a brief statistics overview of some of the important trip data. You can customise the statistical data you wish to include in this tab in the Options dialogue for the Summary Statistics.

The first section shows the data for the complete trip, regardless of whether or not the chart is zoomed in. The second section is only displayed if the chart is zoomed in, and displays the statistics for only the zoomed readings.

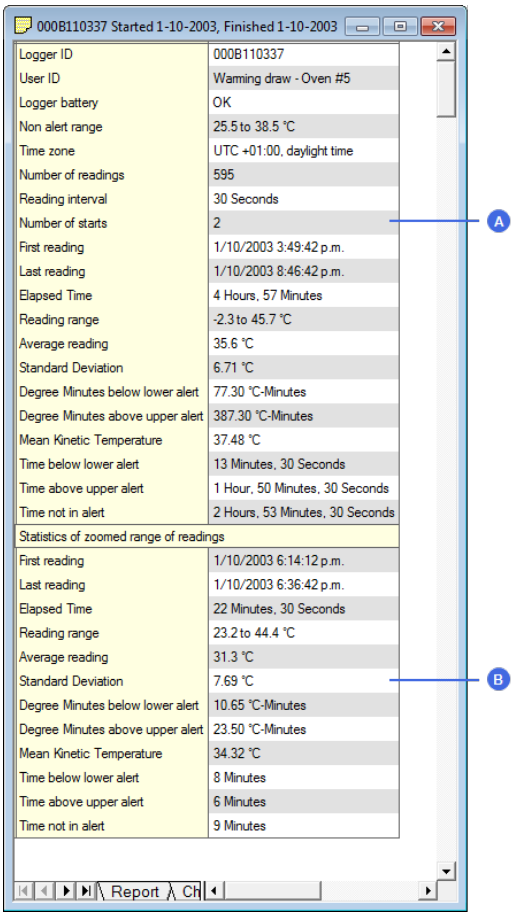


Figure 71: Statistics tab

A Statistics summary for entire trip

B Statistics for zoomed readings

If there are readings beyond the limits of the sensor within the time interval displayed, the statistics for this interval will show "**". If inspection marks are present in the data, statistics summaries for each of the inspection mark groups in the data can be seen amended to the end.

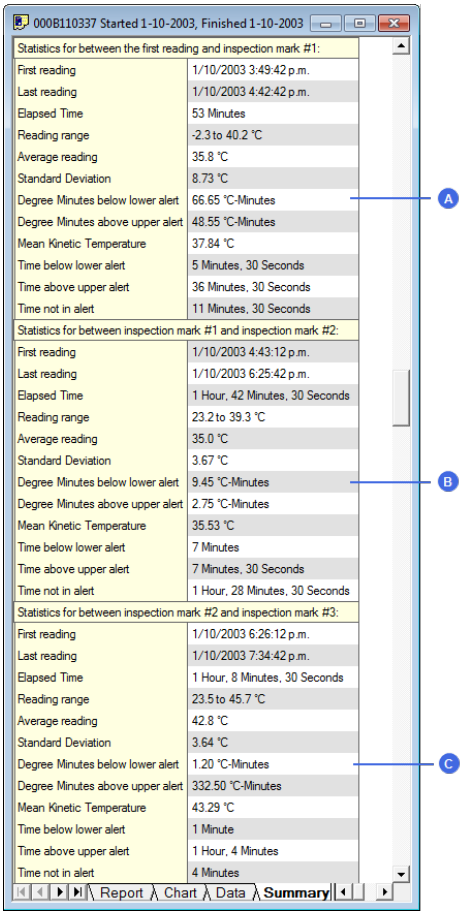


Figure 72: Statistics tab when inspection marks are included

A Statistics summary for first inspection mark group

B Statistics summary for second inspection mark group

C Statistics summary for third inspection mark group

The list grid can be copied to the Windows clipboard and pasted into other windows applications such as spreadsheets, including the list header row.
The zoom controls available for the chart tab are inactive in the summary tab.

Day Summary Display

The day summary tab is displayed for LogTag®s with an integrated statistics memory.

LogTag® recorder products with statistics memory

For recorder models with a statistics memory the day summary display shows the history of up to 30 days, arranged into 24 hour periods, with information about maximum and minimum values for the day, and if alarms have been triggered on those days.

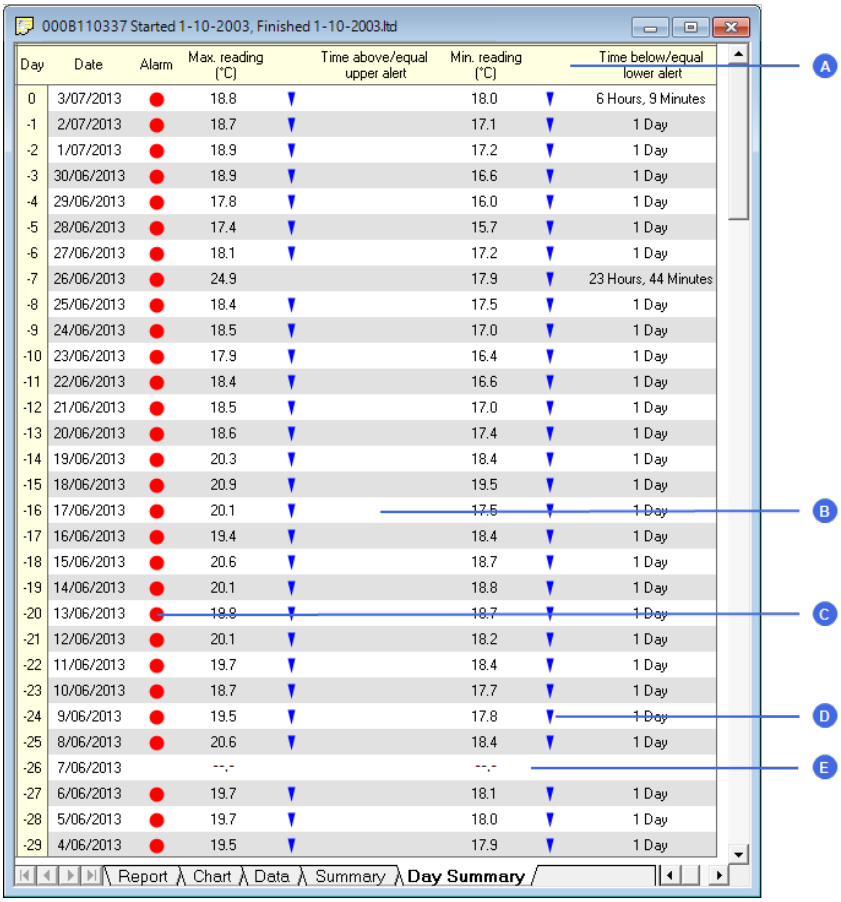


Figure 73: Day summary for recorders with display and statistics memory

A	Day summary header row	D	Below Alarm level marker
B	Summary grid	E	Sensor was unplugged for the whole day (1)
C	Alarm marker		

The Day summary grid can be copied to the Windows clipboard and pasted into other windows applications such as spreadsheets, including the header row.

LogTag® indicator products with display

These indicator products have multiple alarm levels. Time above or below each alarm level is displayed, with information about maximum and minimum values for the day, if alarms have been triggered on those days and how much time elapsed on that day until the alarm was triggered.

(1) Only for new recorders supporting the external sensor disconnect detection feature

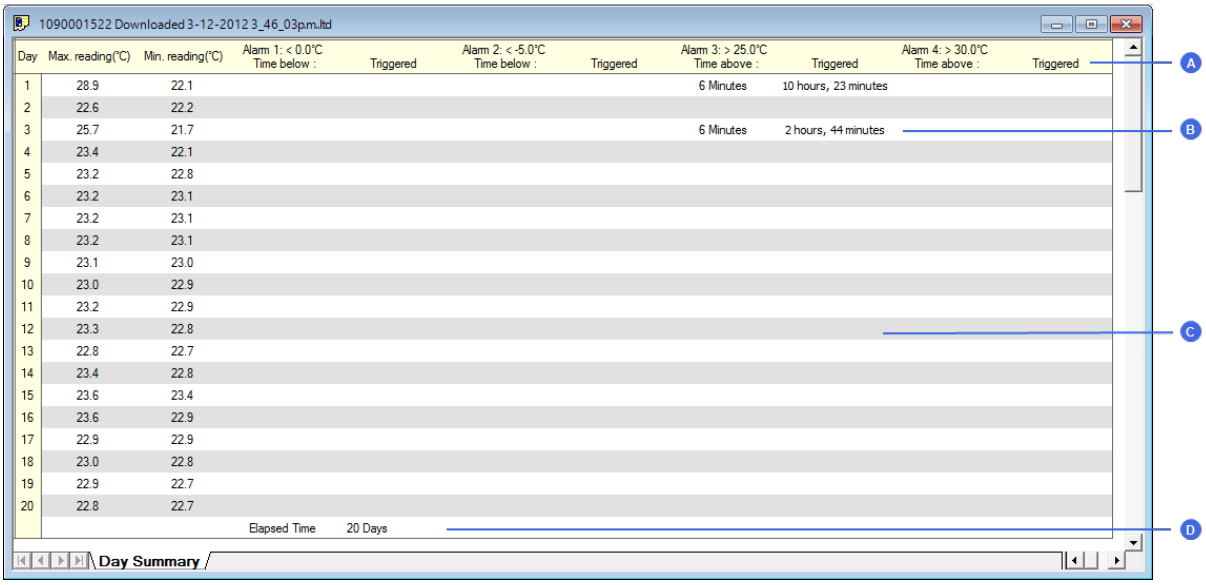


Figure 74: Day summary for indicators with statistics memory

A	Day summary header row	C	Summary grid
B	Alarm duration and trigger time	D	Total time monitored

The Day summary grid can be copied to the Windows clipboard and pasted into other windows applications such as spreadsheets, including the header. row.

Day Summary Chart

iSo°Tag indicators show a tab not available for other types of indicators or recorders. It shows the minimum and maximum recorded temperature values for each day the indicator was running in form of a 2D line chart.

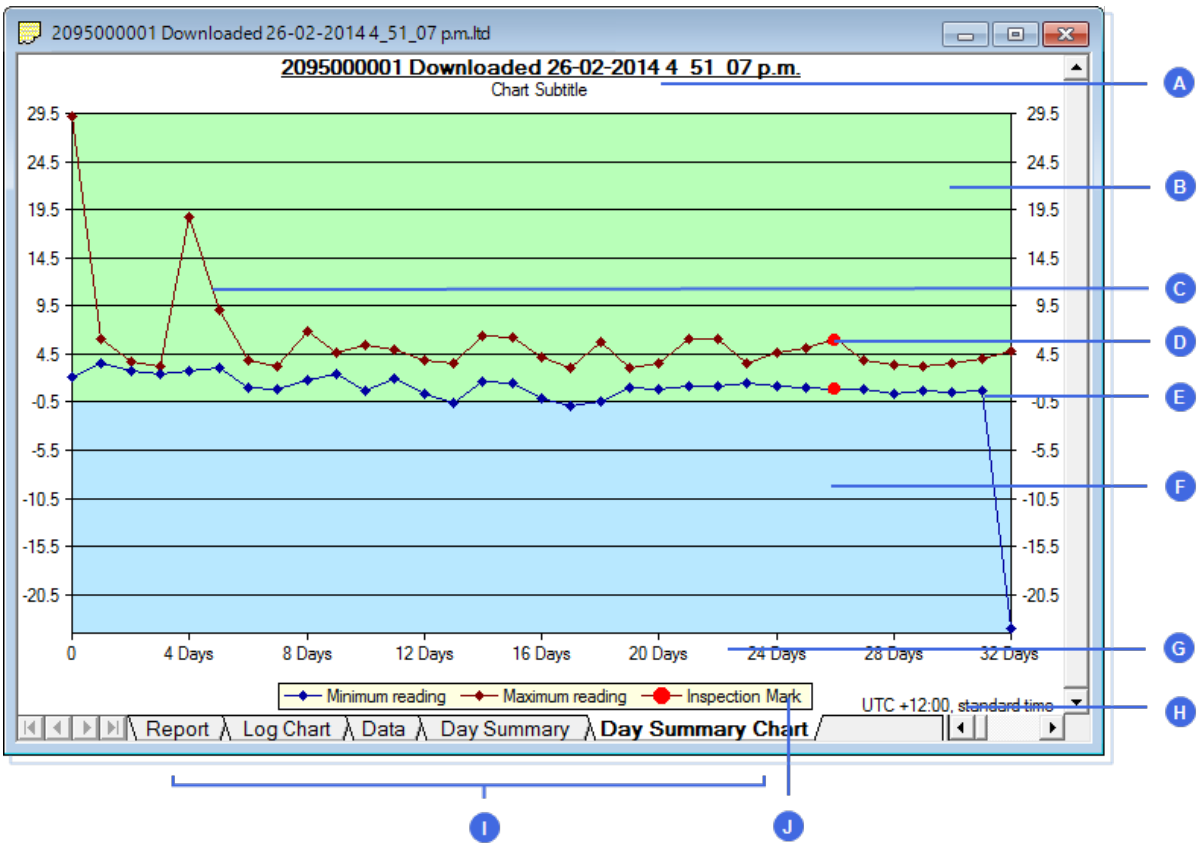


Figure 75: Day Summary Chart tab for iSo°Tag indicators

A	Chart title and subtitle	F	Below alert area
B	No alert area	G	Time line
C	Maximum reading graph	H	Time zone
D	Inspection mark	I	Tabs
E	Minimum reading graph	J	Chart legend

What you can do on this chart is almost identical to the **Chart** tab; tooltips show the data for each you can zoom in and out, you can place annotation marks and manually scale the chart. There are, however, some exceptions:

- There are no download marks. To download an iSo°Tag with LogTag® Analyzer it must first be stopped, hence a download mark can never be recorded.
- **Real time** shows an approximation of the date in which minimum and maximum values were recorded. The iSo°Tag's 24 hour day period starts at the time of the day the indicator is activated, not at midnight. If you wish to make this chart reflect accurately at what time the days rolled over you must switch to **Elapsed time**.
- The data points are linked by a line for visual appearance only.
- An inspection mark is recorded against a day, not a specific sample.
- Average and multichart buttons have no effect on this tab.
- Since the data points don't represent readings, there is no chart statistics display

Combining charts onto a single chart

To overlay multiple charts in one view, select the Multi Chart ( ) command. All charts that are currently open will be displayed together. Additional files opened while in Multi Chart mode (including data downloaded from LogTag®s) will be added to the display.

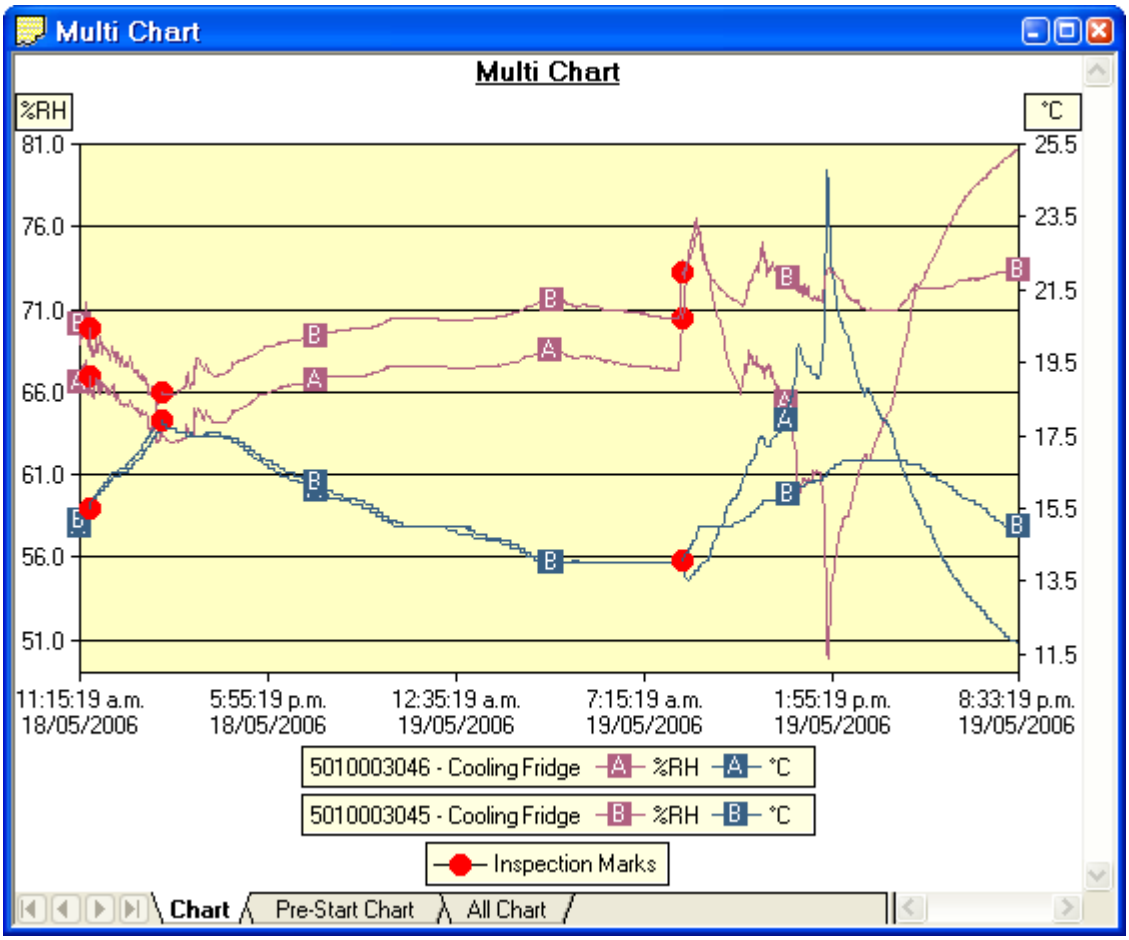


Figure 76: Two charts combined into a multi chart

Each of the individual charts will be displayed with a letter symbol to allow you to tell them apart. The legend contains an entry for each chart showing the chart name and the corresponding letter.

You can change the background color for the Multi Chart display through the Charts section in the Options Window (see Charts on page 133).

To remove charts from the Multi Chart display, use the Single Chart ( ) command to switch to Single Chart mode, then close the files you don't want to display. Select the Multi Chart ( ) command to switch back to Multi Chart mode.

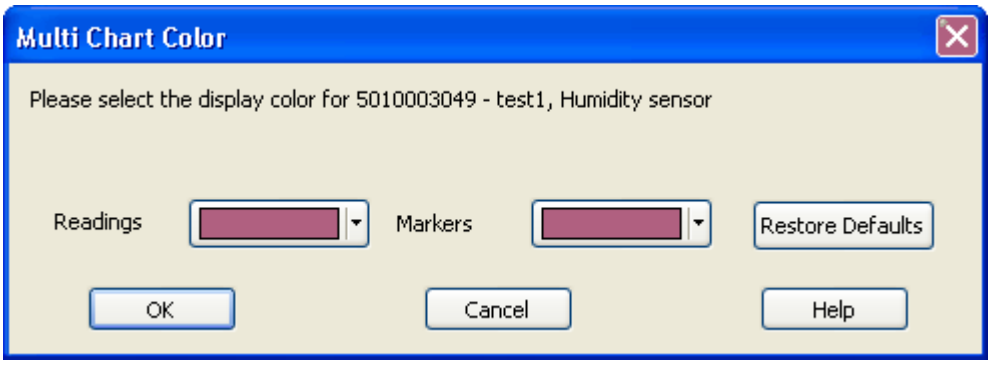
You will notice that the Data and Summary tabs are not available in the Multi Chart display. If you require additional information about the chart data, activate the display of the desired statistics on in the Chart Statistics section in the Options Window (see Chart Statistics on page 132). The chosen values will be displayed separately for each chart.

You can also view Min, Max and Average Charts, and select other options.

Changing Chart Colours

By default, all charts in the Multi Chart display are displayed in the colors specified in the Charts section within the Options Window (see Charts on page 133).

To change the display color of individual charts/sensors, move the mouse pointer over a chart until the tooltip is displayed. Right-click, then select **Change Chart Color** from the popup context menu.

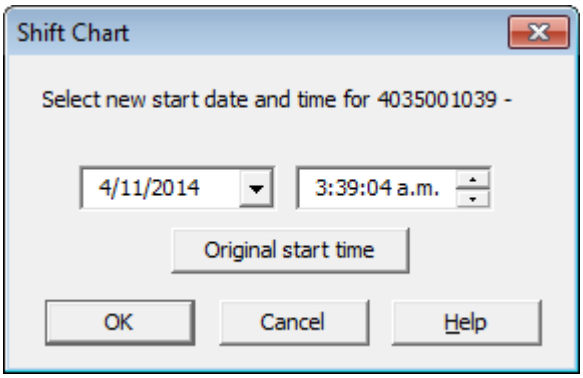


Select the desired colors for the chart readings and markers in the color selector boxes. To restore the default color as specified in the Options window select the **Restore Defaults** command.

Shifting chart start times

For easier data comparison, chart start times can be shifted in Multi Chart display. There are two ways to shift a chart along the time axis:

1. Move the mouse pointer over the chart until the appropriate tooltip is displayed. Right-click, then select the "Shift Chart" command from the popup context menu. This will cause the following dialog to be displayed, where the new start time and date can be entered, or the chart can be revert to its original date/time by selecting the "Original start time" button. Click the OK button to display the change.



2. Press and hold the CTRL key, left-click on the chart you would like to move, and drag the chart to new the position.

   An additional time axis is displayed for each shifted chart indicating the corresponding time in relation to the original start time.

   Note: Shifting a chart will not change any of the original recorded data, only the location the data is displayed in relation to other charts within the Multi Chart display will change.

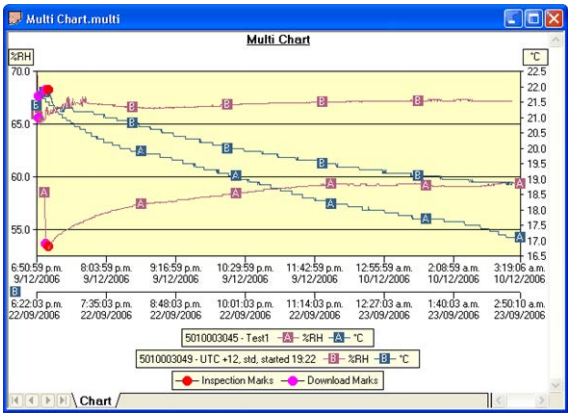


Figure 77: Multi chart with different time axes

Aligning Charts

Select **Align Charts** from the popup context menu to automatically align all charts in the current Multi Chart window.

The charts are aligned to the earliest start time:

- **Chart tab**: All start times are aligned.

- **Pre-start Chart** tab: All charts with Pre-start readings are aligned to the earliest Pre-start reading.

- **All Chart** tab: Charts are aligned to the earliest reading (Pre-start reading if any Pre-start readings have been recorded for the chart).

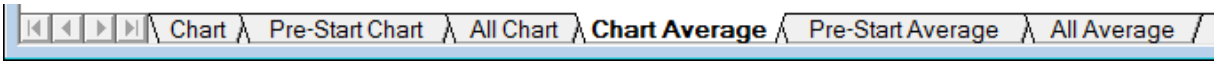
Every chart is assigned a different color and a time axis is displayed to illustrate the original start time. You can display the elapsed time instead of the date/time by selecting the **Elapsed Time** option in the Chart Options dialog (see Charts on page 133) or clicking on the elapsed time toolbar icon ( ).

Aligning charts in one tab will also influence how these charts are represented in the other tabs. If for example you select **Align Charts** in the **Chart** tab, and switch to the **All Chart** tab, you will notice that the charts are now aligned at a new origin, with all pre-start readings to the left and all readings to the right of this origin. The charts in the **Pre-start** tab are aligned with the last pre-start reading to the right.

To revert to the original start times for all charts, select in the toolbar to switch to Single Chart mode, then switch back to Multi Chart mode with .

Special Chart Tabs

When you select the average tab command in the toolbar, up to three additional chart tabs will be shown, with the Chart Average tab highlighted:

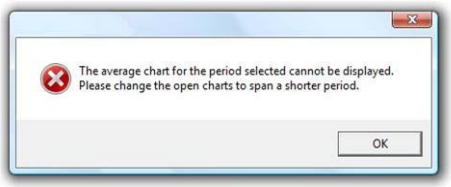


These chart tabs display graphs calculated from the **Chart**, **Pre-Start Chart**, and **All chart** tabs and show minimum, maximum and average value graphs. Changes in either of the three original data displays, such as adding a new file and aligning or shifting charts, result in a re-display of the corresponding **Min/Max/Average** tab, e.g. if one of the charts in the **Pre-Start Chart** is shifted, the **Pre-Start Min/Max/Average** chart would redraw showing graphs based on the updated values.

You can annotate these special chart tabs in the same way as other chart tabs; such annotations will be visible in the other chart tabs and are stored with the multi chart when saved.

Please note that following behaviour applies to these special chart tabs:

- Zoom settings will not be transferred to the **Average** tabs.
- Download marks and inspection marks will not be displayed in the "Average" tabs.
- Non-validated readings and re-calibrated readings will not be displayed with the special attributes, even if set in the options. If you have chosen to **show non-validated readings**, they are included in the minimum/maximum/average calculations, otherwise not.
- To avoid memory overflows there are some restrictions regarding the maximum allowed time span of the charts in a multi-chart. These restrictions vary with logging interval, should you try to add a chart outside the allowed range following dialogue box will appear:



In this case the multi chart will disassemble, so you can close the window whose chart you no longer want to display, and re-assemble the multi-chart by clicking on .

- If one or more of the charts have sections with readings outside the LogTag®'s sensor range, LogTag® Analyzer is unable to calculate the minimum, maximum and average values, and those sections of the graph will not be displayed. This will likely result in a "broken" graph line, regardless of whether **show readings beyond specifications** in the

Charts section in the Options Window is enabled or not (see Charts on page 133).

- Due to the large number of calculations performed in this feature, specifically when opening large numbers of charts spanning long periods, having the average tabs displayed can occupy large amounts of memory and run slow. Therefore we recommend only turning the feature on when required.

Clicking on the highlighted average tab command will turn the average tabs off. Selecting the single charts command in the toolbar while the average charts are active will disassemble the multi chart, and when switching back to multi chart the average tabs will be displayed again until turned off.

Behind The Scenes

To create some meaningful results, LogTag® Analyzer uses a special trend line process to calculate the minimum, maximum and average values across multiple charts, rather than a histogram. It is important you understand this mechanism, so you can interpret the displayed readings correctly.

This is an example of two LogTag®s, one with a 5 minute log interval (A) and the other (B) logging every 2 minutes.

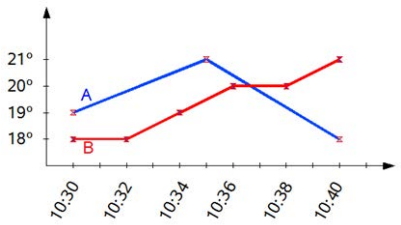


Figure 78: Multichart data - as recorded

Before the data are displayed in an average tab, LogTag® Analyzer normalizes every chart's readings so they fall in line with the logging interval of the LogTag® with the shortest log interval, in this case unit (B). It does not shift any charts, but rather calculates a theoretical value for those reading times by linear interpolation. Interpolation determines probable environmental conditions, i.e. what the LogTag® would have recorded if taking a reading at that time.

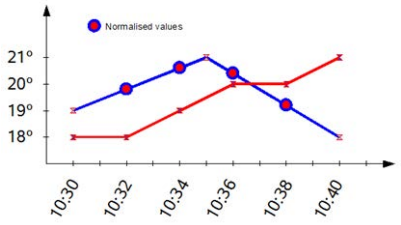


Figure 79: Multichart data - normalised

Without this method, it would not be possible to compare LogTag®s with different log intervals, or units that have the same log interval, but were started at different times.

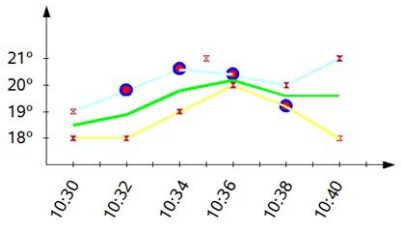


Figure 80: Multichart data - normalised min/max/average curves

As a result of this process, absolute values for minimum and maximum may not always be shown if they do not fall on normalized times, as seen in the example at 10:35 - despite 21°C being the maximum it will not be displayed as it is not a normalized value.

Note: The charts in above example are based on LogTag®s started at the same time. If unit (A) had been started earlier, depending on the start time unit (B) may also have its readings interpolated. To ensure the chart with the shortest log interval always has its real values shown, please use the **Aligning Charts** function from the context menu.

Automatically calculated statistics

When a file is displayed either from downloading or from calling up a stored data file, the software will automatically calculate and display certain statistics of the recorded data. These statistics are shown on the corresponding Summary tab and are also calculated for each sequence of data points between the inspection marks.

If any readings within the referenced time interval are beyond the limits of the sensor, the values for Average Reading, Standard Deviation, and Mean Kinetic Temperature will not be displayed.

Average Reading

The Average Reading is the arithmetic mean of the sequence of data points. It is calculated by adding all the data point values together and then dividing the total by the number of data points. Mathematically this formula can be expressed as illustrated in the following picture:

$$av = \frac{\sum_{i=1}^{n} t_i}{n}$$

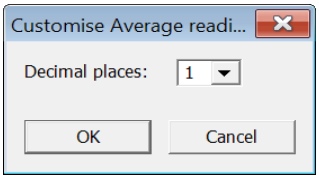
Figure 81: Formula for average reading

Where:

av	is the calculated arithmetic mean
n	is the number of data points to include in the calculation
t_i	are the sequence of data points to include in the calculation

For example, if there were 5 data points to calculate the arithmetic mean of and they were, 12.3, 15.9, 16.2, 14.7, 14.9, then the arithmetic mean would be 14.8.

The number of decimal places displayed can be set to 1, 2 or 3 by clicking Options from the Edit Menu, then navigating to the Summary or Chart Statistic section, highlighting Average Reading and clicking on the Customize... button.



Confirming this dialogue with OK will set the number of decimal places to the number selected in the drop down box.

Standard Deviation

The standard deviation is a useful measure for determining how spread out the readings are from the arithmetic mean (Average Reading). Most controlled environments typically try to keep the environmental conditions at a stable and consistent humidity and/or temperature. The standard deviation can be used to help indicate how stable the environmental conditions were maintained. One standard deviation (sometimes expressed as "one sigma") away from the mean, positive or negative represents approximately 68 percent of all the readings. Two standard deviations, or two sigmas, away from the mean represents approximately 95 percent of the readings. Three standard deviations represent about 99 percent of the readings.

For example, if the arithmetic mean of the readings was 50.6°C and the standard deviation was 2.3°C, then approximately 68% of the readings were between 48.3°C and 52.9°C, 95% of all the readings were between 46.0°C and 55.2°C and 99% of the readings were between 43.7°C and 57.5°C. Further more, if all the readings were recorded over a span of 1 day (24 hours) then the temperature was between 48.3°C and 52.9°C for approximately 16 hours and 19 minutes during the recorded period of time.

LogTag® Analyzer allows the calculation of sample or population based standard deviation.

$$s = \sqrt{\frac{\sum_{i=1}^{n} (t_i - av)^2}{n-1}}$$

Figure 82: Sample based standard deviation

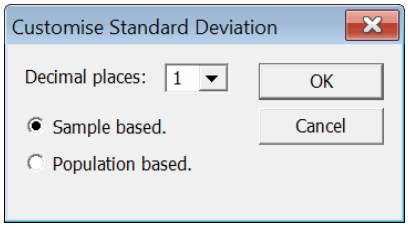
$$s_N = \sqrt{\frac{\sum_{i=1}^{n} (t_i - av)^2}{n}}$$

Figure 83: Population based standard deviation

Where:

s	the calculated sample based standard deviation
sN	the calculated population based standard deviation
n	the number of readings to include in the calculation
av	the calculated arithmetic mean
t_i	a reading to include in the calculation

The number of decimal places displayed can be set to 1, 2 or 3 by clicking Options from the Edit Menu, then navigating to the Summary or Chart Statistic section, highlighting Standard Deviation and clicking on the Customize... button.



Here you can also set whether the standard deviation should be sample based or population based.

Confirming this dialogue with OK will set the number of decimal places to the number selected in the drop down box and the calculation method.

For a more detailed explanation of the various ways to calculate standard deviation please consult the relevant literature related to statistical and probability calculations.

Mean Kinetic Temperature

Some products and materials have accelerated rates of degradation at higher temperatures. For example, perishable food items, pharmaceutical products and many forms of bacteria can grow/degrade exponentially as the environmental temperature increases. Mean kinetic temperature is a calculation that accommodates the non-linear thermal effect temperature can have on products. Mean kinetic temperature is represented as the equivalent temperature the product was thermally subjected to during the time the various temperature reading were recorded.

Mathematically the formula for calculating the mean kinetic temperature can be expressed as:

$$mkt = \frac{\frac{\Delta H}{R}}{-\ln\left(\frac{\sum_{i=0}^{n} \exp\left(\frac{-\Delta H}{R \times (t_i + 273.15)}\right)}{n}\right)} - 273.15$$

Figure 84: Formula for mean kinetic temperature

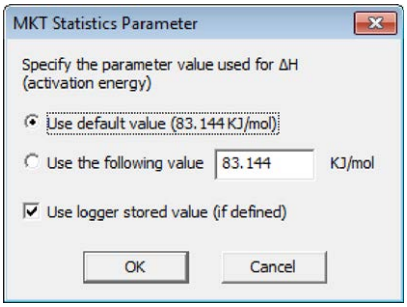
Where:

mkt	is the mean kinetic temperature, in degrees Celsius
ΔH	is the activation energy.
R	is the the universal gas constant, which is 0.0083144 KJ/mol K
n	is the number of data points to include in the calculation
t_i	represents the data points to include in the calculation, in degrees Celsius

For example, if there were 5 data points to calculate the mean kinetic temperature of and they were, 12.3, 15.9, 16.2, 14.7 and 14.9 degrees Celsius, then the mean kinetic temperature would be 14.9 degrees Celsius using the default ΔH.

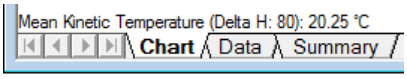
By default LogTag® Analyzer uses an activation energy value of 83.144 KJ/mol for the calculation.

To enter a custom value for ΔH, click the Customize... button in the Summary Statistics or Chart Statistics option screen and enter the desired value in the **Use the following value** box.



If you select **Use logger stored value (if defined)**, the DH parameter value stored in the recorder will be used to calculate MKT, if it has been customised during configuration. If you display more than one recorders, each will use its own DH parameter to calculate MKT. If you open a multichart, the DH value of the first opened file or recorder will be used.

Charts and the Statistics page display the DH parameter if it is different to the default value, and display Logger deltaH if the parameter from the recorder was used.



Degree Minutes

There are some products and materials that exist which can change their characteristics and/or degrade if they experience temperatures which are not within ideal conditions for long enough. For example, some products may experience freezer burn if they experience an extremely cold condition or experience a colder than ideal temperature for a long enough period of time. Other products for example, ice cream, change their characteristics if they experience temperatures which allow it to melt. The LogTag® Analyzer will automatically display the results of two separate Degree Minutes calculations. The result of the first Degree Minutes calculation displayed will be based on the readings that were recorded below the ideal conditions and the result of the second Degree Minutes calculation displayed will be based on the readings that were recorded above the ideal conditions. The ideal conditions used in the calculation of the Degree Minutes formula are based on the upper and lower alert values that where configured when the LogTag® was originally prepared for use.

Mathematically the formula for calculating the degree minutes above alert can be expressed as illustrated in the following picture:

$$deg\ min = \sum_{i=1}^{n} abs(t_i - a) \times s$$

Figure 85: Formula for degree minutes

Where:

deg min	Total Degree Minutes spent above/below the alert threshold.
t_i	The temperature that was above/below the alert threshold.
a	The alert temperature threshold.
s	The duration of time, in minutes, the temperature was sustained.

For example, if there were 5 data points to calculate the degree minutes of and they were, 12.3, 15.9, 16.2, 14.7 and 14.9 degrees, each of these temperatures were recorded at 2 minute intervals and the high alert temperature threshold was 12.6 degrees, then the degree minutes temperature above the upper alert threshold would be 22.6 degree-minutes.

Displaying statistics

The statistics displayed on the Summary tab can be configured in the Options dialog. Refer to the topic on Summary Statistics. By default, all statistics are displayed on the Summary tab.

Statistics can also be displayed on the chart, underneath the legend. Refer to the topic on Chart Statistics for more information about configuring the chart statistics.

If there are readings beyond the limits of the sensor within the time interval being displayed, the statistics for the relevant interval will be displayed as "**".

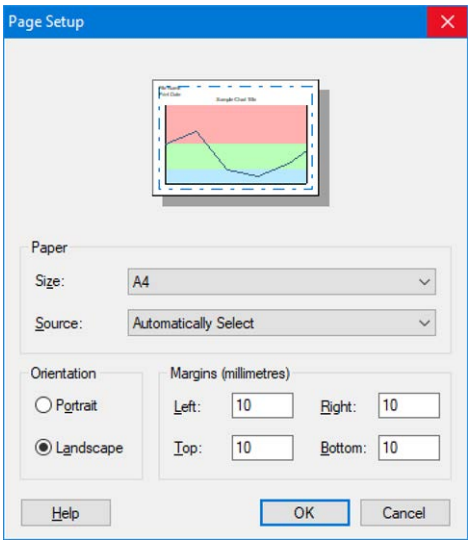
Printing the results

Printing from LogTag® Analyzer is similar to printing from other Windows software.

Before you print for the first time, however, we suggest you take some time to set-up your preferred page settings.

Page Setup

Click Page Setup; the following dialogue will be displayed:



You can set page margins, paper size, paper source and orientation.

Printing a single document

Click the "Print" icon ( ) on the toolbar or click **Print...** from the **File** menu to display the Print window.

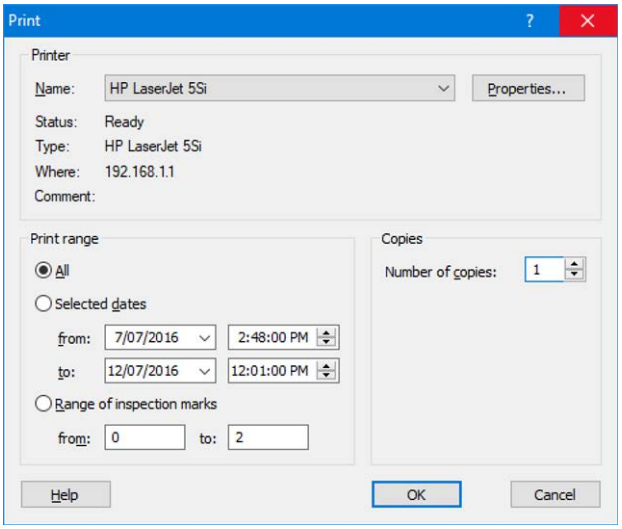


Figure 86: Custom printer dialogue

Choose a printer and if required adjust its properties.

Choose the range of readings to be printed:

- **All** - All readings will be printed
- **Selected dates** - Select the beginning and end date and time for which the readings will be printed. This option is pre-selected, if you have zoomed the readings, with the beginning and end date and time matching the zoom area.
- **Range of inspection marks** - If inspection or download marks are present in the data, you can select a pair of marks between which the data will be printed.

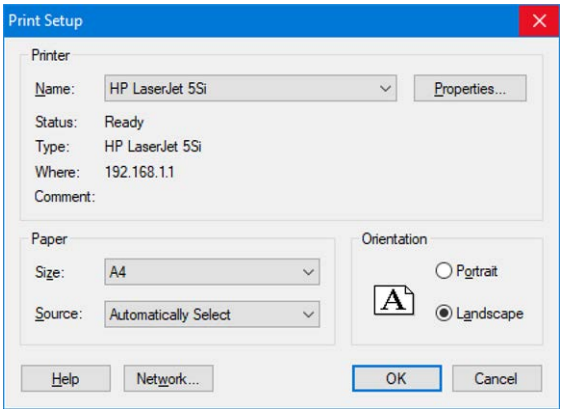
Please note:

- When printing a report or chart the temperature and humidity axes will always be zoomed to the current settings of the chart display, even if you select to print a larger date range than currently displayed. You may therefore not see all readings.
- Reports and Data lists will always be printed in Portrait, regardless of the settings made in Page Setup (see page 119).

Printing multiple documents

You can print all currently open documents at once.

Click **Print All...** from the **File** menu; the following dialogue will be displayed:



Each document's currently active tab will be printed with the respective zoom settings.

Emailing a file directly from LogTag® Analyzer

You can send files of interest to another person, by email, directly from the software without the need to exit to your email software or to deal with file attachments.

While you have the file of interest open and being displayed on the screen, just click once on the "Send Mail" icon ( ) located on the and your email software will pop up with the file already inserted as an attachment. Type the desired email address to send the file of interest to, add any message that you wish to include, and then click "Send".

Clicking on **Send** in the **File** menu will achieve the same results as clicking the "Send Mail" icon as previously described.

Note, the recipient of the file will also need to have a copy of the LogTag® Analyzer software to open and view the file that you sent. LogTag® Analyzer software is free and can be downloaded from http://logtagrecorders.com/software.

If you want to attach your data files in file formats other than the LogTag® Analyzer format, specify the desired file formats in the Exports and Reports section in the Options Window (see Exports and Reports on page 151). The data files will automatically be attached to your emails in the desired formats.

To send a Multi Chart configuration, the configuration must first be saved to disk (see Saving a Multi Chart file on page 80). The "Send Mail" command will automatically attach the multi chart configuration file, the annotation file (if annotations have been added) and the relevant individual data files to your email.

Note: You can automatically send emails and upload files to ftp sites using LogTag® Analyzer's automated SMTP and FTP functionality. Please see Automatic emailing and uploading to FTP sites for further details.

Calling up previous results

To open a stored file, click the "Open" icon ( ) from the toolbar or click **Open...** from the **File** menu. This will display the "Open" file dialog:

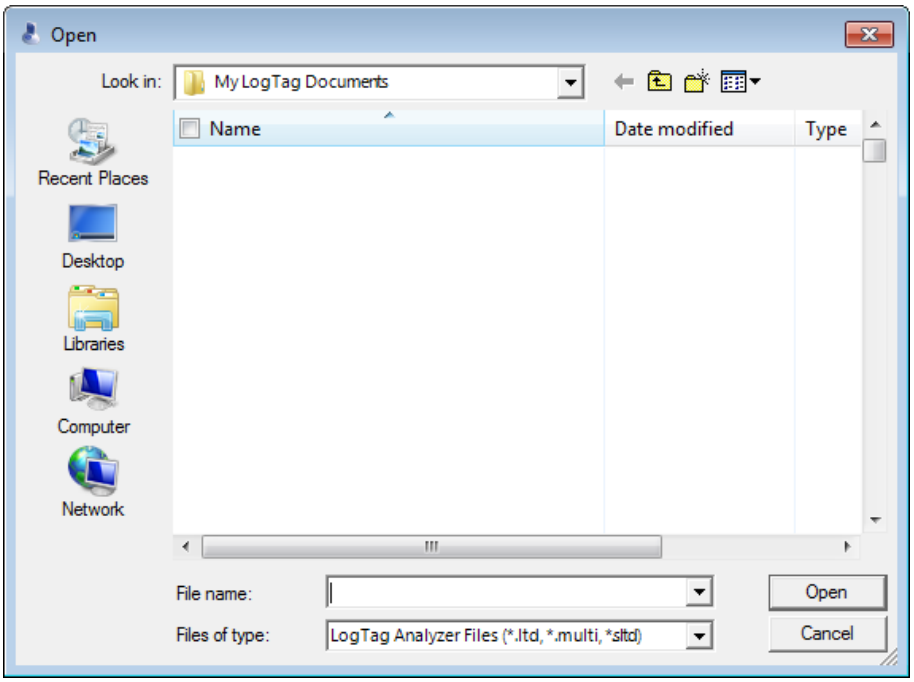


Figure 87: File Open dialogue window

Browse to any location accessible by the Windows® Operating System, including network and ftp locations. Select the desired file and click on the Open button. Please refer to your operating system's help for more information.

The files that have most recently been opened are listed at the bottom of the "File" menu. After the software has been installed for the first time, there are two recently opened files listed in the "File" menu, even though no files have been opened yet. These are sample files, which were installed along with the software so that users can see an example of information that can be retrieved from LogTag®s. These files are not required for the correct operation of the software and therefore may be deleted at any time.

You can also open files directly from Windows® Explorer or your email software by double clicking on the file or right clicking and selecting "open" from the context menu. When opening files from email programs that store attachments in temporary folders such as MS Outlook, you may be asked to store the file in a new location when performing further actions such as selecting multi-charts or uploading to FTP sites.

If the software is unable to open the file, it will display an error similar to the following picture. Clicking on Check Now will start the process of checking the Internet for an updated copy of the software.

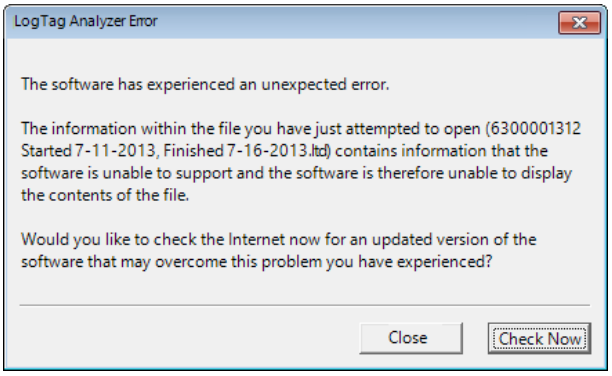


Figure 88: File not compatible with current version of LogTag® Analyzer

Opening USB Recorder PDF Files

Starting with LogTag® Analyzer version 2.8r3 you can open PDF files generated by USB recorders.

These PDF's contain an embedded *.ltd file, which LogTag® Analyzer will extract, save to disk and then display.

To open a PDF file, click **Open...** from the **File** menu, then select **All Files (*.*)** as the type of file to open. Browse to and click the PDF file you wish to open. The saved file will carry the original file name of the PDF with the .ltd file extension added and will be saved in the same folder as the PDF file, or in the default LogTag Data folder if the PDF location is read-only.

Note: You will not be able to open PDF files created by LogTag® Analyzer.

Opening *.ltdx Files

Starting with LogTag® Analyzer version 2.8r3 you can open *.ltdx files generated by LogTag® Analyzer version 3.

The *.ltdx format is an extended file format used by LogTag® Analyzer version 3, which contains the recorder's logged data as well as other information such as annotations and zoom settings. The logged data are extracted by LogTag® Analyzer , saved to disk and then displayed.

To open a *.ltdx file, click **Open...** from the **File** menu, then select **All Files (*.*)** as the type of file to open. Browse to and click the *.ltdx file you wish to open. The saved file will carry the original file name of the *.ltdx with the .ltd file extension added and will be saved in the same folder as the *.ltdx file, or in the default LogTag Data folder if the *.ltdx location is read-only.

Note: Annotations, zoom settings, chart titles, chart subtitles and receiver notes are not transferred to the *.ltd file.

Digital signatures

Support for digital signatures is primarily provided for compliance with the US FDA 21 CFR Part 11 regulation - Electronic records and electronic signatures. Various industries however, may find inclusion of digital signatures beneficial towards their quality control and assurance systems.

Digital signatures allow users to include their digital signature within a LogTag® Analyzer file along with a meaning/reason for the inclusion of the digital signature. To add digital signatures to LogTag® Analyzer files, the copy of the LogTag® Analyzer software being used must be connected to the LogTag® User Server software. For more information about how to get the software to connect to the LogTag® User Server software see User Server or contact your local network administrator.

While the file that the digital signature is to be added to is open and currently selected, add a digital signature by clicking on the "Digital Signatures" icon ( ) located on the , which will display the "File Properties" dialog with the "Digital Signatures" tab already activated, similar to the following picture.

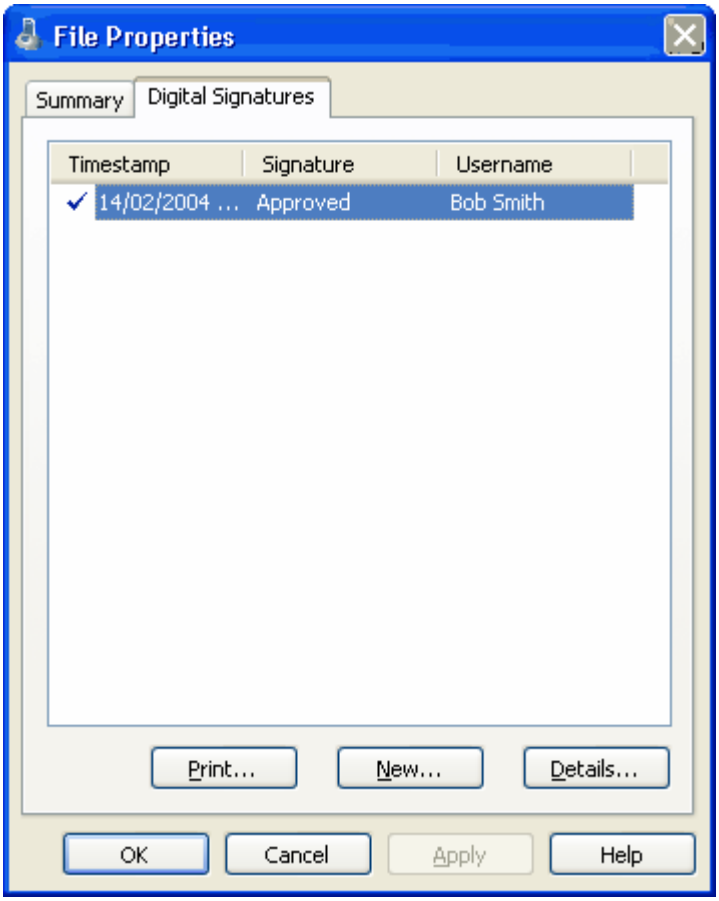


Figure 89: File with digital signature attached

Then click New... to begin the process of adding a digital signature to the file. If New... is disabled, moving the mouse pointer over New... and leaving it still for a short time will reveal the reason why the button is disabled.

Once the "Add Digital Signature" dialog is visible, enter your LogTag® Analyzer user password and select the meaning for the digital signature that is being added.

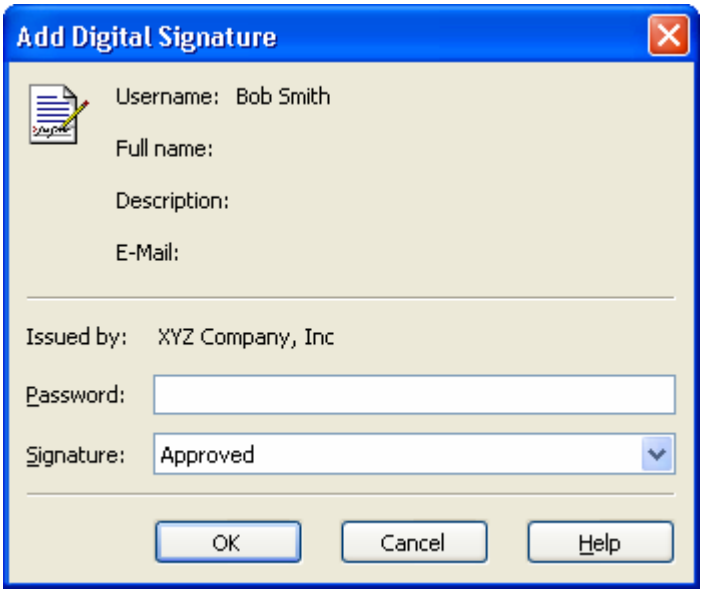


Figure 90: Adding a digital signature

Click OK to permanently add the digital signature to the file or Cancel to not add the digital signature. Multiple digital signatures from the same and/or different users to LogTag® Analyzerfiles may be added to a single file.

How secure is my data

All LogTag® files are encrypted and contain checks to detect if the file has been tampered with since it was originally created. If the software detects that a file has been tampered with, even by only one character or has become corrupted and therefore the data within does not represent the data originally retrieved from the LogTag®, the software will not open the file and display the information within.

An additional validation and security feature of the LogTag® is that it will automatically insert error detection codes periodically during recordings, which are used to detect corruption or manipulation of data. Whenever these detection codes for a block of recordings fails its integrity validation test, the relevant readings become marked as non validated readings. Non validated readings are displayed differently to validated readings to indicate that they have failed their integrity test.

Non validated recordings typically occur in the scenarios following scenarios:

1. One or more readings in the non validated block of readings is not the genuine recorded value.
2. A communications or hardware failure has occurred during the transfer of the data from the LogTag® to the computer. Try downloading the recordings from the LogTag® again; make sure the contacts on the back of the LogTag® are clean, the contact pins in the Interface Cradle slot are clean and return evenly to their normal position when the LogTag® is removed.

Since the software does not modify any of the recorded data within a LogTag® file at any time, if the software can open the file, regardless of how long ago it was created, the contents of the file will still represent the original recorded information retrieved from the LogTag®.

Therefore, the files created by the LogTag® Analyzer software meet all criteria for data integrity and data security as set forth in the US FDA 21 CFR Part 11 regulations. The firmware code that is embedded in the processor chip of each LogTag® cannot be extracted or reverse-assembled. Accordingly, data sets that are recorded on the memory within the LogTag® cannot be downloaded

or modified except by being transferred to a LogTag® file. There is no way to interfere with the process of the transfer of information between the LogTag® and the software in such a way that data integrity would be compromised.

Viewing file properties

The file properties window provides users with a summary of the key properties of the data included in the file, such as model ID and serial number, alert range and range of readings, start time end time and total number of readings as well as the battery status. If the LogTag® has a limited number of trips left, this is also indicated here.

The file properties window is accessed by clicking on Properties in the File Menu or through the toolbar command.

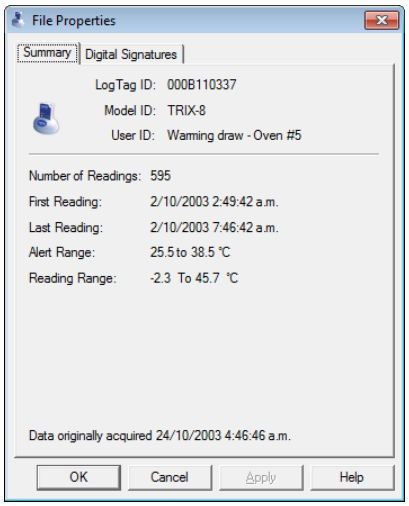


Figure 91: File properties

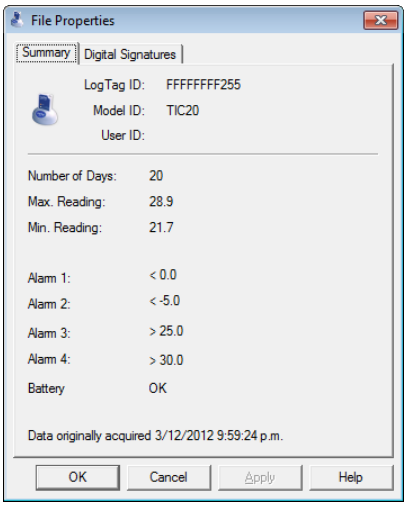


Figure 92: File properties for indicator product

Chapter 6

Customising the software

Many of the features offered by the software can be customized to suit your specific requirements.

The customization is performed in the options dialogue, which can be opened by clicking on the icon in the toolbar or by selecting **Options** from the **Edit** menu.

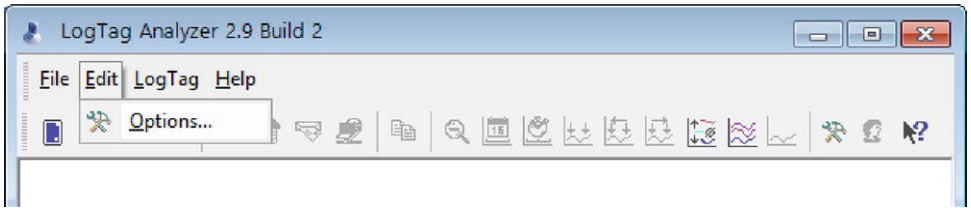


Figure 93: Edit Options Menu

In this chapter:

General Settings 129
Summary Statistics 130
Chart Statistics 132
Charts 133
Automation 136
File and Folder Settings 148
Exports and Reports 151
Date and Time Format 153
Time zones 155
Communication Ports 157
User Server 159
Software Updates 160
Configuration Reports 161
Importing and Exporting Option Settings 162

To change any of the options, select the corresponding category in the left pane of the options window. You will the see what can be changed in the right pane. Most of the options available will be applied as soon as you click on OK. For example, if the language selection and/or the date format are changed, all windows that are open will be updated without the need to restart the software. Please note, however, that these settings will only be permanently stored once you exit the LogTag® Analyzer software.

Some of the display settings, such as decimal point and date/time formats, are not controlled by LogTag® Analyzer's user settings dialogues, but rather by the regional settings of the Windows™ operating system. These can usually be found in the Control Panel under "Regional and Language Options". Please refer to your Operating System's documentation for further assistance.

General Settings

The General Settings options allow you to change various preferences that will effect the overall appearance of the information shown by LogTag® Analyzer.

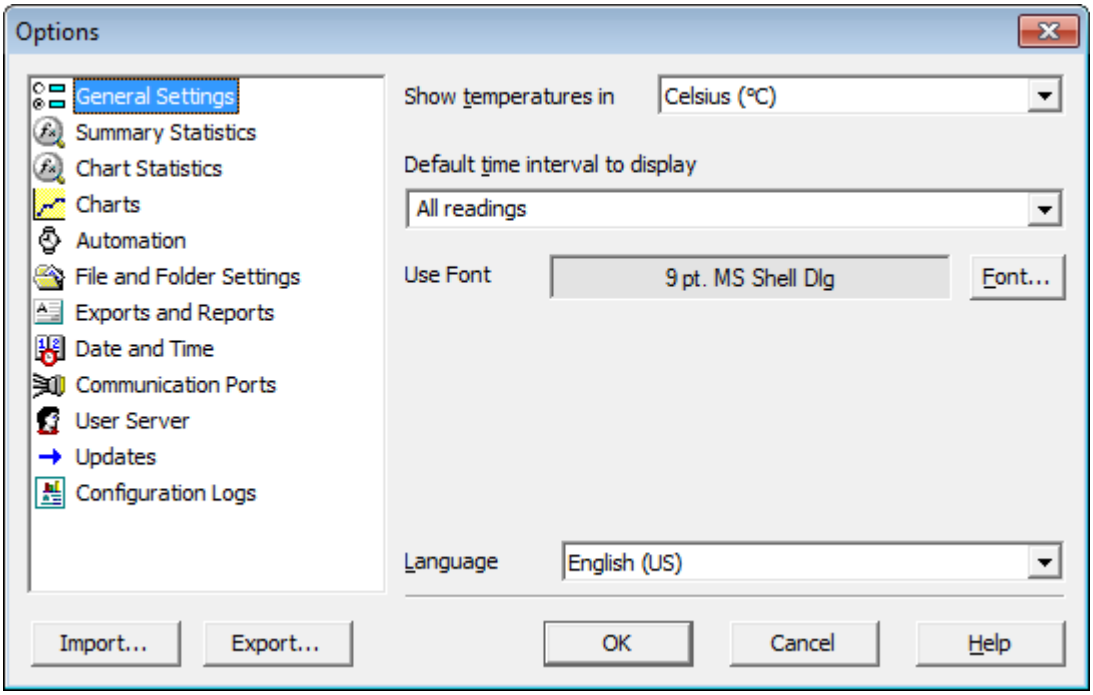


Figure 94: General settings

Show temperatures in

This will set the unit used for temperature values displayed in the software's dialogues, lists, charts and reports. The options include:

- Fahrenheit (°F)
- Celsius (°C)
- Kelvin (K)

Recorders with a display and PDF recorders have a separate setting for the temperature unit used on the display or in the PDF. It is set in the corresponding **Advanced Options** dialogue during configuration.
No other recorder model stores the temperature unit inside its memory.

Use Font

The font currently used to display and print is shown in this field. Click the Font... button to open a font selection dialogue where you can adjust settings as desired.

Default display time interval

This drop down box allows you to set the default time zoom level. You can set this to:

- All readings
- From first reading to first inspection/download mark
- From last inspection/download mark to last reading

The setting you select here will apply to all currently open windows as well as to newly opened windows, where a file is opened or a recorder is downloaded.

The section about Inspection and download mark zoom explains how this feature works.

Language

This instructs the software which language for the software to use for all the information it displays and prints. Supported languages are:

- English US
- English (UK)
- Chinese (Simplified)
- Chinese (Traditional)
- Czech
- Danish
- Dutch
- French
- German
- Greek
- Italian
- Norwegian
- Polish
- Portuguese (Brazil)
- Portuguese
- Romanian
- Russian
- Spanish
- Swedish
- Turkish

Summary Statistics

This option allows you to specify which statistics are displayed in the Summary tab. The statistics can be enabled or disabled by clicking the tick box for the relevant item in the list.

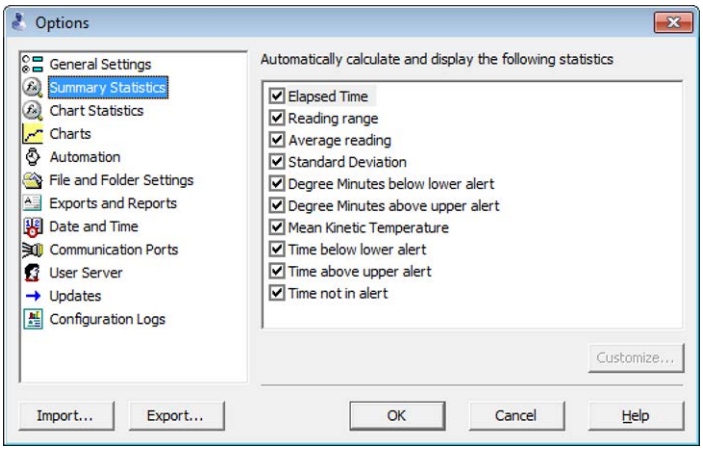


Figure 95: Statistics Options dialogue

Following Statistics settings can be further customised. You can find out more about the parameters that can be customised in each of the chapters.

- Average Reading (see page 115)
- Standard Deviation (see page 116)
- Mean Kinetic Temperature (see page 117)

When you highlight any of these entries, the Customize... button becomes available.

The customised settings are shared with the Chart Statistics. If you change them here, they will be automatically changed for the chart statistics, too.

Chart Statistics

This window allows you to specify which statistics are displayed on the charts. Select all options you wish to be shown, and clear all options you wish to hide.

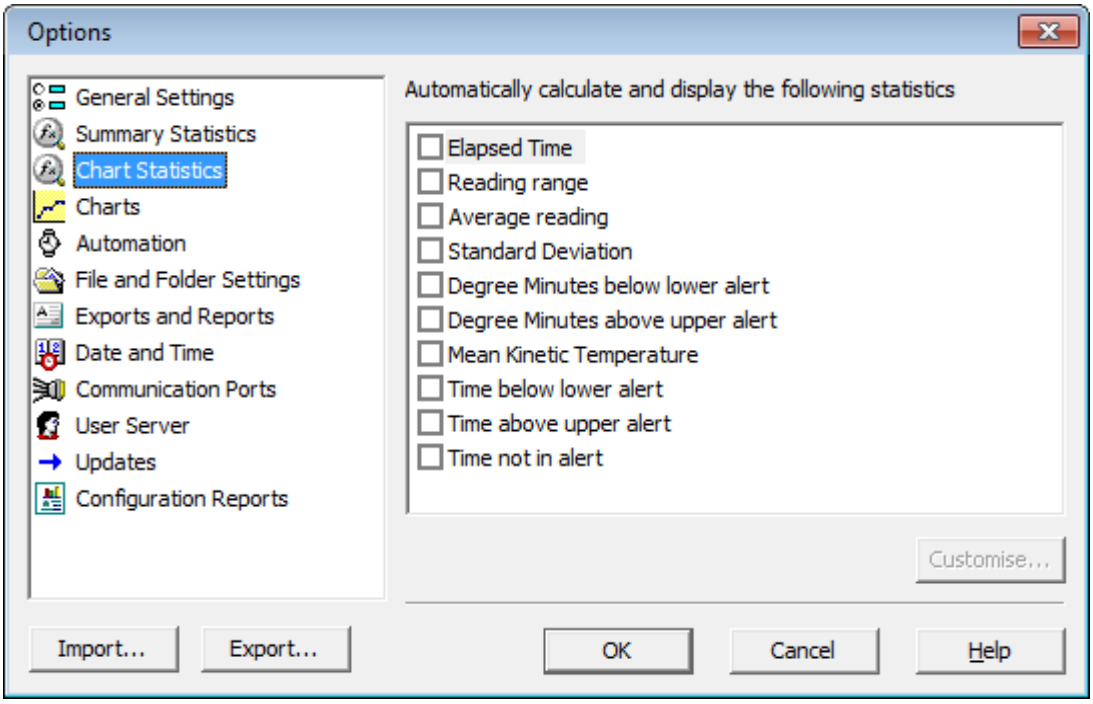


Figure 96: Chart Statistics Options dialogue

Following Statistics settings can be further customised. You can find out more about the parameters that can be customised in each of the chapters.

- Average Reading (see page 115)
- Standard Deviation (see page 116)
- Mean Kinetic Temperature (see page 117)

When you highlight any of these entries, the Customize... button becomes available.

The customised settings are shared with the Summary_Statistics. If you change them here, they will be automatically changed for the summary statistics, too.

Charts

In the charts options dialogue various settings can be customized that influence how charts are being displayed in the chart tab.

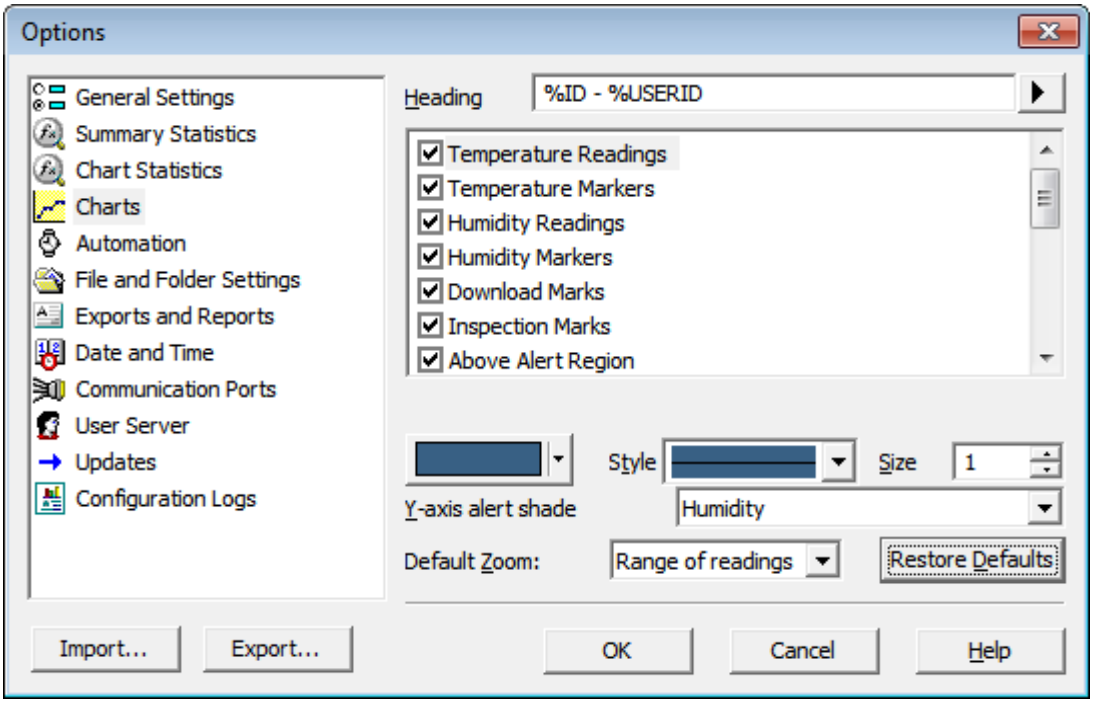


Figure 97: Chart options

The various **Chart Options** settings can be enabled or disabled by clicking the check box for the relevant item in the list. If ticked, an item is enabled.

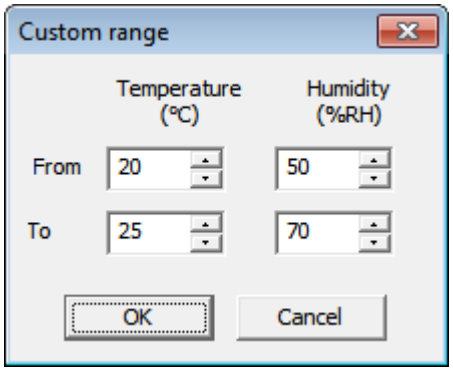
When you highlight an item, the color selector and other relevant controls below the list will become active. Some experimentation with these settings will show very quickly how they work. Select a color in the color panel, click OK and go to the Data screen to see the resulting change.

Table 14: Available Settings in the chart options

Function	Purpose
Heading	You can combine a number of different variables and your own text to create a chart title. The controls work the same as described in the section about the File Name on page 1.
Temperature Readings Humidity Readings	You can select colour and style of the lines used to display the readings. Note you cannot disable the display of readings.
Temperature Markers Humidity Markers	You can select colour and style of the marker display. You can also enable or disable displaying the markers.
Download Marks Inspection Marks	You can select colour and style of the download and inspection marker display. You can also enable or disable displaying these markers.

Function	Purpose
Above Alert Region Within Alert Region Below Alert Region	You can set the chart background so different background colours are used for the regions "at or above high alert limit", "between high alert limit and low alert limit" and "at or below low alert limit". This allows out-of-range and in-range data to be spotted easily on the listed or charted data. This can be activated independently for each region by enabling the corresponding check box and selecting a colour from the colour selection drop down box. By default these settings are enabled, with red for "above alert", blue for "below alert range" and green for the non-alert range. By selecting a line style for the "above high alert limit" and "below low alert limit" regions you can improve the readability of the charts on black and white printouts. The report chart does not show these shaded backgrounds. Note: for USB recorders with multiple alarms, the "above alert" and "below alert range" colours cannot be changed. They can, however, be turned off.
Multi Chart Shade	Enabling this check box shows the multi chart tab with the background selected in the colour selection drop down box. Disabling the check box shows the colour selected for "Window" in the Windows Appearance settings.
X-Axis grids Y-Axis grids	Enabling either tick box displays vertical (x-axis) or horizontal (y-axis) lines which help you identify readings relative to each other. By default the y-axis grid is enabled, while the x-axis grid is disabled.
Non-Validated Readings	You can choose to include or exclude non-validated data from the chart display by checking or un-checking the "Non-validated readings" check box in the list. If non-validated data is to be displayed, it can either appear just like validated data, or you can define a different colour and marker style to be used. Check the check box "Display non-validated readings differently:" to display non-validated data in the selected colour/style. Please refer to section How secure is my data for a detailed explanation of non-validated data.

Function	Purpose
Show readings beyond specifications	Sometimes the LogTag® can record readings beyond the specified measurement range. In this case • the Chart and report tabs will not show the out of range values and the chart curve will appear with broken lines • the Data tab will include "<" or ">" for each reading that is beyond the specification range • the Statistics display will include "**" for each statistic that includes readings that are beyond the specification range. If the option "Show readings beyond specification" is enabled, all recorded reading values will be displayed, even if they are beyond the operating range of the LogTag®. For example, the TRIX-8 has a published minimum temperature of -40°C. Temperatures down to -41.5°C may be displayed if the **Show readings beyond specification** is enabled, however the accuracy of recordings between -40°C and -41.5°C is unknown. -41.5°C will be displayed even if the temperature falls to a much lower actual value. LogTag® Recorders provides no guarantee of temperature reading reliability or accuracy beyond the published range for any product; enabling this option for general use is not recommended.
Show annotations	Enable this check box to show annotations on the chart. Disable it to hide the annotations.
Elapsed time	The "Elapsed Time" option switches the x-Axis display between real date&time and elapsed time since the beginning of the display period. You can temporarily override this selection with the Toolbar commands.
Y-Axis alert shade	Here you can define if the alert shading uses the temperature or the humidity values when displaying the chart for HAXO-8 recorders.

Function	Purpose
Default Zoom	You can define the minimum and maximum y-axis values initially displayed when opening the chart. • **Range of readings:** this scales the chart so the maximum and minimum temperature displayed is just above/below the highest/lowest temperature reading recorded by the LogTag®. If you choose this option the maximum screen area is used to display all recorded readings. • **Range of sensor:** this scales the chart to show the full temperature measurement range of the recorder. • **Custom range:** When you select this option, an additional dialogue appears. Here you can enter two temperature values and two humidity values, which are used as maximum and minimum values for the chart's y-axis, regardless of the value of the recorded readings.  These settings are stored when the software is closed. Regardless of these settings, you can always zoom in or out using the various zoom settings (see Zoom Control. When using the context menu in the chart tab you can also temporarily override the manual settings with new ones.

Automation

The Automation options determine what the software does automatically when it detects a LogTag® in the Interface Cradle.

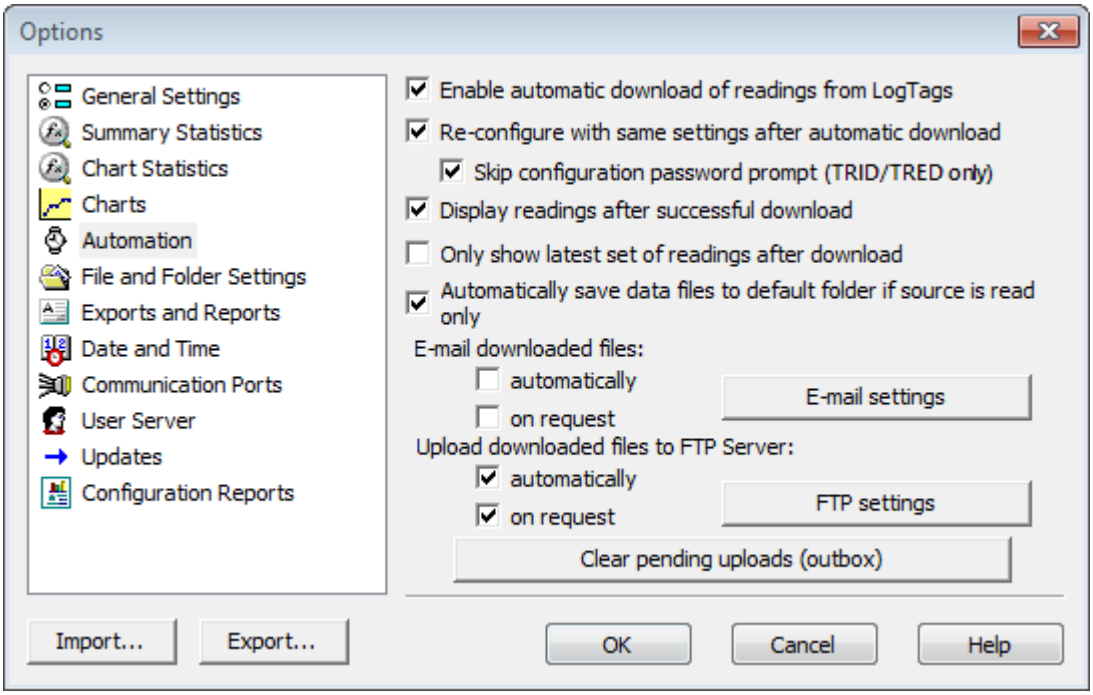
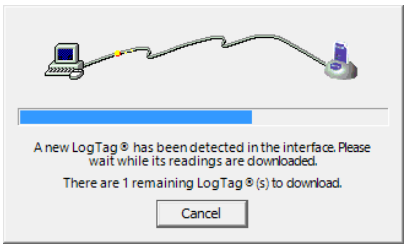


Figure 98: Automation Options dialogue

Enable automatic download of readings from LogTag®

Instructs the software to automatically retrieve recordings from a LogTag® when it is placed in an Interface Cradle that is connected to the computer. While the software is automatically retrieving recordings from a LogTag® an animated picture will appear on the screen to let the user know this action is being performed.



With this function enabled, it is not necessary to go through the download wizard procedure. This function is very useful when working with multiple LogTag®s.

This function can be temporarily disabled by holding down the "Ctrl" key on the keyboard while a LogTag® is placed in the Interface Cradle.

Re-configure with same settings after automatic download

When this feature is enabled, a LogTag® will be automatically re-configured with the same settings that were used for the previous trip, once the data have been downloaded. This option not available if the Enable automatic download of readings from LogTag® option is not enabled.

If the data download fails for any reason (for example the network storage folder is inaccessible at the time) the re-configuration will not proceed.

Skip configuration password prompt (TRID/TRED only)

If enabled , a password does not have to be provided during re-cofiguration even if a recorder was last configured with a configuration password, as long as the data download has been successful (as

described in Quickly re-configuring a LogTag® on page 73).

This feature is only available for TRID30-7, TRED30-7 and TRED30-16R models, as the nature of these recorders often requires them to be re-configured frequently in stationary applications while ensuring the settings are unchanged.

Display readings after successful download

Instructs the software to display the recordings after downloading them from the LogTag®. The default display format is determined by the "Display" setting in the "File Settings" option. This option will affect readings downloaded through the automatic download feature and when downloading through the Wizard approach.

Only show the latest set of readings after download

Instructs the software to only display the most recently downloaded readings on the screen. If multiple windows are being displayed, they will be automatically closed and only the most recently downloaded readings will be displayed.

Automatically save data files to default folder if source is read only

Select this check box if you want LogTag Analyzer to create a permanent copy of any *.ltd file you open from a read-only source. This copy will be stored in the folder specified in File and Folder Settings. This is useful if for example you open a file directly from the mass storage device of a USRIC-8 or from an email you received. In this case you do not have to explicitly create a copy of the file yourself to retain a local copy, and you will be able to make and save annotations.

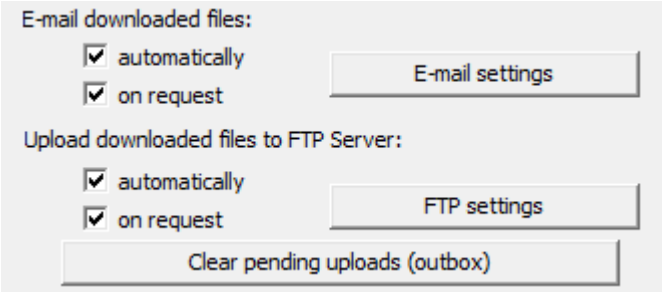
Clear the check box if you do not wish to create these copies. In this case you will need to copy a file manually from a read-only folder to a read/write folder if you wish to make annotations.

Tip: If you open a *.ltd file from a USB recorder's mass storage device directly, you will not be able to save the file after you have unplugged it. Therefore we recommend turning this option on, particularly if you do not use the automatic download option.

Automatic emailing and uploading to FTP sites

In the same way that LogTag® Analyzer files are saved to a local hard drive, they can be automatically uploaded to an FTP site and automatically be emailed every time data from a LogTag® are downloaded.

FTP (File Transfer Protocol) is a standard which describes how files are transferred between different computers and networks. SMTP (Simple Mail Transfer Protocol) is used for email and describes how electronic mail is distributed across networks. Detailed explanations of how both FTP and SMTP work are beyond the scope of this manual, however if you wish to learn more about FTP, SMTP, email and networking please refer to one of the many good articles available on the Internet, such as the ones on Wikipedia or the various FTP and SMTP client providers.



In the Automation dialogue you can select for both FTP and email whether you wish to make the process automatic, on request, or both. If you activate manual uploading/emailing, but not automatic uploading/emailing, you need to press a button on the toolbar to upload or send the file in the currently active window. This button is in the form of a globe symbol, which also indicates which setting is currently active.

If the globe is active, and a small "F" is depicted in the lower right corner, automatic FTP uploading is activated.

If the globe is active, and a small "e" is depicted in the upper right corner, automatic emailing is activated.

If the globe is active, and both the "F" and the "e" are depicted, both automatic FTP uploading and emailing are activated.

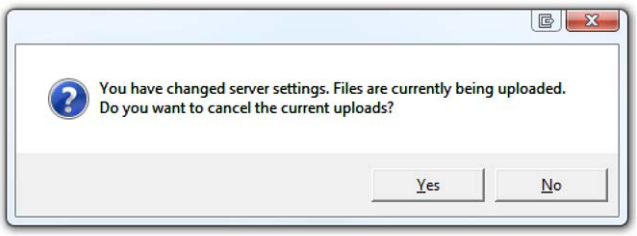
If the globe is active, but no letter is displayed, neither automatic FTP uploading nor automatic emailing are activated. Manual FTP or email functions may still both be active.

If the globe is grayed out, neither automatic nor manual FTP or email functions are available.

When neither box for emailing has a tick, no emailing will be possible. Similarly, when neither box for FTP upload has a tick, no uploading via FTP will be possible, however in both cases the settings data will still remain stored.

Clicking on the FTP or E-mail settings buttons brings up the dialogue windows for the Basic FTP settings or the Basic SMTP and email settings. Usually this information will be provided by your network administrator. If your company has specific IT policies you may not be allowed to configure the settings yourself. In this case, or if your network administrator has already created a company wide access for multiple users, you may be provided with a file containing the required settings. Your network administrator will detail instructions how to import these settings into LogTag® Analyzer.

Changing FTP or email settings while files are being uploaded will display following dialogue box when clicking OK to close the Options window.



Click **Yes** to cancel the current upload, and **No** to continue uploading to the new location.

When uploading or emailing files a status window is displayed (See "Upload Status Window" on page 177).

The manual email function described here is different from the "send mail" button on the toolbar. The **Send mail** button invokes your standard email program, attaches the data file, requires you to fill in an email address and press the send button. The manual email function via SMTP does not use your standard email program, but the configured SMTP settings and requires no further action once the globe button on the toolbar is pressed.

Note: Automatic upload via FTP and automatic emailing only work if a file is created by downloading data from a LogTag® in the interface. If the uniqueness settings in the File and Folder Settings are set so that certain conditions do not result in creation of a new file, no file is uploaded or emailed either.

Files with formats other than the native LogTag® Analyzer format will only be emailed or uploaded automatically if specifically selected in the FTP or SMTP basic settings. This may be different from the settings in the Exports and Reports option dialogue.

Note: If you upload a file via the manual or automatic FTP function, any file that already exists on the server with the same name will be overwritten. It is up to you to make sure files are created with unique file names.

Basic SMTP and email settings

Disclaimer

The distribution of unsolicited emails provides huge inconvenience to anyone with an email account. LogTag® Analyzer's email function allows the automated emailing of files to a large number of recipients simultaneously without user interaction. Some countries consider this as spam and will prosecute offenders.

It is therefore of the utmost importance that you as the sender obtain permission from the recipients to send these files. LogTag® Recorders provides this functionality as a feature assisting in the distribution of information between various users within an organization and will not assume responsibility for any misuse of its software.

Setting up automated emailing requires two main pieces of information:

- The name of the SMTP server which you wish to use to send the emails and
- A valid user name and password for the SMTP server.

Once you click on the **SMTP Settings** button a dialogue window will appear, allowing you to enter the configuration data for the SMTP email function. A lot of these settings will be familiar to you from your standard email program.

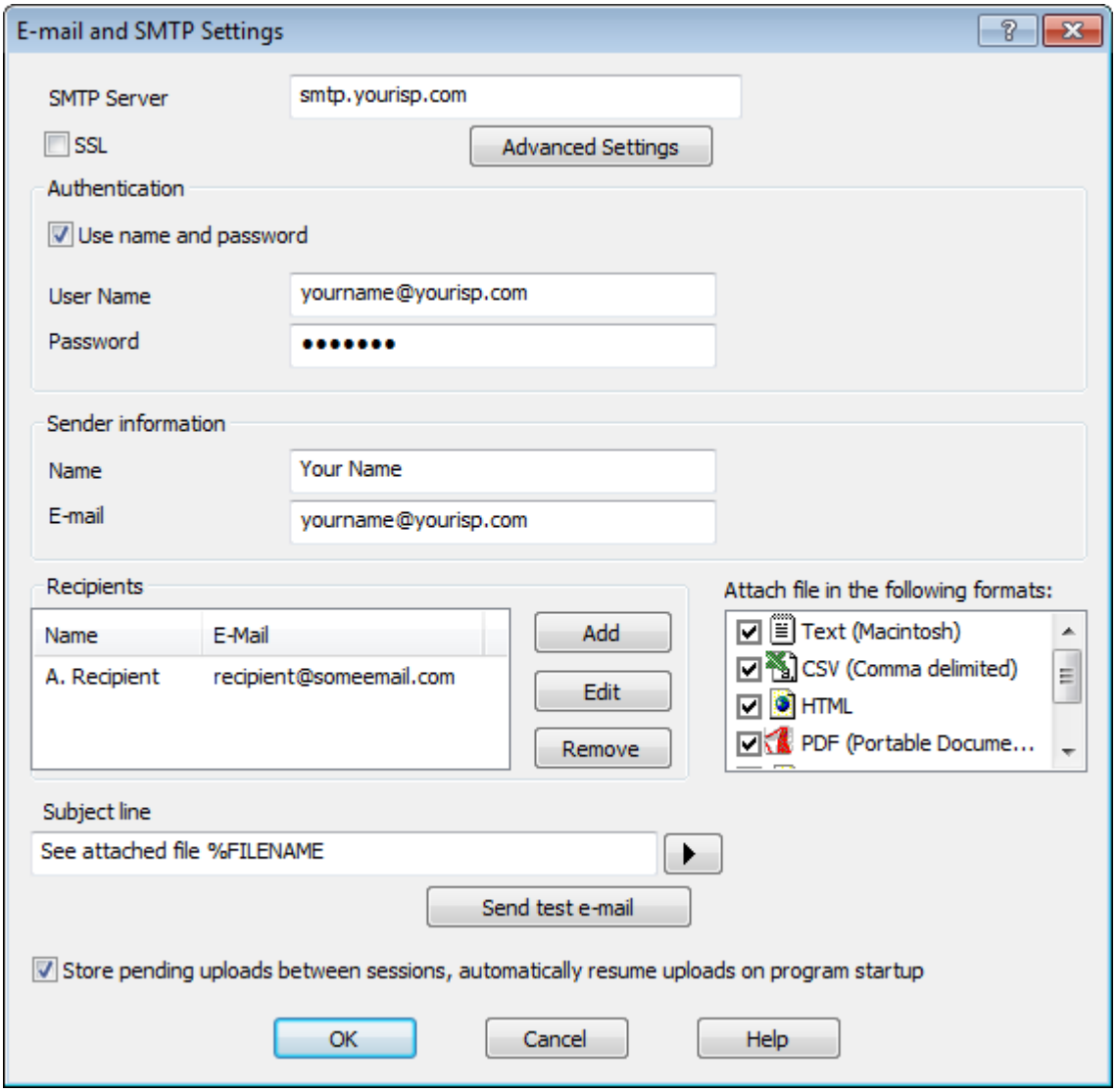


Figure 99: Basic SMTP settings for automatic emailing

If you have been supplied with access data by your network administrator we suggest you print the following table, enter the data into the fields provided and keep it in a safe place.

Table 15: Available basic SMTP Settings

Field	What to enter
SMTP Server	Enter the name of the SMTP server you were given by your network administrator
SSL	SSL stands for Secure Sockets Layer. You may be required to tick this box if your SMTP server requires a secure connection. Typically this setting is not required, and your network administrator will set this up if required.
Use name and password	Some SMTP servers require an authentication method, especially if the SMTP server you are using is not provided by your ISP, e.g. if you are using email accounts from a hosted site. In this case you need to tick this box and provide login data for this SMTP server. Quite often, though, you will not be required to use Authentication.

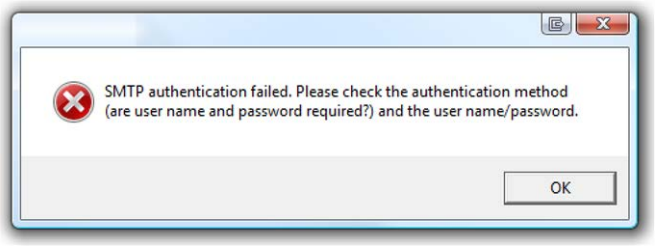
Field	What to enter
User Name	Enter the user name you have been allocated by your network administrator required for Authentication. Please note that for authentication this often needs to include a full email address rather than just the SMTP login.
Password	Enter the password you have been given by your network administrator required for Authentication.
Name	Enter the name as it should appear in the recipients email program. This can be your name or someone else's name.
email address	Enter the email address that the recipient can reply to by pressing the reply button of his email program. This can be your email address, or someone else's address.
Recipients	Enter the email addresses of the intended recipients. Pressing the "add" button will bring up a new entry window where you can enter a recipient's name and email address. You can also highlight a recipient's name and edit the data or remove it from the list.
Subject Line	Text entered in this line will be displayed in the subject line of the email when displayed on the recipients' email programs. Clicking on the button will allow you to specify some file related information which will be entered into the subject line at the time of sending. You can enter your own text with the file related information.
Advanced settings	Press this button to display a new dialogue window where you can enter advanced SMTP settings like port numbers, retries and log files. Refer to the section about Advanced SMTP settings.
Attach file in the following formats	Select all files that you wish to attach when the email is sent. Each file ticked here will be created, regardless of the settings made in **Edit - Options - Exports and Reports**.
Store pending uploads between sessions	This feature is selected by default. If emailing files is interrupted due to a network error, a temporary copy is stored locally, and LogTag® Analyzer will attempt delivery when it is next started. If you no longer wish to send these files, click the **Clear pending uploads (outbox)** button to delete the temporary copy. Your generated data files will not be affected. If the feature is disabled, files not sent when the software is closed will have to be manually re-submitted.

As a minimum you only need to provide an SMTP server address and one recipient email address for this function to work.

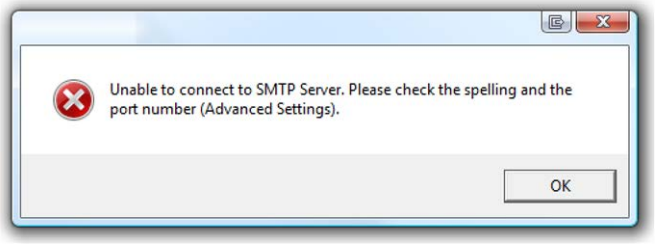
Every time you make changes to these settings you should perform a test by pressing the **Send Test email** button. LogTag® Analyzer will

- check you have provided valid connection data,
- send a test email to the email addresses in the recipient list.

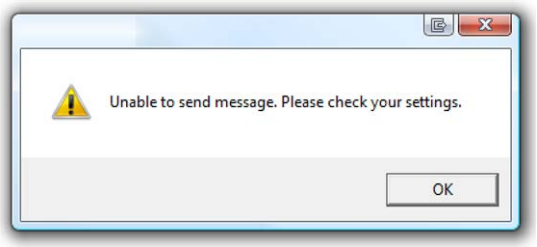
If any of these actions fail, LogTag® Analyzer will display one of the following error messages:



In this case the SMTP server requires authentication, and the data provided were not correct. Please enter the correct authentication data.



This error message is displayed if LogTag® Analyzer could not connect to the specified SMTP site because it could not find it. This could be due to internet connectivity issues, due to an incorrect port name or due to a mis-spelt server name.



This error message is displayed if one or more of the addresses in the recipient list have an incorrect mail format (i.e. are not in the format a@b.c). LogTag® Analyzer can only check for the correct format of the addresses, but not for correctness of the recipients email addresses. Please note if you do not provide a correct return address, you may not know that intended recipients are not receiving the messages.

We recommended you add your own email address to the list of recipients. This way you get feedback if your email has been sent correctly in your email program. It is also good practice to enter a valid and correct email return address for yourself. Some ISP's will not relay messages without a sender's address.

Advanced SMTP settings

Clicking on the "Advanced Settings" button in the SMTP settings dialogue displays following Window:

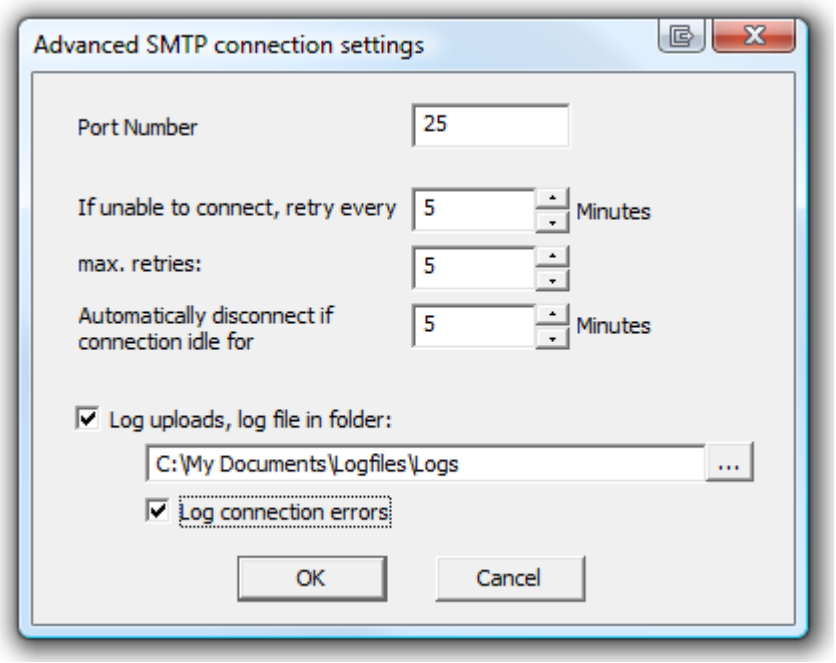


Figure 100: Advanced SMTP settings

This will allow experienced users to change additional settings normally associated with FTP transfers.

Table 16: Available advanced SMTP settings

Field	What to enter
Port Number	The default port for providing SMTP connections is 25. Some network administrators change the port number on their SMTP servers to increase security and stop hacking attacks. If your network administrator has advised a different port for connection, please enter it here. In this case you may also need to change the settings of you firewall. If you wish to learn more about this topic please see any of the published articles on networking and TCP/IP available on the Internet.
Retry	If a connection cannot be established, LogTag® Analyzer will retry to email the file again after the number of minutes entered here. This helps eliminate email errors due to intermittent Internet connection errors.
Maximum Retries	Enter the number of times LogTag® Analyzer should try to email the file if previous attempts have not been successful.
Automatic Disconnect if idle	LogTag® Analyzer will keep the connection to the SMTP server active, even if currently no files are being emailed. This avoids having to exchange password and login information every time a file is uploaded therefore providing faster uploads, especially if only a slow Internet connection is available. After a certain amount of inactivity the connection is dropped to save resources. Enter the time after which you wish LogTag® Analyzer to automatically disconnect from the SMTP server.
Log uploads	If a tick is placed in the box next to "Log uploads" the message exchange between the SMTP server and LogTag® Analyzer is recorded into a file. These files are automatically named "YYYY_M_D_LogTag Analyzer_SMTP.log", you can specify a location where the files are created, or click ... to browse to a location of your choice.

Field	What to enter
Log Connection errors	Tick this box if you wish connection errors to be logged. This is recommended if you frequently experience upload errors and you wish to discuss this issue with your network administrator.

Click OK to store the settings or cancel to abort.

Basic FTP settings

You will require two main pieces of information to upload data to an FTP site:

- The name of the FTP site and a directory on the site in which the files will be stored once uploaded and
- A valid user name and password allowing you access to this directory.

Once you have clicked the "FTP Settings" button a dialogue window will appear, allowing you to enter the configuration data for the FTP site access.

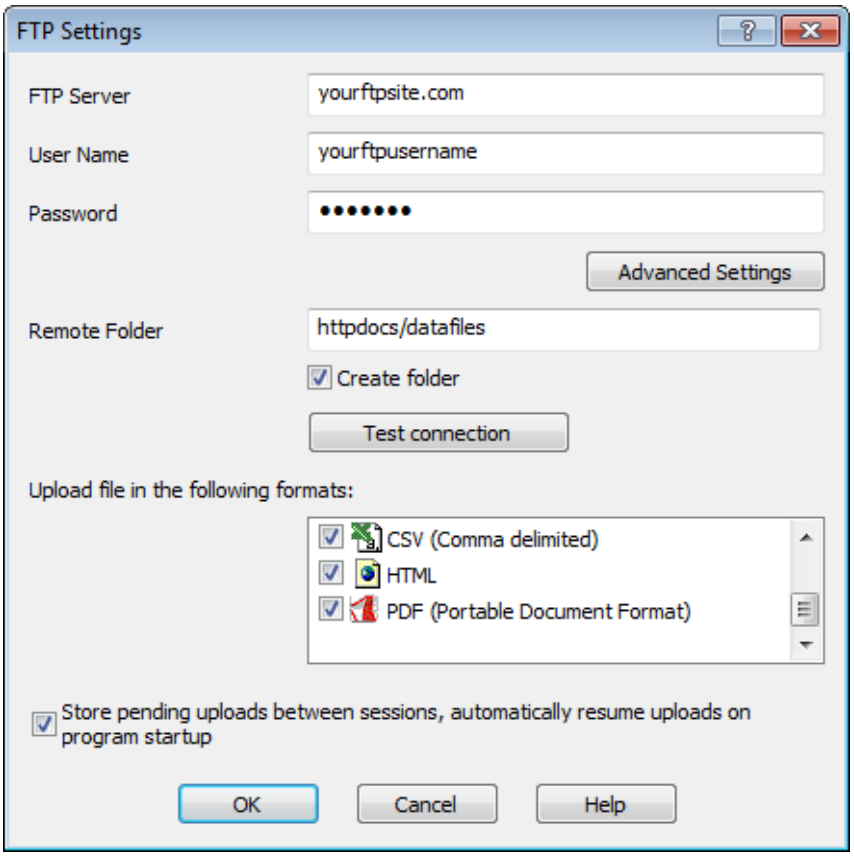


Figure 101: Basic FTP settings screen

If you have been supplied with access data by your network administrator we suggest you print this page, enter the data into the fields provided and keep it in a safe place.

Table 17: Recording your basic FTP settings

Field	What to enter
FTP Server	Enter the name of the FTP site you were given by your network administrator
User Name	Enter the user name you have been allocated by your network administrator

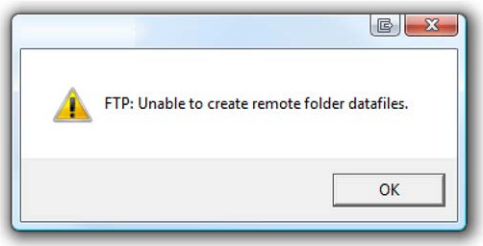
Field	What to enter
Password	Enter the password you have been given by your network administrator
Remote folder	Enter the folder in which the data files should be uploaded. Please note that not all FTP servers allow creation of files or folders in the root directory. Please discuss any of your requirements with your network administrator.
Create Folder	Tick this box if the remote folder is not yet present on the FTP site and you wish to create it.
Upload file in the following formats	Select all files that you wish to have uploaded to the FTP site. Each file ticked here will be created, regardless of the settings made in "EDIT - OPTIONS - EXPORTS AND REPORTS".
Advanced settings	Press this button to display a new dialogue window where you can enter advanced FTP settings like port numbers, retries and log files. Refer to the section about Advanced FTP settings.
Store pending uploads between sessions	This feature is selected by default. If uploading files is interrupted due to a network error, or because the FTP site is down, a temporary copy is stored locally, and LogTag® Analyzer will attempt to re-upload the file when it is next started. If you no longer wish to upload these files, click the **Clear pending uploads (outbox)** button to delete the temporary copy. Your generated data files will not be affected. If the feature is disabled, files not uploaded when the software is closed will have to be manually re-submitted.

All of the above settings are required to make a successful connection to an FTP server.

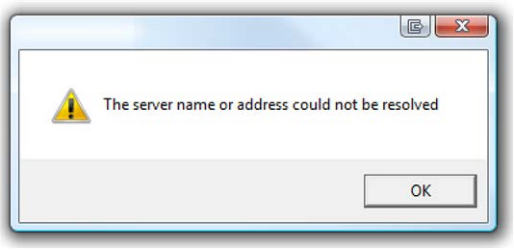
Every time you make changes to these settings you should perform a test by pressing the "Test connection" button. LogTag® Analyzer will

- check you have provided valid connection data,
- if necessary create the folder you have specified and
- put a small test file in the selected location.

If any of these actions fail, LogTag® Analyzer will display one of the following error messages:



In this case the remote folder could not be created. Please select a different folder name or change to a permitted location.



This error message is displayed if LogTag® Analyzer could not connect to the specified FTP site because it could not find it. This could be due to internet connectivity issues, due to an incorrect port number or due to a mis-spelt name.

This message appears when either user name or password are incorrect.

Advanced FTP settings

Clicking on the "Advanced Settings" button in the FTP settings dialogue displays following Window:

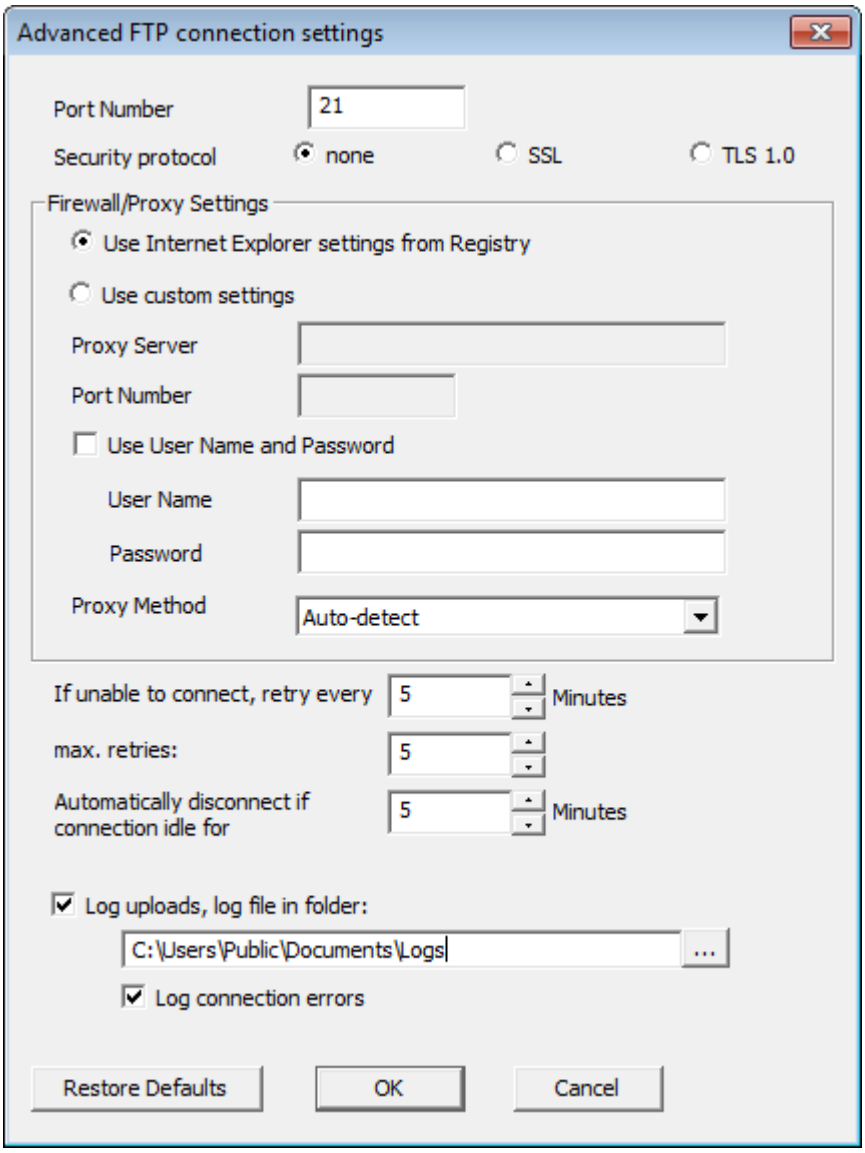


Figure 102: Advanced FTP settings screen

This will allow experienced users to change additional settings normally associated with FTP transfers.

Table 18: Available advanced FTP settings

Field	What to enter
Port Number	The default port for providing FTP connections is 21. Some network administrators change the port number on their FTP servers to increase security and stop hacking attacks. If your network administrator has advised a different port for connection, please enter it here. In this case you may also need to change the settings of you firewall. If you wish to learn more about this topic please see any of the published articles on networking and TCP/IP available on the Internet.
Security Protocol	Choose between none, SSL or TSL 1.0
Firewall/Proxy Settings	Use the settings from the registry or choose your own settings. Please discuss these settings with your network or IT administrator.
Retry	If a connection cannot be established, LogTag® Analyzer will retry the file upload after the number of minutes entered here. This helps eliminate upload errors due to intermittent Internet connection errors.
Maximum Retries	Enter the number of times LogTag® Analyzer should try to upload the file if previous attempts have not been successful.
Automatic Disconnect if idle	LogTag® Analyzer will keep the connection to the FTP server active, even if currently no files are being uploaded. This avoids having to exchange password and login information every time a file is uploaded therefore providing faster uploads, especially if only a slow Internet connection is available. After a certain amount of inactivity the connection is dropped to save resources. Enter the time after which you wish LogTag® Analyzer to automatically disconnect from the FTP server.
Log uploads	If a tick is placed in the box next to "Log uploads" the message exchange between the FTP server and LogTag® Analyzer is recorded into a file. These files are automatically named "YYYY_M_D_LogTag Analyzer_FTP.log", you can specify a location where the files are created, or click to browse to a location of your choice..
Log Connection errors	Tick this box if you wish connection errors to be logged. This is recommended if you frequently experience upload errors and you wish to discuss this issue with your network administrator.

Click OK to store the settings or cancel to abort. You can restore default settings by clicking on "Restore defaults".

File and Folder Settings

The File and Folder Settings options help you manage the LogTag® data files.

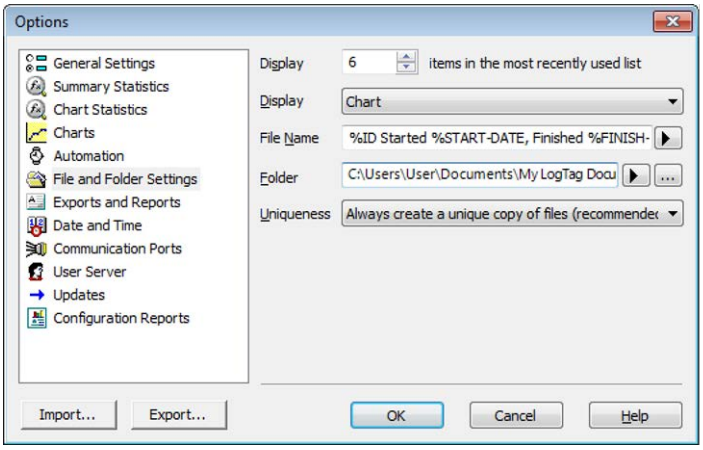


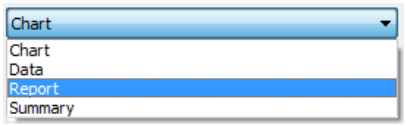
Figure 103: File and folder settings Option dialogue

Display X items in my most recently used list

This determines how many of the most recently accessed files are listed in the File menu for quick access to be opened and viewed again. Once this number of files has been reached, the reference to the oldest file opened will be removed and the most recently opened file will be added to position 1. Only the file reference is removed from this list, the actual file is not deleted. Changing this setting will take effect the next time LogTag® Analyzer is started.

Display

This determines how the information retrieved from a file and/or LogTag® will be first displayed. All other ways of displaying information will still be available regardless of which is selected here.



- Chart; this will display the data in a time versus humidity and/or temperature chart.
- Data; this will display a list grid (spreadsheet style) of the time versus humidity and/or temperature data.
- Report; this will display a condensed overview of the data including averages, ranges, alert results, LogTag® identification data, and a small chart.
- Summary; this will display a summary of the data, including averages, ranges, alert results, LogTag® identification data, and other information.

Folder Name

This determines the directory where the files are automatically stored. The location defined here can specify a local drive path or a network drive path. UNC folder names are supported. You can:

- Browse the directory structure with the ... button and select the desired directory.
- Enter the path manually.

  You can enter text and also include pre-defined placeholder elements in this field. When a new file is stored, the elements are then replaced in the path name with the corresponding information from the recorder data or your computer environment.

Use the button at the end of the edit control ( ) to display a list with available elements. Selecting an element will insert placeholder text representing this element at the cursor location; alternatively you can enter this text directly.

You can insert following variables, provided the final resulting name is a valid UNC folder name:

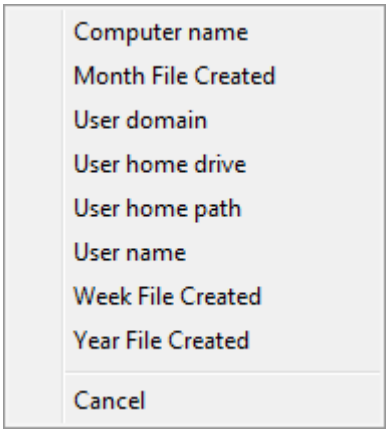


Table 19: Description of available elements and their placeholder text for the storage folder

Element	Placeholder text	Path name shows...
Computer name	%COMPUTERNAME	The name of the computer as entered in the system description.
Month File Created	%MONTH	The month in which the file was created, using a two digit number with a leading zero where required.
User domain	%USERDOMAIN	The domain name of the network the user is connected to.
User home drive	%HOMEDRIVE	The drive letter on which the User 's documents directory is stored.
User home path	%HOMEPATH	The path (excluding the drive letter) of the user's home directory.
User name	%USERNAME	The user' user name as required for logon.
Week File Created	%WEEK	The week in which the file was created, using a two digit number with a leading zero where required.
Year File Created	%YEAR	The year in which the file was created, using a four digit number.

A valid storage directory would be **%HOMEDRIVE\%HOMEPATH\Documents\My LogTag Documents**. You do not need to enclose the string with quotes.

You need to make sure you have write access to the resulting directory. If LogTag® Analyzer is unable to write to or create a directory, a warning message will appear when you next download a recorder and you will then need to select a different directory.

Note: Some Network Attached Storage Devices (NAS Drives) use versions of SAMBA (Server Message Block) file servers which do not correctly report back whether a file exists or not.

Consequently, LogTag® will overwrite without warning an already existing file with the same name, regardless of the settings made in the Automation options.

Uniqueness

With this setting you decide what the software should do when a LogTag® is downloaded, and the file name settings (see File Name on page 1) would result in duplicate file names in the selected storage location. This is important if for example you have kept the default file name settings, and download a recorder more than once a day.

The options available include:

1. Always create a unique copy of files (recommended)

   The software will automatically append " Copy *n*" to the end of the file name, where "*n*" will be a unique sequential number.

2. Overwrite file if the file already exists

   The existing file is replaced with a file that contains the information just downloaded. The old file will no longer be accessible. This is only recommended if you do not use "continuous operation" (see Continuous operation on page 67).

3. Prompt if an existing file already exists.

   A message will appear asking you whether or not you want to replace the existing file.

   - If you answer **Yes** the existing file is replaced as in option 2.
   - If you answer **No** the software will append " Copy *n*" to the end of the file name as in option 1.

This setting only takes effect if the file that is being saved is different to the file that is already stored. If you download a recorder that has already stopped, the resulting file would have the exact same content as the file already stored. In this case no additional files are generated, regardless of what settings you have made in this drop down box. You will see a change in date for the "Last modified" property in Windows Explorer, as it is opened by LogTag® Analyzer for comparison. The only time such a file would be re-generated is if someone had added a digital signature to the original file, and downloaded the recorder again. In that case the uniqueness settings would determine if a file would be generated again, and what name it would be given.

Exports and Reports

In addition to the native *.ltd file you can automatically create files in other formats every time a LogTag® is downloaded. You would use this for example if you wanted to perform further analysis of the downloaded data in MS Excel, or email a PDF file to someone who does not have LogTag® Analyzer installed on their computer.

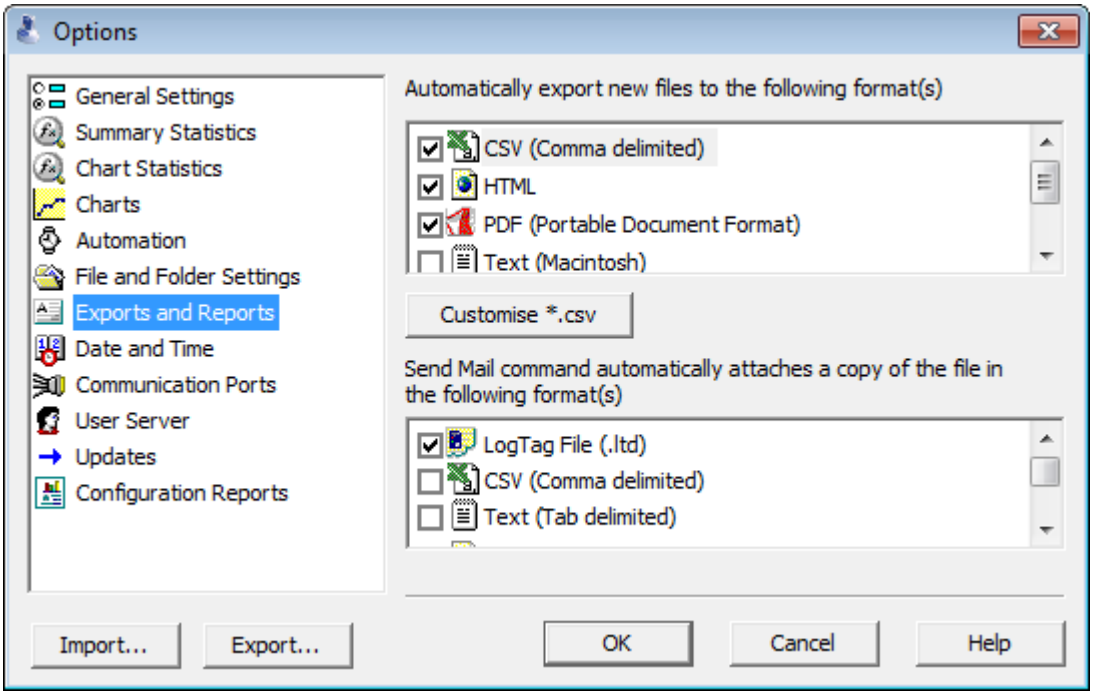
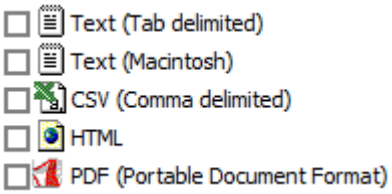


Figure 104: Export Options

To automatically create additional files, select one or more file types from the list.



The additional files will be automatically saved when downloading a LogTag® using the file name and folder location defined in File and Folder Settings.

If during the download no new file is created (for example when downloading a unit that has previously been downloaded), no export data are generated either.

These file formats cannot be imported back into LogTag® Analyzer. It is also not possible to detect any manipulation to these files since they can be edited with third party software.

You can select which extra information will be included in the exported data by highlighting the format name and clicking Customise. In the dialogue window displayed adjust the options to suit and click OK to save your selection. Click Cancel if you wish to discard any changes you have made.

To override and customize the contents of the particular file format, simply ensure the file format is highlighted and click Following window will be displayed:

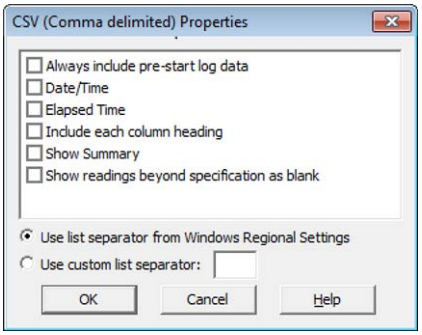


Figure 105: Customising Export Options

For CSV files you can additionally select a custom list separator. CSV files normally use a comma as a separator between individual values of a row. By default, LogTag® Analyzer uses the list separator from the "Regional and Language Options" in the Windows Operating System. For some regions the resulting file is strictly speaking no longer a CSV file, however it maintains compatibility with the import of CSV files into MS Excel. You can also use a self selected separator instead.

The options for the PDF files are more extensive than for other files, please see PDF files

To select file formats for the email attachment created through the Send Mail command when Sending a file by email direct from Analyzer, tick the desired file formats in the second list.

Note: The list of Send Mail file formats contains only file formats selected in the Export formats list, plus the LogTag® format.

Please also be aware any formats selected here will neither be automatically uploaded to an FTP site, nor emailed through the automatic emailing function. Files to be automatically sent or uploaded are enabled in the Basic FTP settings and the Basic SMTP and email settings dialogues. Customisation, however, is only performed in this section about Exports and Reports.

Date and Time Format

Here you can set how dates and times are displayed in all tabs, reports and exports.

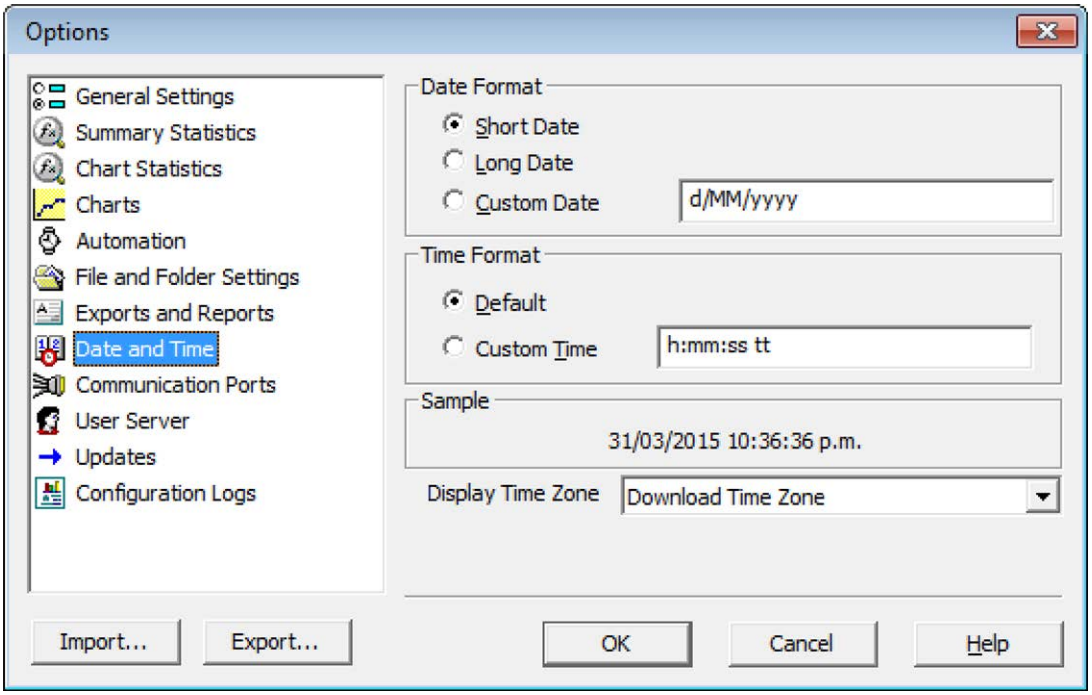


Figure 106: Date and time options

Short Date, Long Date and Default time use the settings from the **Regional and Language** settings of the Windows operating system, accessible through the Windows **Control Panel**.

You can customize how the date or time information is displayed by selecting **Custom Date** or **Custom Time** and combining the elements as listed in the tables on page 117. You can use other characters such as '.', '/', '\', ',' or '-' (to name just a few) to separate elements, or you can add text. If you wish to show the letters 'd', 'M', or 'y' in the date string or 'h', 'H', 'm', 's' or 't' in the time string they must be enclosed in single quotation marks. The letters must be in the correct case (for example, "MM" in the date string, not "mm" as you would use for time value).

Table 20: Date options

Element	Meaning
d	Day of month as digits with no leading zero for single-digit days.
dd	Day of month as digits with leading zero for single-digit days.
ddd	Day of week as a three-letter abbreviation.
dddd	Day of week as its full name.
M	Month as digits with no leading zero for single-digit months.
MM	Month as digits with leading zero for single-digit months.
MMM	Month as a three-letter abbreviation.
MMMM	Month as its full name.
y	Year as last two digits, but with no leading zero for years less than 10.
yy	Year as last two digits, but with leading zero for years less than 10.
yyyy	Year represented by full four digits.

Table 21: Time options

Element	Meaning
h	Hours with no leading zero for single-digit hours; 12-hour clock.
hh	Hours with leading zero for single-digit hours; 12-hour clock.
H	Hours with no leading zero for single-digit hours; 24-hour clock.
HH	Hours with leading zero for single-digit hours; 24-hour clock.
m	Minutes with no leading zero for single-digit minutes.
mm	Minutes with leading zero for single-digit minutes.
s	Seconds with no leading zero for single-digit seconds.
ss	Seconds with leading zero for single-digit seconds.
t	One character time-marker string, such as A or P.
tt	Multi character time-marker string, such as AM or PM.

For example, if the date was 2 January 2012 and the date format was defined as yy-M',' dd the date would be displayed as 12-1, 02.

A sample of the chosen date and time format is displayed in the sample box.

This setting does not affect how the date and time information is stored in a *.ltd file, only how the information is shown.

Time zones

Table 22: Time zones for data display

Time zone	What is displayed
Download Time Zone	All reading times are displayed in the time zone of the computer used for downloading or displaying the data. This is the default setting and is also referred to as local time. If you receive a file which was originally downloaded in a different time zone, the times displayed still appear in the time zone of your local computer. This is the most commonly used option, as it displays the dates and times on screen in your local time zone.
Configuration Time Zone	All reading times are displayed in the time zone of the computer used for configuring the LogTag®. You would use this option if you wanted to view the data in the same way the sender or the recorder would see them.
UTC/GMT Time Zone	All times are displayed in Universal Time Coordinates, or Greenwich Mean Time representation. This is the best option when comparing different recorders from different senders in different time zones.

Time zone	What is displayed
Logger Display Clock / PDF Time Zone/ Configuration Time Zone	All times are displayed relative to the clock that is showing on the display or in the PDF file. If the unit has no display or is not a USB PDF recorder, the recorder's Configuration time zone is used. You would typically select this option, if you want the recorder's display clock or the PDF file generated by the USB recorderto show the same time values as the Report generated by LogTag® Analyzer.
Logger Display clock/ Download Date	All times are displayed relative to the clock that is showing on the display and use the date of the download computer. This is the setting always applied to Vaxtag® (TRID30-7FW) units

Selecting either of these options does not affect recorded data inside the LogTag®.

Communication Ports

LogTag® Analyzer supports communication with multiple ports simultaneously, so it is possible to connect and use more than one interface cradle at the same time. Each time you use LogTag® Analyzer to configure, download or hibernate a recorder it needs to check each enabled port to see if an interface with a recorder is attached to that port. In this dialogue you can define, which communication ports should be checked for connected interface cradles. The more ports you leave enabled, the longer it will take LogTag® Analyzer to establish which ports have interfaces connected, and which don't.

You should therefore only enable ports you plan on connecting an interface to. Ports not used for communication with LogTag® products should be excluded, which speeds up communication.

When you first install LogTag® Analyzer, all COM ports are disabled by default, as the most common method of communicating is via USB interfaces.

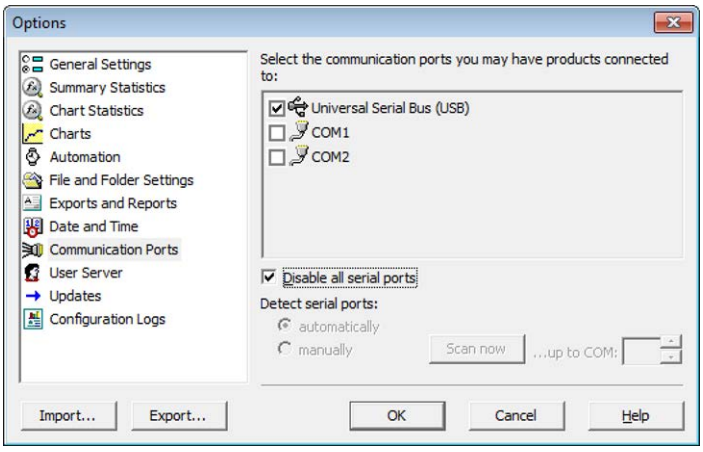


Figure 107: All COM ports disabled, USB enabled

This is especially useful if you have Bluetooth devices connected to your computer, which generate a large number of virtual COM ports. It can take LogTag® Analyzer a long time during download or configuration to detect if these virtual ports have an interface connected, so disabling the ports significantly improves communication time. Any new COM port established after you disable all serial ports will also be automatically disabled.

If you wish to use an RS232 serial interface, you can clear the check box **Disable all serial ports**. There are two methods which you can now use to define the COM ports that will be used for communication:

- automatically

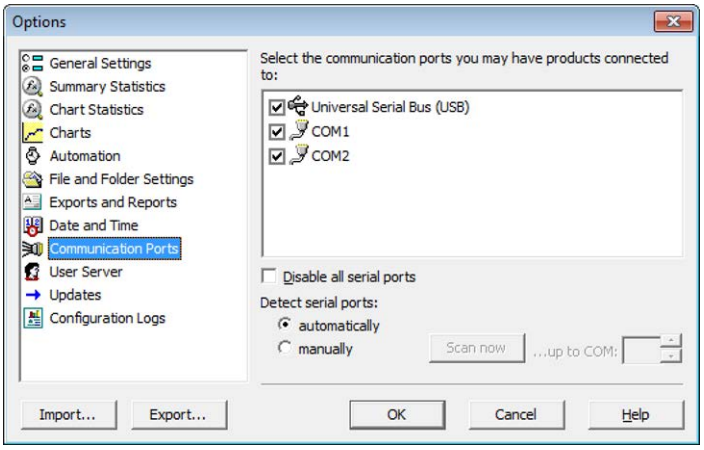


Figure 108: Communication ports USB, COM1 and COM2 enabled

When you select **automatically**, all COM ports will be listed that can support a connected interface. This includes virtual COM ports that you might use with an RS232 to USB adapter. You can then choose which of these ports you want to enable for communication by selecting the check box next to the COM port.

Any COM ports created after you confirm this setting will automatically be added to the list of available ports and will automatically be enabled for communication.

- manually

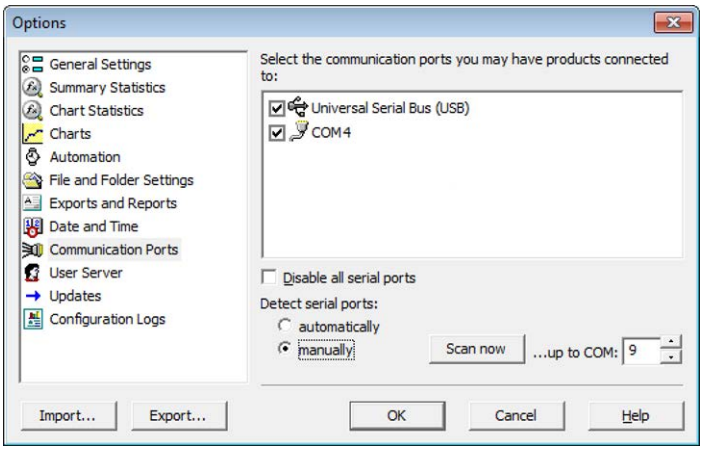


Figure 109: Communication port COM4 detected and enabled after scan

When you select **manually**, all COM ports are removed from the list. When you click Scan now, LogTag® Analyzer checks each COM port for the presence of an interface cradle, and only lists those ports which have an interface connected at the time.

Any COM ports created after you confirm this setting will not be added to the list of available ports. If you plug your interface into a different COM port (or your virtual COM port gets a different number assigned) you will need call up this setting again to select Scan now and re-detect the interface.

Any interfaces found will automatically be selected for communication.

Note: USB ports cannot be disabled; if you do not wish the software to communicate with USB ports you must unplug any interface currently connected.

User Server

The User Server options define if and how LogTag® Analyzer should connect to the LogTag® User Server software. If you do not have LogTag® User Server software installed on your computer and/or available on your local area network, you will not need to changes these settings. Connection to the LogTag® User Server software is typically only used in a multiple user environment or if your organization requires compliance with the US FDA 21 CFR Part 11 regulations for use of digital signatures that are controlled by a central administrator.

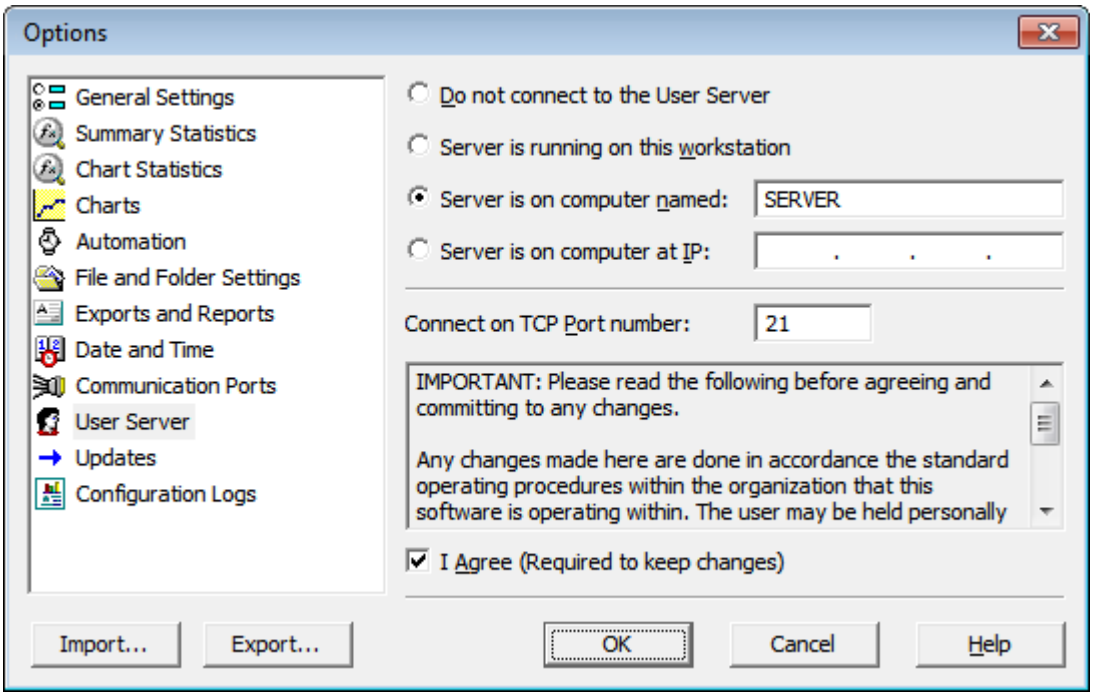


Figure 110: User Server options

The settings required in these fields will be provided by your network administrator. Once a valid connection to the LogTag® User Server software has been established, you will be required to provide a valid user name and password (see How users log on on page 184 to continue using LogTag® Analyzer.

Note: If the LogTag® User Server software runs on a different computer you need to be connected to that computer via a LAN or WAN to use LogTag® Analyzer software or make any changes to these settings.

To enter or change these settings LogTag® Analyzer must be started from a user account with local administrator privileges. If you normally start it from a standard user account, please close LogTag® Analyzer, right click its shortcut and click **Run as administrator** from the context menu. Make the changes after you have provided Administrator credentials, then close LogTag® Analyzer and start as usual.

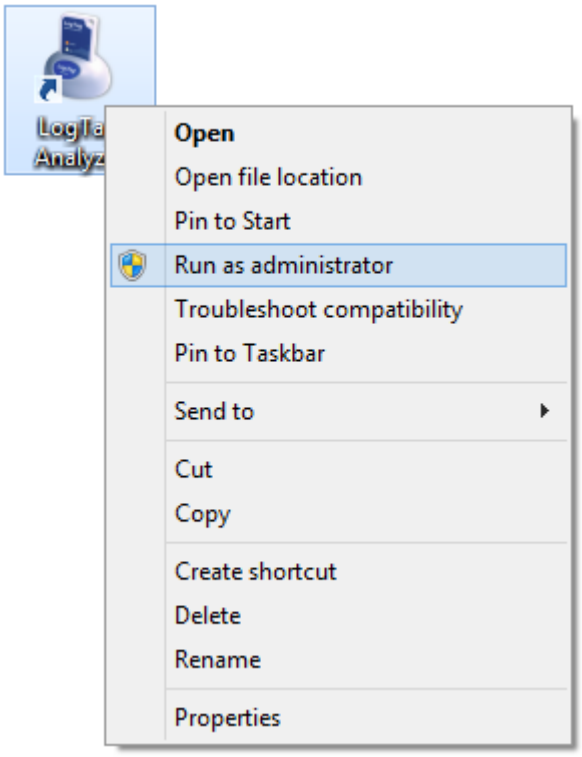


Figure 111: Running LogTag® Analyzer as administrator

Software Updates

The LogTag® Analyzer software can periodically check if a newer version is available for download from the LogTag® Recorders website.

To enable this feature select **Enable automatic checking for newer version** and set the number of days between checks by entering a number in the "Check every XX days" field. This can be set from 1 (every day) to 365 (every year). By default, this option is turned on with a period of 30 days. We recommend leaving it turned on, so you will automatically be notified when an update is available.

To disable the feature, clear the check box.

If you enable the automatic check, you will be asked if you want to download and install the new version when it is available Updating LogTag Analyzer on page 19).

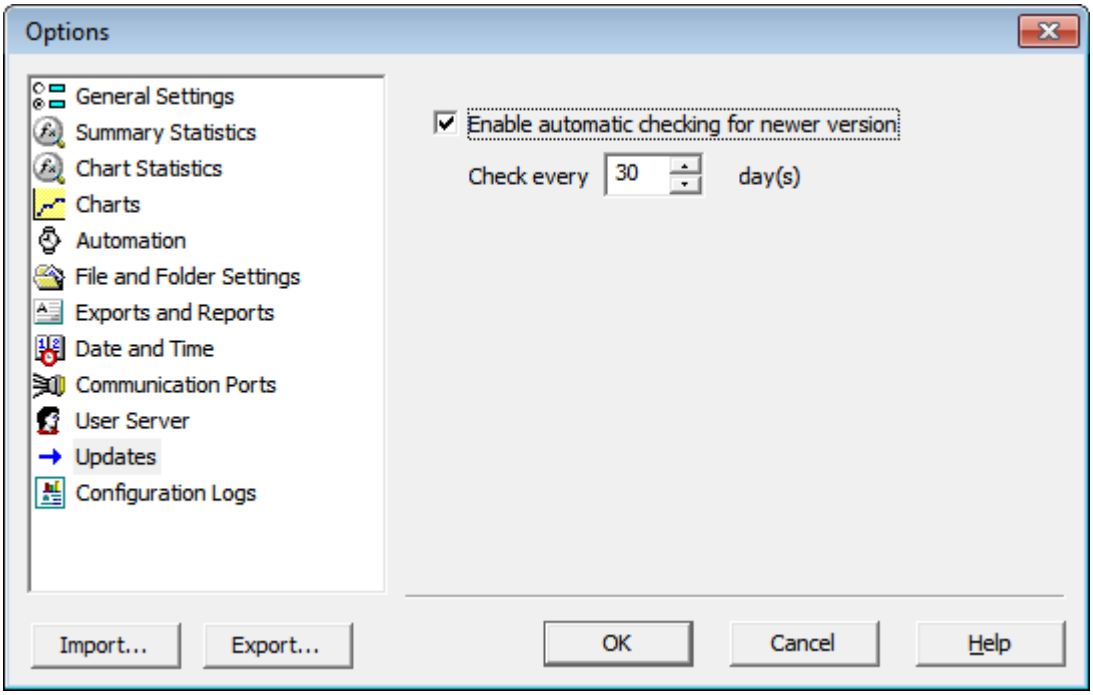


Figure 112: Software update options

Configuration Reports

It can sometimes be useful to keep a record of the configuration data of a LogTag® Recorder. LogTag® allows a number of selected configuration data to be stored in a text file. These settings are made in the Configuration Reports window.

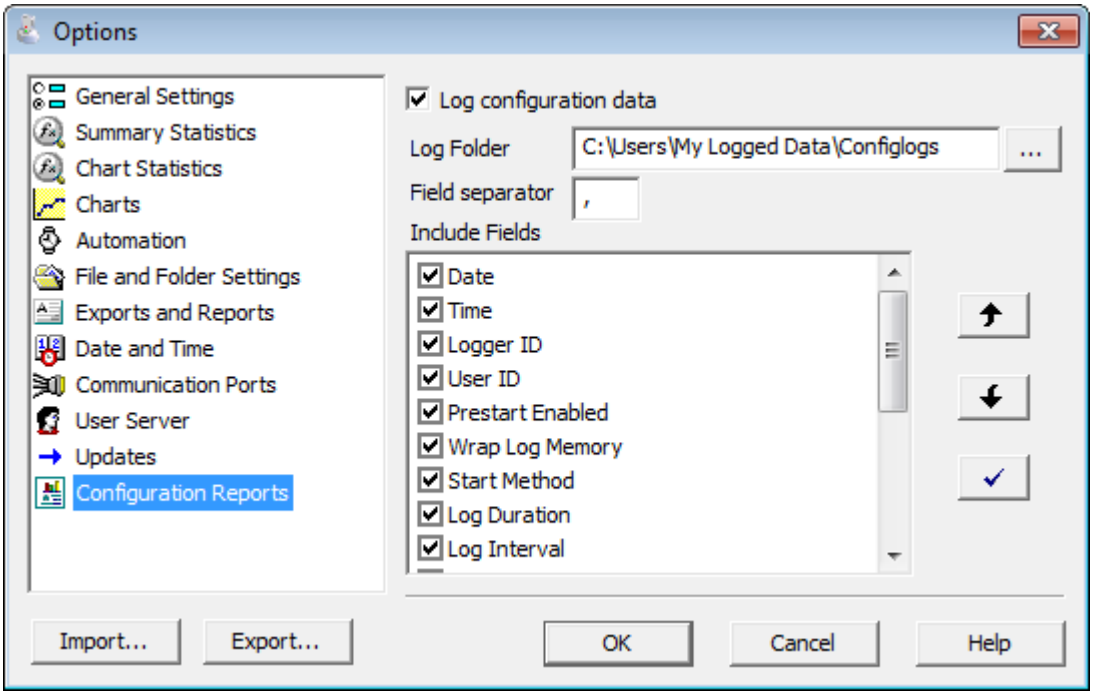
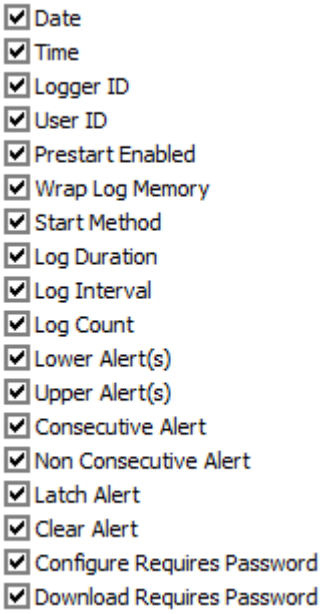


Figure 113: Configuration logging options

When the **Log configuration data** option is ticked, the selected parameters are written into a text file, which is named "LogTag Analyzer_config_log_WW-YYYY", where WW is the current week number and YYYY is the current year. Each week a new file will be generated.

Clicking on the ... button will allow you to select a folder of your choice where the log files will be stored. For each recorder configured a new line is started in the text file, individual entries in each line are separated by the character specified in the "Field separator" box. You can change the order of the entries in each line by selecting a Field and clicking on the up ↑ or down ↓ buttons. Clicking the tick box ✓ enables all parameters to be included in the log file.

Following parameters can be selected:



For Recorders with multiple alarms, or recorders where the upper and lower alarms can have different accumulative or consecutive values, the Upper and Lower Alert fields contain a summary of the alarm settings.

Importing and Exporting Option Settings

LogTag® Analyzer's option settings can be and then into other installations of LogTag® Analyzer. This is useful if you want to distribute settings to multiple users on the same computer or copy settings from one computer to another. You can also use this if you are upgrading your computer, and want to transfer the settings to the new computer.

You can access these functions via the Import and Export buttons in the **Edit - Options** dialogue.

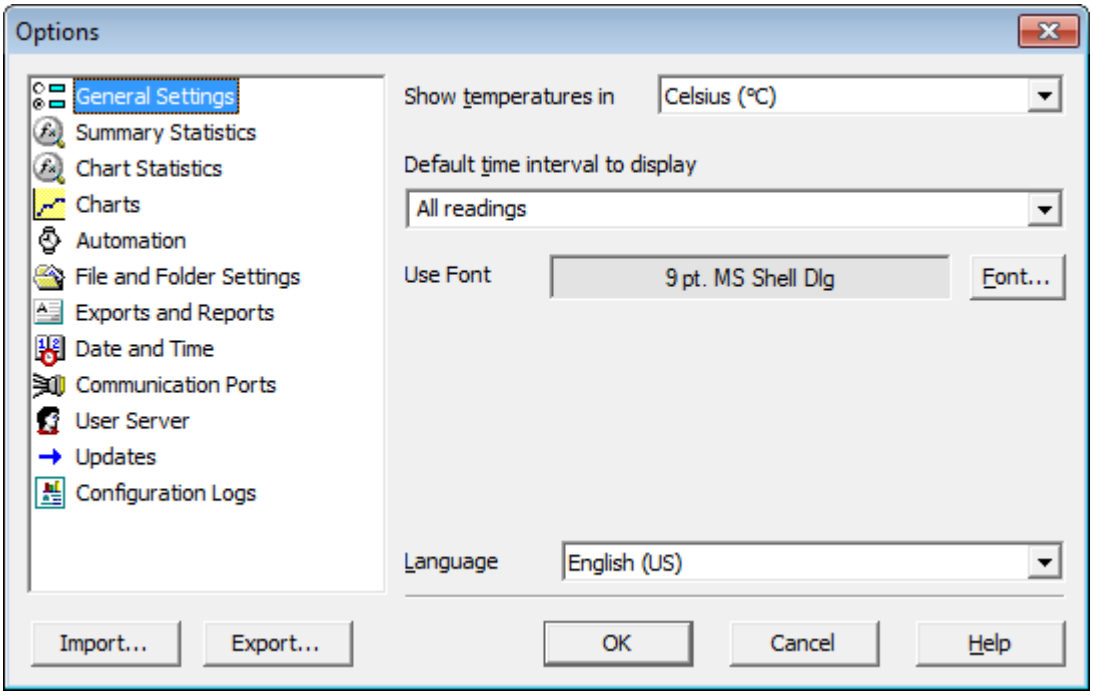


Figure 114: Import and Export Buttons in the bottom left corner of the window

Exporting the Options Settings

To export the settings, click Export from the **Edit - Options** menu.

You will see a dialogue, where you can select which option settings will be exported.

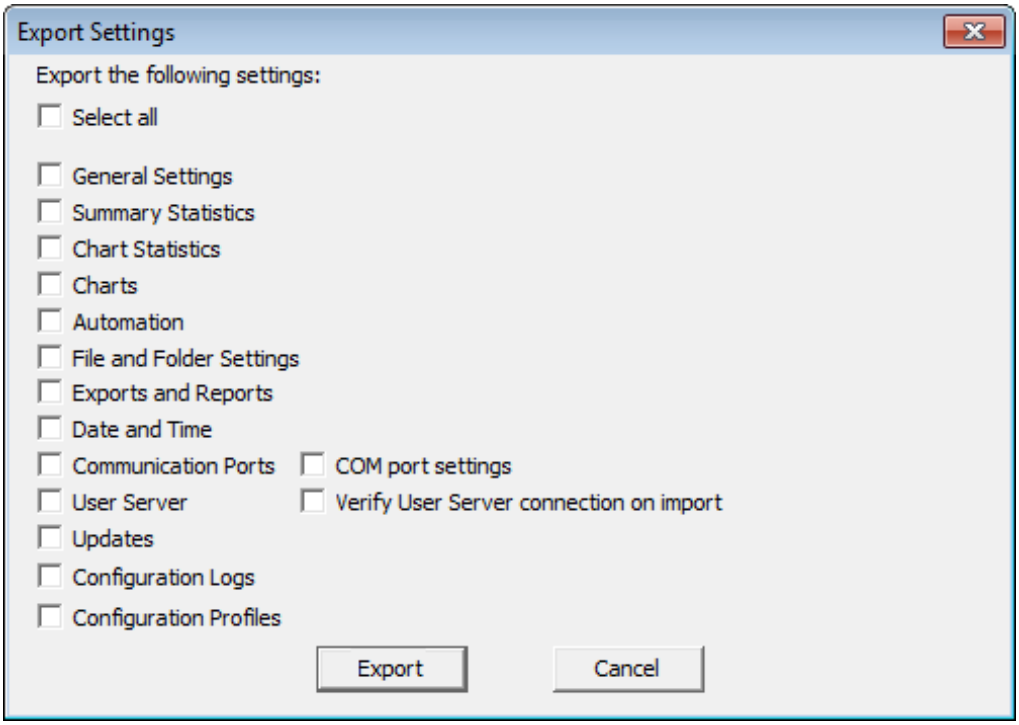
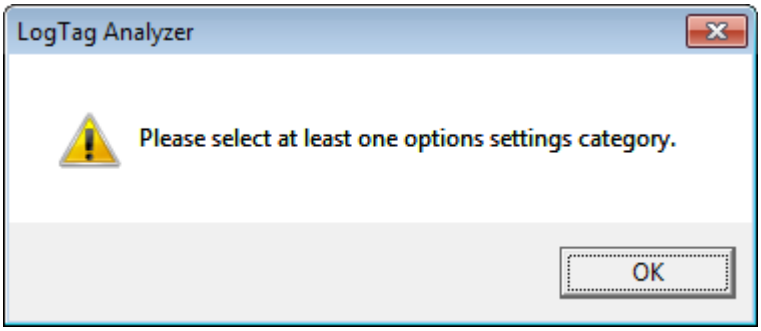


Figure 115: Selecting the options settings to be exported

Select all applicable sections you wish to export, or **Select All** to export all settings. Only settings with the check box selected will be exported.

You need to enable at least on option, or you will receive following error:



Click Export and browse to a directory; enter the file name of the export file. The *.asxml file extension will be added automatically.

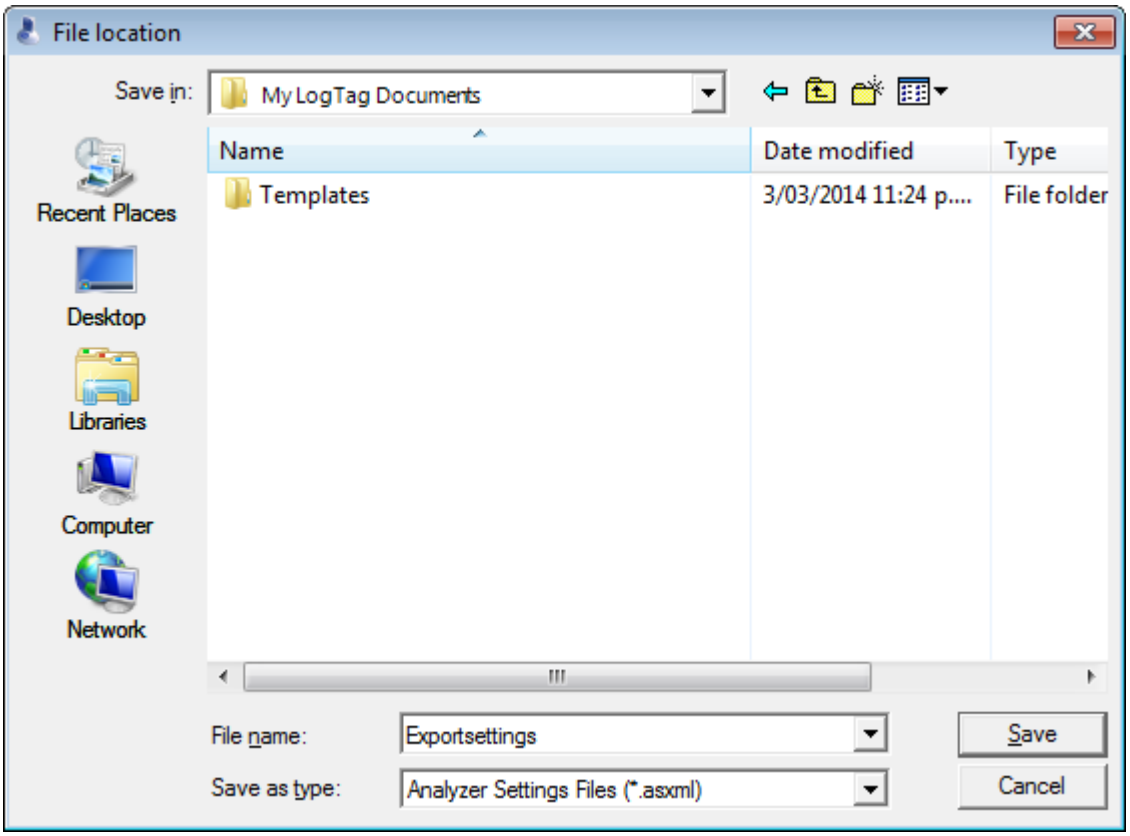


Figure 116: Selecting the export file name and location

Once you click Save the export file will be written to the folder specified.

Importing the Option Settings

You can use one of the following methods to import option settings into LogTag® Analyzer.

- With LogTag® Analyzer open, select **Edit - Import Options**.

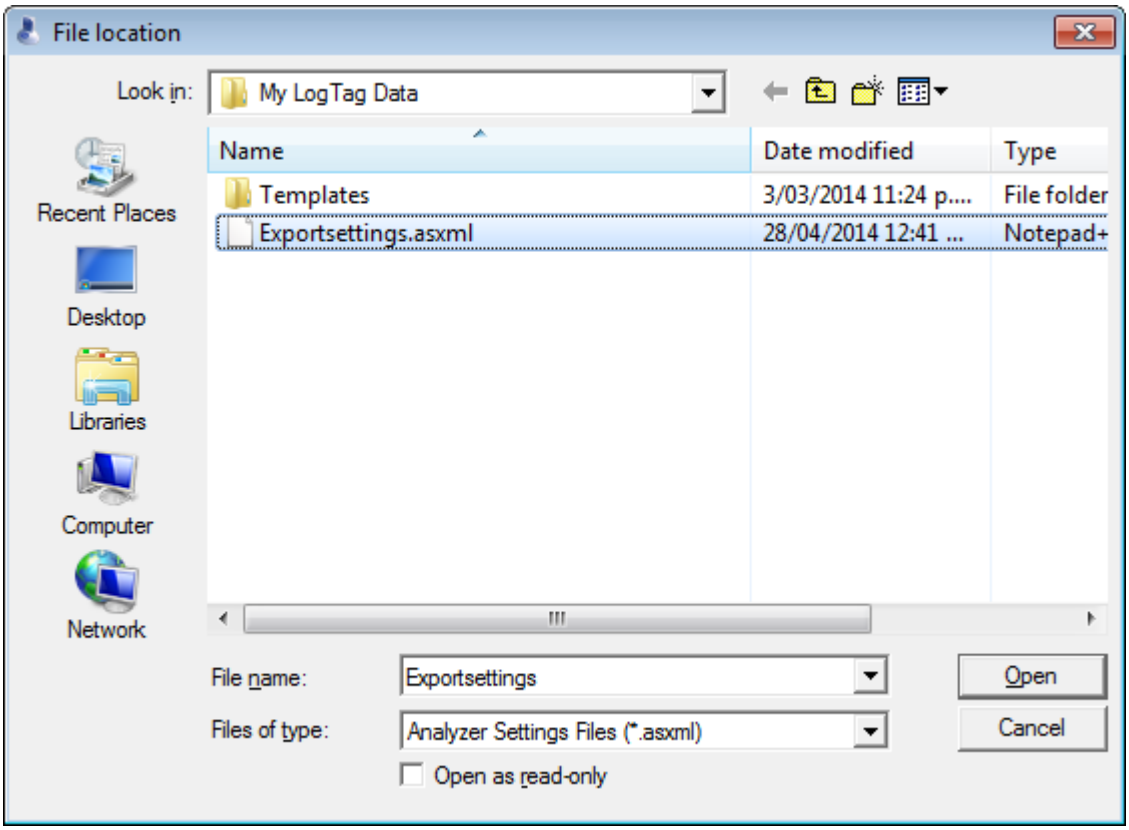


Figure 117: Import options dialogue

Browse to a previously stored *.asxml file and click on **Open**.

- Double click on a *.asxml file in Windows Explorer, on the Desktop or in an email attachment.
- Drag and drop a *.asxml file onto the LogTag® Analyzer icon on the desktop.
- Open the file via the **File - Open** dialogue in LogTag® Analyzer.

Only settings present in the *.asxml file will be imported. If a setting already exists in LogTag® Analyzer, and a different setting is imported, the new setting from the imported file will overwrite the existing setting.

Once the import is complete, you will see this dialogue.

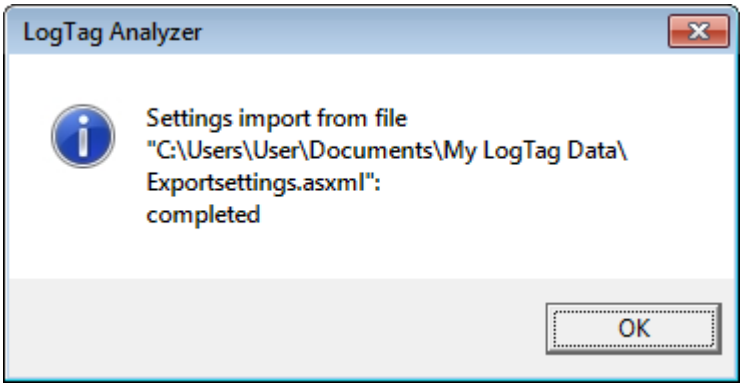


Figure 118: Import successful

If there are any problems with the import file, an error message will be displayed showing the import failed.

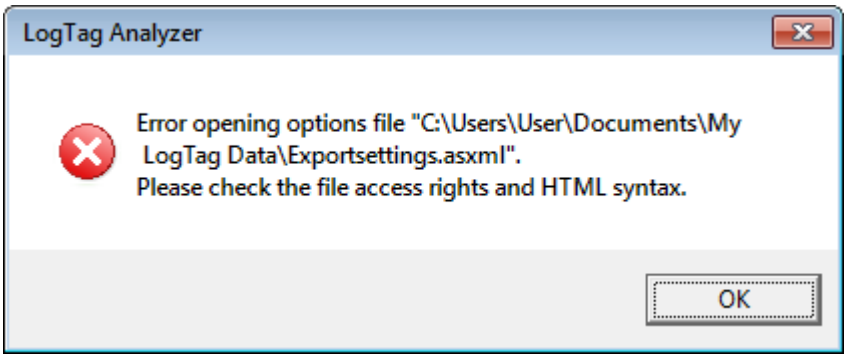


Figure 119: Import failure

Individual parameters are also checked on import. When a parameter is outside allowed values, an error message will be displayed, and the import will not proceed:

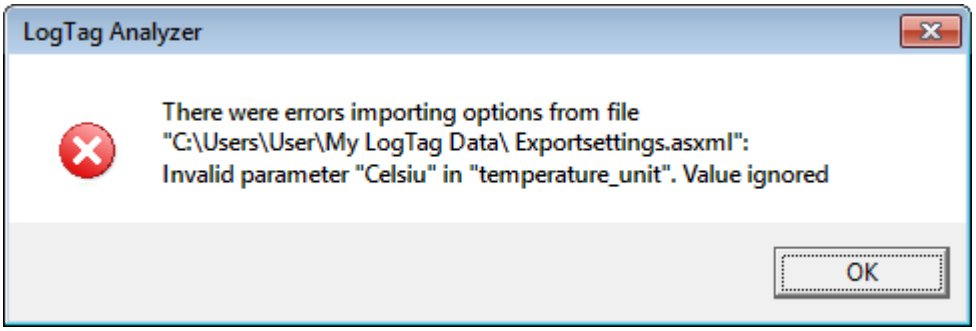


Figure 120: Import failure with misspelled parameter

If an error is found, the file import of the *.asxml will not proceed. Your IT administrator can help with issues arising from an import failure.

If the imported file contains settings for user server, a confirmation dialogue will appear, requesting you to acknowledge the new settings.

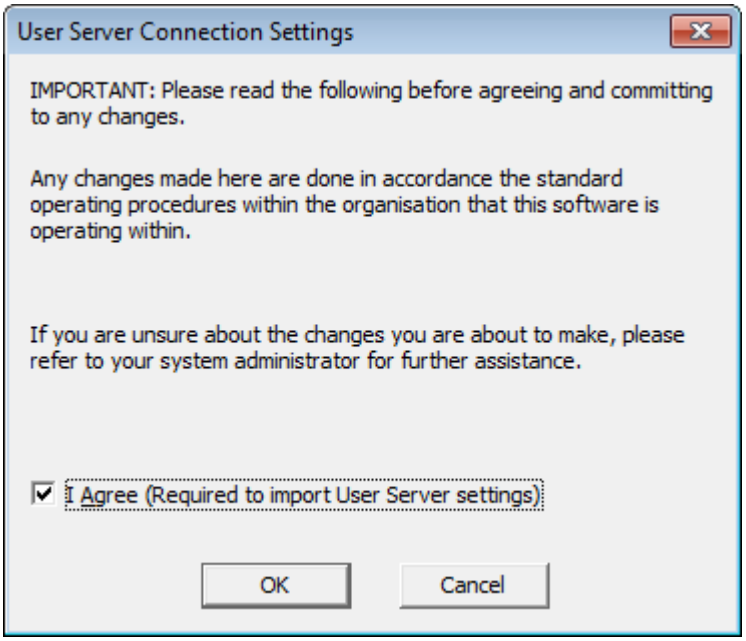


Figure 121: Confirm User Server settings

If you click cancel, or do not enable the I agree check box, the user server settings are not imported, however the remainder of the import will proceed.

If LogTag® Analyzer already requires you to log-on to an existing User Server connection...

- ...you cannot import new User Server option settings
- ...you cannot import any settings for which access has been blocked by the User Server administrator
- ...you cannot import or export any settings without being logged in, and the menu items will not be accessible.

Chapter 7

Menus and Toolbars

At the top of the screen below the title bar is LogTag® Analyzer's menu system and toolbar. The toolbar provides quick access to some of the more commonly used functions within the menu system. The menu system contains lists of all the operations and commands that are available to you while using the software.

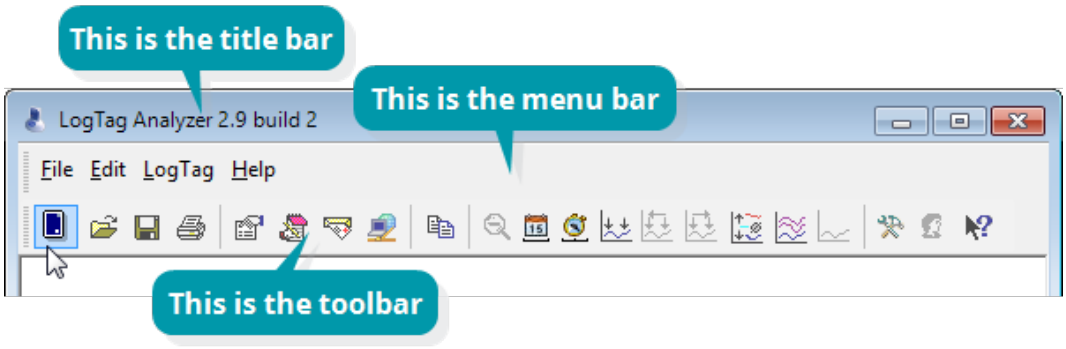


Figure 122: Menu and toolbar

In this chapter:

Menu commands 169
Toolbar commands 176
Upload Status Window 177
Print preview toolbar 178
Standard Window commands 179

Menu commands

The menu system has been separated into groups of related commands. Each of these menu groups is explained in more depth in the subsequent sections. The software will only display the menu groups and commands within each menu group that are appropriate depending on what you are currently doing with the software.

You may also see that some of the menu commands have a reference after the command name, for example **F2** or **Ctrl+O**. These represent key strokes on the keyboard that instruct the software to perform the appropriate command, without the need to select the menu or toolbar command. When only one key reference is mentioned, for example **F2**, then pressing that single key on the keyboard will cause the appropriate command to be performed. If there is more than one key reference mentioned, for example **Ctrl+O**, then to cause the command to be performed you must press and hold down the first key mentioned while pressing the other key once. When letters are used in the key reference, for example **Ctrl+O**, it does not matter whether or not the caps lock is on or off.

File Menu

The **File** menu contains commands that relate to a LogTag® file. When clicking on **File**, a menu similar to following will appear. You can also access the menu by pressing **ALT-F**.

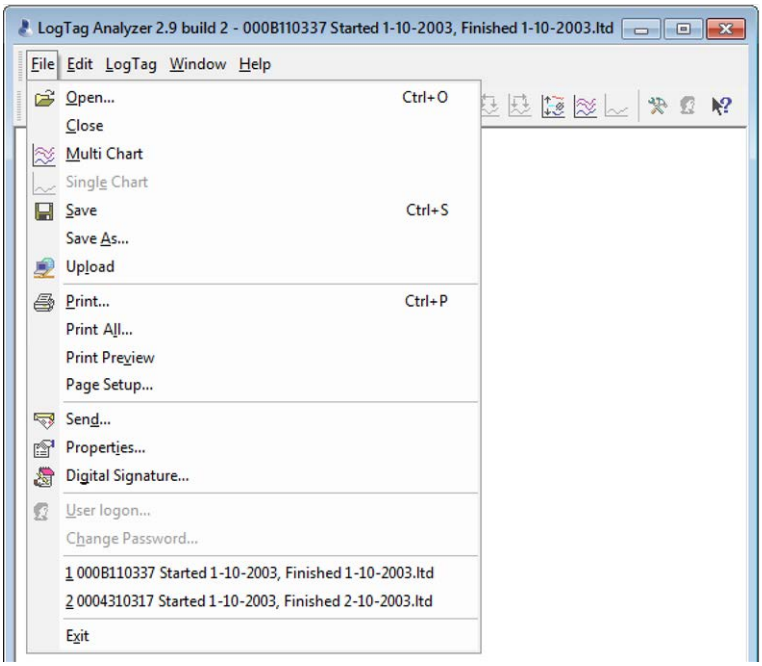


Figure 123: File menu

The following table outlines the commands that appear in the "File" menu and a brief explanation for each command. Some commands do not appear if no file is open.

Table 23: File menu - available commands

Command	Explanation
Open... ( )	This will display the Open file dialog, which will allow you to open: • LogTag® *.ltd and *.sltd files previously saved, or • previously saved Multi Chart configuration files. It will start at the folder defined in Edit - Options - File and Folder Settings. If a Multi Chart file is selected, the LogTag® Analyzer software will automatically switch to Multi Chart mode and all the selected files will be added to the Multi Chart display.
Close	This command will close all windows that are displaying information about the open file that is currently selected. If no files are currently open this command will not be visible.
Multi Chart	This will change the way recordings are displayed such that they are all combined on a single chart window (see Combining charts onto a single chart on page 109).
Single Chart	This will change the way recordings are displayed such that each which will contain all the information retrieved from a single LogTag®.
Save	This will save any changes you have made to the LogTag® file (or Multi Chart configuration) to your disk drive.
Save As...	This will display the Save As file dialog, which will allow you to save a copy of the file currently being displayed in the same or different folder with the same or different file name.
Upload	This will send an email with the currently active file attached to a list of recipients or upload the file to a pre-determined FTP site. See Automatic emailing and uploading to FTP sites.
Print...	This will open a window allowing you to print a copy of the LogTag® file to an output device, which will typically be a printer. This command is further explained in the section Printing the results.
Print All...	This will open a window allowing you to print all currently open files. See Printing the results for further information.
Print Preview	This will change the display mode of the software to show you a copy of how a printout of the currently selected file and window would look like. In "Print Preview" mode you will not be able to zoom in or out of a chart. Click to exit the "Print Preview" mode and return to normal display mode.
Page Setup...	This will open a window allowing you to view and adjust one or more of your page settings, like printer margins and page orientation. See the Information for Page Setup on page 119
Send...	This will help you send, by email, the currently open and selected LogTag® file to another user without the need to exit to your email software or to deal with file attachments. This command is explained in further detail in the section Sending a file by email direct from Analyzer.
Properties...	This will open a window that will display the information about the file that is being displayed and currently selected. This same window and information will be displayed if you view the properties of the file from Microsoft Windows Explorer.

Command	Explanation
Digital Signature... ( )	This will open a window to display a list of digital signatures that have been included with the file. It also allows you to add and print this list of digital signatures. This command is explained in further detail in the section "Digital signatures".
User logon... ( )	This allows a user to log on to and use the Analyzer software. When the software is connected to the User Server software, users must log on to the software prior to being permitted to use the software. Therefore, this command will only be available if the Analyzer software is connected to the User Server software. If a user is already logged on to the software, then this command is not visible. The section User Server explains in more detail how to get the Analyzersoftware to connect to the User Server software.
Logoff user (*username*) ( )	This allows the currently logged on user to log off the Analyzer software. The username portion of this command will represent the name of the user currently logged on. If there is no currently logged on user, this command is not visible.
Change Password...	This allows the currently logged on user to modify their password that they use to logon to the Analyzersoftware. This command will only be available if the Analyzersoftware is connected to the User Server software and the User Server administrator has granted the appropriate user permissions.
1, 2, 3, etc	This portion of the menu represents a list of the most recent files you have viewed. To re-open one of these files, simply click on the entry (name of the file) to open. The number of files included in this list can be adjusted through Edit - Options - General Settings.
Exit	This command will exit and close down the LogTag® Analyzer software. Any files that you currently have open will also be closed automatically for you. If a user is currently logged on to the Analyzer software when the Analyzer closes, the user will be automatically logged off.

Edit Menu

The **Edit** menu contains commands that change how the data are presented on screen. Here you can also define default option settings and import and export these settings. When clicking **Edit**, a menu similar to following will appear. You can also access the menu by pressing **ALT-E**.

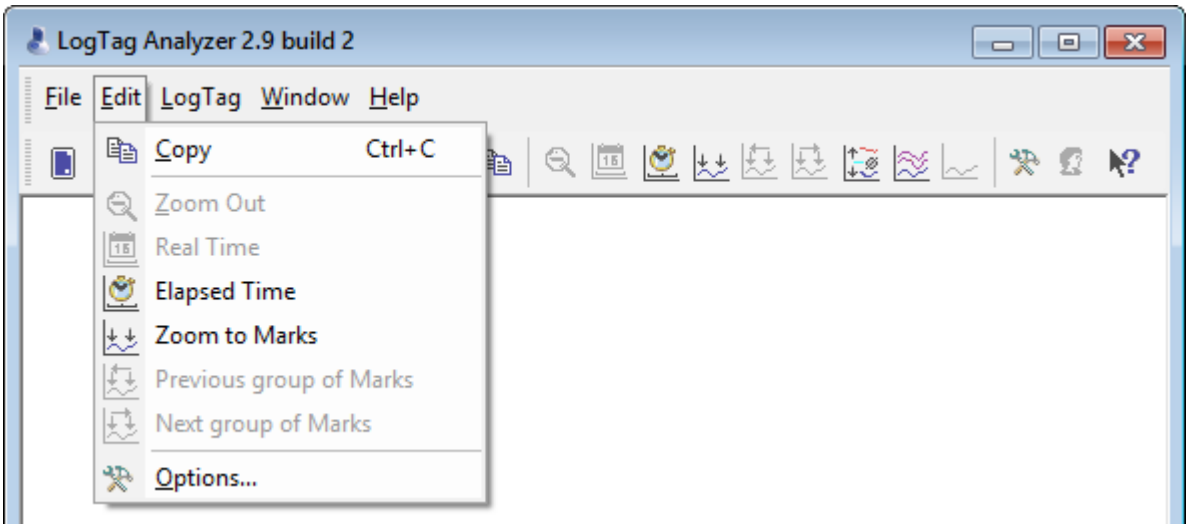


Figure 124: LogTag® Analyzer Edit menu

The following table outlines the commands and the explanation of each command that may appear in the **Edit** menu:

Table 24: Edit menu - available commands

Command	Explanation
Copy	Places a copy of the contents of the currently displayed window onto the clipboard, which can then be pasted into any Windows® application. If you are copying a chart, the chart at its current zoom range is copied to the clipboard. If you are copying from one of the tabular style windows (Data or Summary), then the entire contents of the window is copied to the clipboard, regardless of what part of the data you have scrolled to view.
Zoom Out	This will undo the last zoom operation performed allowing you to see more of the data on the chart. If the chart is displaying all the readings recorded by the LogTag®, this command will not be available.
Real Time	Clicking this menu item will make the time axis represent date and time the data were recorded. This is useful when you want to inspected at what date and time a certain event occurred.
Elapsed Time	Clicking this menu item will make the time axis represents the elapsed time since the recording began. This is useful when you want to inspected how long into a trip a certain event occurred.
Zoom to Marks	When this command is enabled, the chart is automatically zoomed to show readings recorded between inspection marks. The section "Starting and using the LogTag®" explains in further detail how inspection marks are recorded.
Previous group of Marks	This command will show the readings recorded between the first inspection mark shown and the previous inspection mark recorded. This command will only be available if the "Zoom to Marks" command is enabled and the first reading recorded is not currently visible.
Next group of Marks	This command will show the readings recorded between the last inspection mark shown and the next inspection mark recorded. This command will only be available if the "Zoom to Marks" command is enabled and the last reading recorded is not currently visible.
Options...	This will open a window allowing you to customize the software. This command is further explained in the chapter "Customizing the software".

LogTag® Menu

The LogTag® menu contains commands that relate to interaction with LogTag® recorder products.

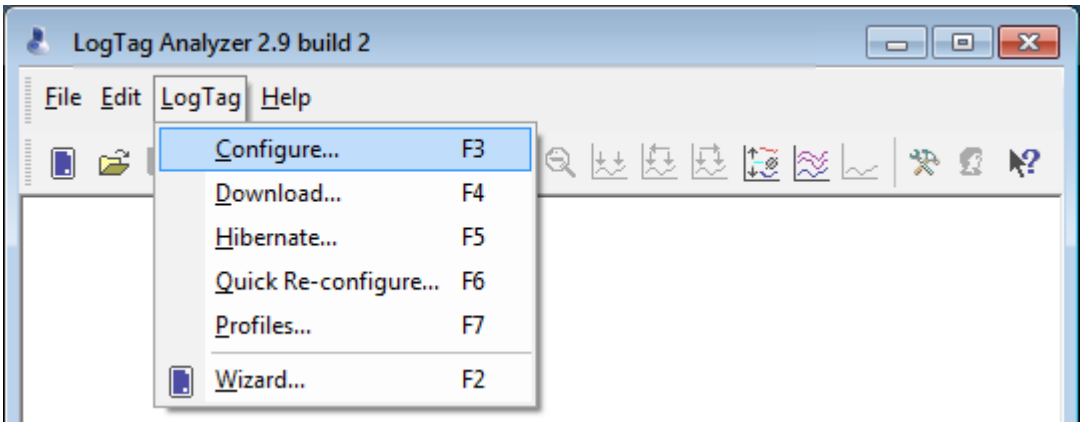


Figure 125: LogTag Menu

The following table explains each of the available commands:

Table 25: LogTag menu - available commands

Command	Explanation
Configure...	This will display a wizard to help you through the necessary steps to configure LogTag®s for their next use. This command is explained in further detail in the chapter Entering Configuration Parameters on page 39.
Download...	This will display a wizard to help you through the necessary steps to retrieve a copy of the recorded readings stored inside the LogTag®(s). This command is explained in further detail in the chapter Results from LogTag® Recorders on page 77.
Hibernate...	This will display a wizard to help you through the necessary steps to set LogTag®s to "Hibernation" mode. This command is explained further in the chapter Hibernation - Prolonging battery life on page 75.
Quick Re-configure...	With this command you can re-configure a recorderwith the same settings as for the previous trip. This command is explained in further detail in the section Quickly re-configuring a LogTag® on page 73
Profiles	With this command you can configure a recorder with a configuration profile previously created. This command is explained in further detail in the section about Configuration Profiles on page 69.
Wizard...	This will display a wizard to help you through the necessary steps to retrieve a copy of the recorded readings stored inside the LogTag®(s) and then prepare the LogTag®s for their next use. This command is explained in further detail in First Steps on page 22.

Window Menu

The **Window** menu contains commands that relate to the management of each open Window that displays the contents of a LogTag® file.

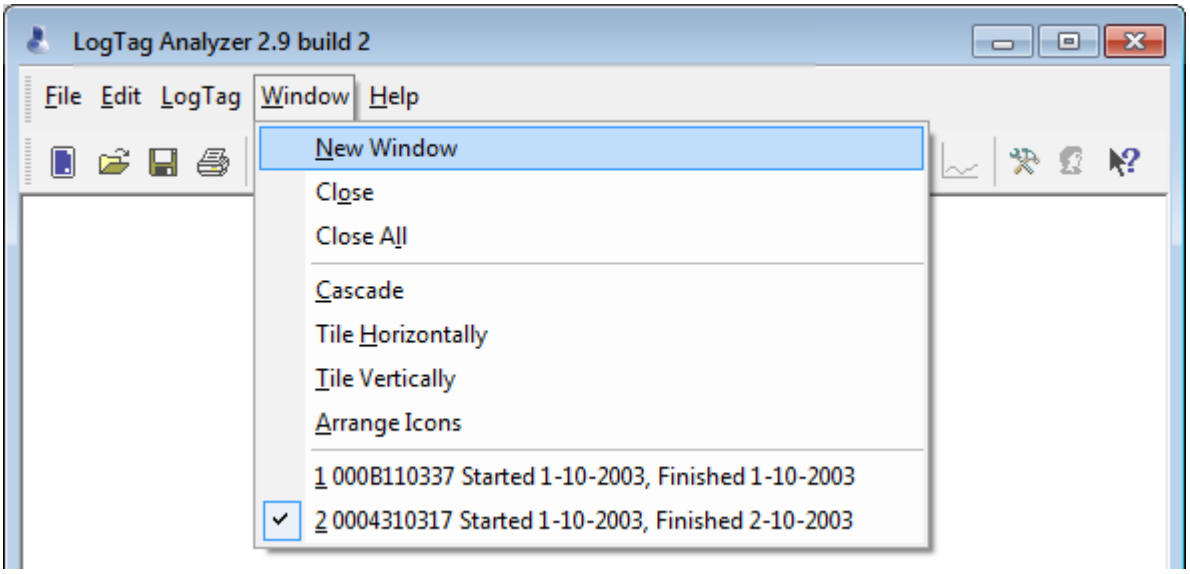


Figure 126: Window menu

Commands available in the **Window** menu:

Table 26: Window menu - available commands

Command	Explanation
New Window	Opens a new window that contains a copy of the information of the currently selected window. This command is useful when you need to closely inspect and analyze different sections of the same data set.
Close	Closes the currently selected window within the LogTag® Analyzer software.
Close All	Closes all the windows within the LogTag® Analyzer software.
Cascade	Arrange all the windows within the LogTag® Analyzer software in an overlapping style.
Title Horizontally	Arrange all the windows within the LogTag® Analyzer software as horizontal non-overlapping tiles.
Title Vertically	Arrange all the windows within the LogTag® Analyzer software as vertical non-overlapping tiles.
Arrange Icons	Arrange all the minimized windows within the LogTag® Analyzer software at the bottom of the main window.
1, 2, 3, etc	The tick mark beside these entries indicates the window that is currently selected. If you want to change the currently selected window to one of the windows listed, just click/select the appropriate entry on this list.

Help Menu

The "Help" menu contains commands that relate to providing you with help and assistance with using the LogTag® Analyzer software.

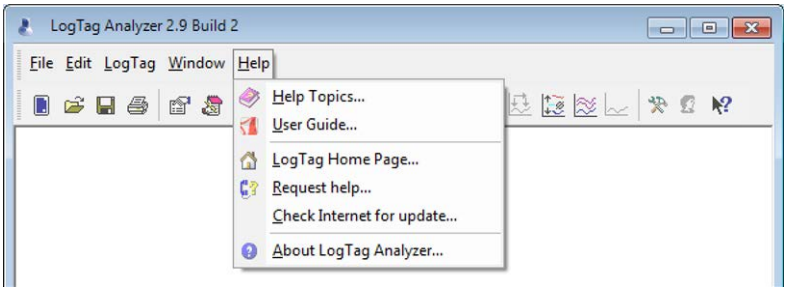


Figure 127: Help menu

The following table outlines the commands and the explanation of each command that may appear in the "Help" menu when using the LogTag® Analyzer software:

Table 27: Help menu - available commands

Command	Explanation
Help Topics	Opens a window that contains the online help.
User Guide	Opens the online user guide for viewing. Requires Adobe Acrobat and/or Adobe Acrobat Reader software, version 6 or later, to be installed on the computer.
LogTag® VCF Dataloggers Home Page...	This will open your default Internet browser and display the LogTag® Recorders website http://logtagrecorders.com. You need to be connected to the internet at the time you wish to see this website.
Request help...	This will gather non personal information from your system to include in the email to be sent to software support at LogTag® Recorders, so that the support team will be informed of the relevant information about your system in order to provide you with quality and useful assistance. This command is explained in further detail in the section about Getting more help.
Check Internet for update...	This is a simple way of checking to see if there is a newer version of this software available for download. This command is explained in further detail in the section about Updating LogTag Analyzer.
About LogTag® Analyzer...	Display the version information about the LogTag® Analyzer software that you are using.

Toolbar commands

Each icon on the toolbar represents a unique command.

Figure 128: LogTag® Analyzer toolbar

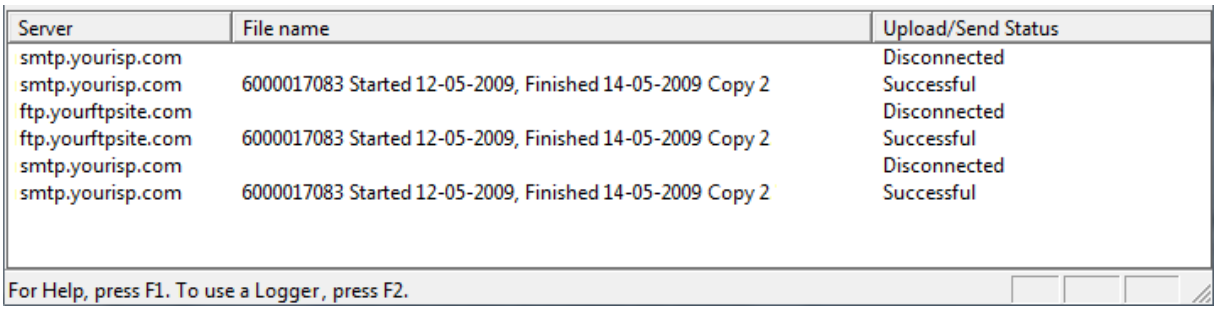
Table 28: Toolbar icons and their function

Command	Explanation
Access LogTag®	This will bring up the LogTag® Wizard, which will take you through the steps to retrieve readings from connected LogTag®(s) and prepare them for their next use.
Open	This will display the file open window to allow you to locate and open LogTag® files that contain previously retrieved LogTag® readings.
Save	Save a copy of the LogTag® data to a file on your disk drive.
Print	Opens the window that will allow you to print a copy of the LogTag® data to a printer. See Printing the results on page 119
File properties	Displays file properties about the currently selected open file. See Viewing file properties on page 126.
File digital signatures	Displays information about any digital signatures included in the currently selected open file, which is also allows where new digital signatures can be added to the file and where you can print a copy of the digital signatures.
Send mail	Creates a new blank email for sending a copy of the currently selected open file as an attachment to a recipient of your choice.
Upload	Uploads the file in the currently active window to an FTP server, or sends it by email. Please see Automatic emailing and uploading to FTP sites on page 138
Copy	Places a copy of the currently displayed information to the Windows clipboard so that you can paste it into another Windows software package.
Real Time	When this button is active, the time axis represents date and time the data were recorded. This is useful when you want to inspected at what date and time a certain event occurred.
Elapsed Time	When this button is active, the time axis represents the elapsed time since the recording began. This is useful when you want to inspected how long into a trip a certain event occurred.
Zoom out	Zooms out one level of the chart in the currently active window. If you are displaying a chart and this function is not available, then all available data are already being displayed and you cannot zoom out any further.

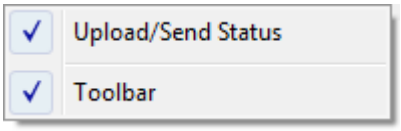
Command	Explanation
Zoom to inspection marks	This zooms the chart so readings are shown between the oldest reading recorded and the first inspection mark that exists in the data. If this function is not available then there are no inspection marks in the data currently being displayed. The next two commands will not be available until this command is activated.
Previous inspection mark group	This zooms the chart so readings are shown which were recorded between the first inspection mark currently being displayed and the previous inspection mark. This function is disabled when either the oldest reading is already being displayed, or the "Zoom to inspection marks" function has not been activated.
Next inspection mark group	This zooms the chart so readings are shown which were recorded between the last inspection mark currently being displayed and the next inspection mark. This function is disabled when either the newest reading is already being displayed, or the "Zoom to inspection marks" function has not been activated.
Average	Combines all open file windows into a single Multi Chart window and activates the average tab. , or if already in multichart, activates or disables the average tabs. It is recommended to deactivate this feature when processing large data sets, as Minimum, Maximum and Average Charts can require considerable memory and processor resources when activated.
Multi Chart	Switches into Multi Chart mode, which displays all currently open charts together in one window. If additional LogTag®(s) are downloaded or more files opened, their data will be added to the Multi Chart window.
Single Chart	Switches into Si ngle Chart mode. Each chart that is currently open will be displayed in its own window.
Options	This will open a window allowing you to customize the software. This command is further explained in the chapter Customising the software on page 127.
Logon/Logoff user	This will log a user on to the software if no user is currently logged on or log off the currently logged on user. This command will only be available if the software is connected to the LogTag® User Server software.
Help	Click on this icon, then click on an area on the screen, and the help topic for this area will be displayed.

Upload Status Window

When uploading or emailing files a status window is displayed at the bottom of the LogTag® Analyzer window.



This window shows status messages related to the FTP and emailing functions. The window can be hidden by right clicking anywhere in it and de-selecting the Upload/Send Status box. It can be re-displayed by right clicking anywhere on the menu or toolbar and selecting the Upload/Send Status box.



Print preview toolbar

The print preview feature -available through the File menu- will display a view of the data as it would appear printed out. When the software is displaying a file in print preview mode, an additional toolbar will appear, similar to the following picture:

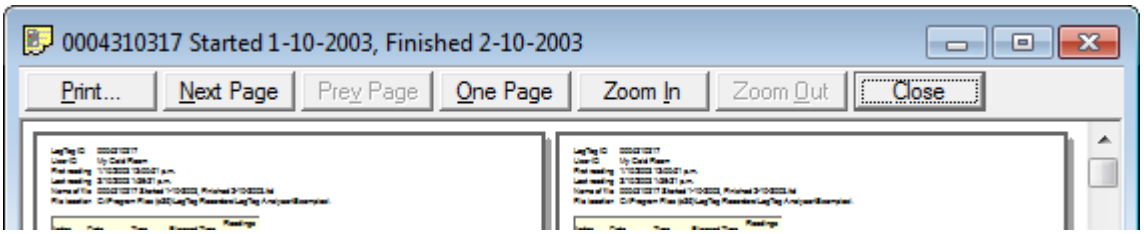


Figure 129: Print preview

Table 29: Commands available in the print preview toolbar

Command	Explanation
Print...	This will open a window allowing you to print a copy of the LogTag® file to an output device, which will typically be a printer.
Next Page	This will display the next page included in the print out. This button will be disabled if there are no more pages available to be displayed.
Prev Page	This will display the previous page included in the print out. This button will be disabled if there are no previous pages available to be displayed.
One Page	Selecting this button will change the display so that only one page is displayed at a time. Once this button is selected it will change to "Two Page".
Two Page	Selecting this button will change the display so that two consecutive pages are displayed side by side at the same time. This button will be disabled if there is only one page in the print out, like a chart. Once this button is selected it will change to "One Page".
Zoom In	This will zoom in the display of the print out making it appear larger on the screen. It will not effect what information is included in the print out.
Zoom Out	This will zoom out the display of the print out making it appear smaller on the screen. It will not effect what information is included in the print out.
Close	This will close the print preview mode of display and revert the display of the data back to normal mode, which will allow users to switch between chart display and data listing display, for example.

Note: When using Print Preview you can only print one document at a time.

Standard Window commands

In the top right corner of each window, one or all of the buttons in the following image will be displayed and will (from left to right) minimize the window, maximize the window or close the window.

The following picture illustrates an example of the menu that will appear if a user selects the icon in the top left corner of the LogTag® Analyzer software, usually by clicking the left mouse button on it, or by clicking the right mouse button on the title bar. The commands illustrated in the following picture allow you to change the location and/or size of the window containing the LogTag® Analyzer software. Users can also move the window containing the LogTag® Analyzer software by "dragging" the title bar, which is typically performed by pressing and holding the left mouse button down over the title bar of the software and moving the mouse to the new location for the window.

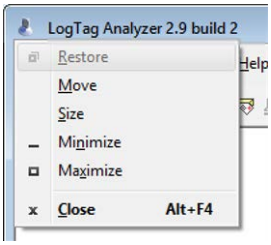


Figure 130: Application window commands

The following picture illustrates an example of the menu that will appear if a user selects the icon in the top left corner of a data file window, usually by clicking the left mouse button on it, or by clicking the right mouse button on the title bar of the data window. These menu commands will only effect the window containing the data retrieved from a LogTag® Analyzer rather than the Window that contains the entire LogTag® Analyzer software.

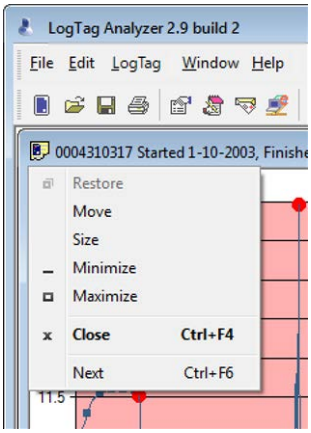


Figure 131: File window commands

Chapter 8

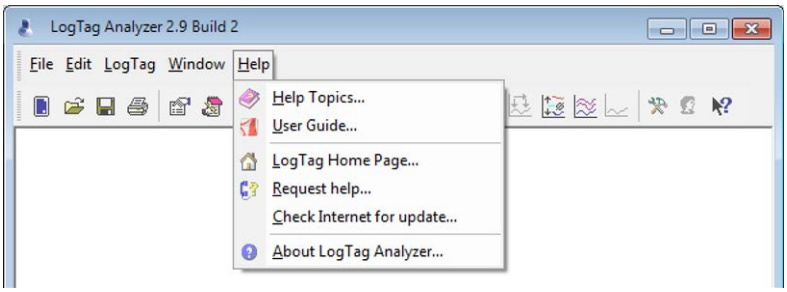
Getting more information

In this chapter:

Getting more help 181
Finding your software version 182

Getting more help

If you run into a problem with your LogTag® recorder, you can click **Request help...** from the Help Menu to contact the support team at LogTag® Recorders for assistance.



When you select this command, LogTag® Analyzer will collect non-personal information from your system, such as

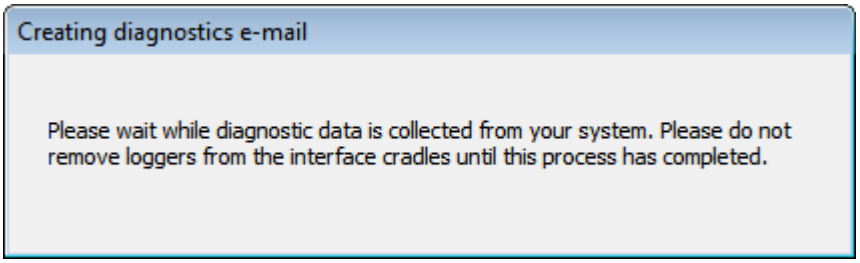
- operating system version,
- LogTag® Analyzer version information,
- storage folders,
- installed languages,
- temporary folders

and put it into a file called **Diagnostics.txt**.

The software will also create a special download file of any USB recorder and any recorder or indicator in an interface attached to the PC. These file(s) will have a *.ltm file extension (**L**ogger **T**otal **M**emory), which can only be viewed with special diagnostic software by LogTag® Recorders, but not with LogTag® Analyzer software.

All information collected will be combined into a Zip file and stored in a folder called **Diagnostics** inside your My LogTag Documents folder.

While the software is collecting this information, the following message is displayed:



It is important you do not remove any recorders during this process.

LogTag® Analyzer will then start your default email program and attach this information.

In the email please also include as much detailed information as possible about the problem, such as what you were doing at the time, or what application the product is used in. If needed, create a screen shot of the problem (ALT-PRTSC) and paste it into the email (CTRL-V).

If you use an online email program such as Gmail or Outlook.com, or you only have a 64-bit email program installed, please send an email to mailto:support@logtagrecorders.com, use the word

"Diagnostics" as the subject line and attach the Zip file from the My LogTag Documents\Diagnostics folder to this email.

Note: When you click **Request help...** from the Help Menu again, any existing files in the Diagnostics folder will automatically be deleted.

Finding your software version

Each time LogTag® Analyzer is updated, its version number increases. To find out which version you are using, click **About LogTag Analyzer...** from the Help Menu to display this message:

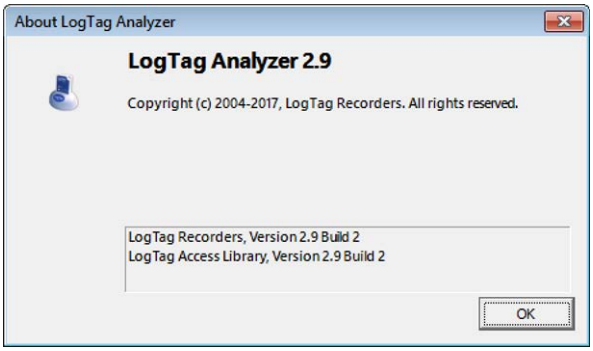
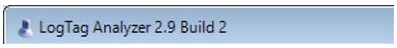


Figure 132: About LogTag® Analyzer

This window displays the full version number of the software being used. You may need the version number to compare versions on different computers or to ask for help.

You can also find major and minor version of LogTag® Analyzer in the title bar:



Chapter 9

Appendix

In this chapter:

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Troubleshooting 185
Code Pages 185

Connecting to LogTag® User Server

To use Digital Signatures, LogTag® Analyzer must be connected to the LogTag® User Server software. When connected, all users are required to log on to LogTag® Analyzer before they can use the software. To find out how to connect LogTag® Analyzer to User Server please see User Server

How users log on

For users to successfully log on to the software, they must enter their username and password, which the User Server administrator would have assigned.

Usernames are typically not case sensitive, however passwords are, which means that "Bob Smith" is the same username as "BOB SMITH" and "bob smith", however, entering a password of "bob" rather than "Bob", for example, is considered to be different.

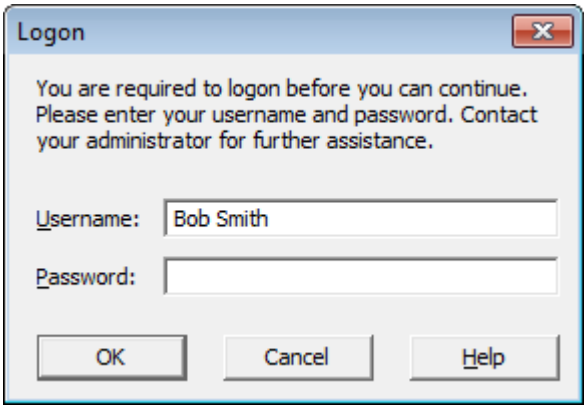

Figure 133: Logon request when connected to User Server

Every log on attempt, whether successful or not, will be recorded automatically in the audit logs. As a security measure, the network administrator may configure LogTag® User Server so that a user account becomes blocked after a certain number of consecutive failed log on attempts. Please contact your network administrator if you have problems with the log-on process.

How users change their password

The network administrator may permit users to change their password used to log on to the software. Users will need to supply their current logon password before being permitted to change it, then the new password and a confirmation.

The network administrator may enforce certain password rules. For example, they may require a minimum number of characters (digits, letters or symbols) and/or a minimum number of digits to be included in the password. Please contact your network administrator if you have problems with the password change process.

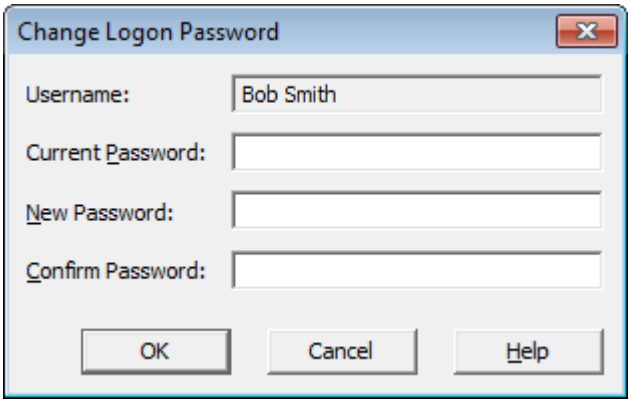

Figure 134: Changing a User Server password

Passwords should be chosen so they are difficult for someone else to guess. Following are a few points to remember when changing a password:

1. Do not use something that is personal to the user. Birth dates, license plate numbers, names of family members, types of vehicles owned, favorite foods and address of residence are all examples of passwords that should NOT be used.
2. Do not write your password down.
3. Change your password on a regular basis.

If users forget their password, the network administrator will be able to change it. However, network administrators will not be able to see and therefore inform users what their current password is.

Troubleshooting

For tips on troubleshooting please visit the FAQ on the LogTag® Recorders website at http://logtagrecorders.com/support/faq. This site is regularly updated and contains the latest information on how to deal with issues that might occur.

Code Pages

A computer determines which character to display based on a table of values, which is specific to a language. This table is often referred to as the code page.

A small number of characters are independent of a computer's input language. These are '1-9', 'a-z', 'A-Z' and some special characters.

SP 0020	! 0021	" 0022	# 0023	$ 0024	% 0025	& 0026	' 0027	(0028	) 0029	* 002A	+ 002B	, 002C	- 002D	. 002E	/ 002F
0 0030	1 0031	2 0032	3 0033	4 0034	5 0035	6 0036	7 0037	8 0038	9 0039	: 003A	; 003B	< 003C	= 003D	> 003E	? 003F
@ 0040	A 0041	B 0042	C 0043	D 0044	E 0045	F 0046	G 0047	H 0048	I 0049	J 004A	K 004B	L 004C	M 004D	N 004E	O 004F
P 0050	Q 0051	R 0052	S 0053	T 0054	U 0055	V 0056	W 0057	X 0058	Y 0059	Z 005A	[005B	\ 005C	] 005D	^ 005E	_ 005F
` 0060	a 0061	b 0062	c 0063	d 0064	e 0065	f 0066	g 0067	h 0068	i 0069	j 006A	k 006B	l 006C	m 006D	n 006E	o 006F
p 0070	q 0071	r 0072	s 0073	t 0074	u 0075	v 0076	w 0077	x 0078	y 0079	z 007A	{ 007B	| 007C	} 007D	~ 007E	DEL 007F

Figure 135: ASCII Table of printable characters

An additional 128 characters are available, which are specific to each code page. The following examples show for example the differences between the available characters for the Latin and Thai code pages.

€ 20AC		‚ 201A		„ 201E	… 2026	† 2020	‡ 2021		‰ 2030	Š 0160	‹ 2039	Ś 015A	Ť 0164	Ž 017D	Ź 0179
	‘ 2018	’ 2019	“ 201C	” 201D	• 2022	– 2013	— 2014		™ 2122	š 0161	› 203A	ś 015B	ť 0165	ž 017E	ź 017A
NBSP 00A0	ˇ 02C7	˘ 02D8	Ł 0141	¤ 00A4	Ą 0104	¦ 00A6	§ 00A7	¨ 00A8	© 00A9	Ş 015E	« 00AB	¬ 00AC	- 00AD	® 00AE	Ż 017B
° 00B0	± 00B1	˛ 02DB	ł 0142	´ 00B4	µ 00B5	¶ 00B6	· 00B7	¸ 00B8	ą 0105	ş 015F	» 00BB	Ľ 013D	˝ 02DD	ľ 013E	ż 017C
Ŕ 0154	Á 00C1	Â 00C2	Ă 0102	Ä 00C4	Ĺ 0139	Ć 0106	Ç 00C7	Č 010C	É 00C9	Ę 0118	Ë 00CB	Ě 011A	Í 00CD	Î 00CE	Ď 010E
Đ 0110	Ń 0143	Ň 0147	Ó 00D3	Ô 00D4	Ő 0150	Ö 00D6	× 00D7	Ř 0158	Ů 016E	Ú 00DA	Ű 0170	Ü 00DC	Ý 00DD	Ţ 0162	ß 00DF
ŕ 0155	á 00E1	â 00E2	ă 0103	ä 00E4	ĺ 013A	ć 0107	ç 00E7	č 010D	é 00E9	ę 0119	ë 00EB	ě 011B	í 00ED	î 00EE	ď 010F
đ 0111	ń 0144	ň 0148	ó 00F3	ô 00F4	ő 0151	ö 00F6	÷ 00F7	ř 0159	ů 016F	ú 00FA	ű 0171	ü 00FC	ý 00FD	ţ 0163	˙ 02D9

Figure 136: Code page 1252, Western languages

€ 20AC					… 2026										
	‘ 2018	’ 2019	“ 201C	” 201D	• 2022	– 2013	— 2014								
NBSP 00A0	ก 0E01	ข 0E02	ฃ 0E03	ค 0E04	ฅ 0E05	ฆ 0E06	ง 0E07	จ 0E08	ฉ 0E09	ช 0E0A	ซ 0E0B	ฌ 0E0C	ญ 0E0D	ฎ 0E0E	ฏ 0E0F
ฐ 0E10	ฑ 0E11	ฒ 0E12	ณ 0E13	ด 0E14	ต 0E15	ถ 0E16	ท 0E17	ธ 0E18	น 0E19	บ 0E1A	ป 0E1B	ผ 0E1C	ฝ 0E1D	พ 0E1E	ฟ 0E1F
ภ 0E20	ม 0E21	ย 0E22	ร 0E23	ฤ 0E24	ล 0E25	ฦ 0E26	ว 0E27	ศ 0E28	ษ 0E29	ส 0E2A	ห 0E2B	ฬ 0E2C	อ 0E2D	ฮ 0E2E	ฯ 0E2F
ะ 0E30	ั 0E31	า 0E32	ำ 0E33	ิ 0E34	ี 0E35	ึ 0E36	ื 0E37	ุ 0E38	ู 0E39	ฺ 0E3A					฿ 0E3F
เ 0E40	แ 0E41	โ 0E42	ใ 0E43	ไ 0E44	ๅ 0E45	ๆ 0E46	็ 0E47	่ 0E48	้ 0E49	๊ 0E4A	๋ 0E4B	์ 0E4C	ํ 0E4D	๎ 0E4E	๏ 0E4F
๐ 0E50	๑ 0E51	๒ 0E52	๓ 0E53	๔ 0E54	๕ 0E55	๖ 0E56	๗ 0E57	๘ 0E58	๙ 0E59	๚ 0E5A	๛ 0E5B				

Figure 137: Code page 847, Thai language

In LogTag® Analyzer password and user ID fields are text entry fields. The code page is used to determine the characters LogTag® Analyzer displays on screen and stores inside a recorder. Which code page is selected depends on which input language you have selected for your computer. When the LogTag® is downloaded in a different country, the user ID is displayed with the characters from the code page who's reference is stored in the recorder. This is possible because all Windows code pages get installed as part of the operating system installation for all operating systems supported by LogTag® Analyzer, although only one is used at a time to display characters.

Passwords are always displayed with the asterisk character, but you will need to type them into a confirmation dialogue (especially if the password on download feature is enabled). You can use the Windows character map to enter characters that are not available in your language. To access the Windows character map, enter **charmap.exe** in the "Search" or "Run" box of the Start menu, depending on your operating system, and press **Enter**.

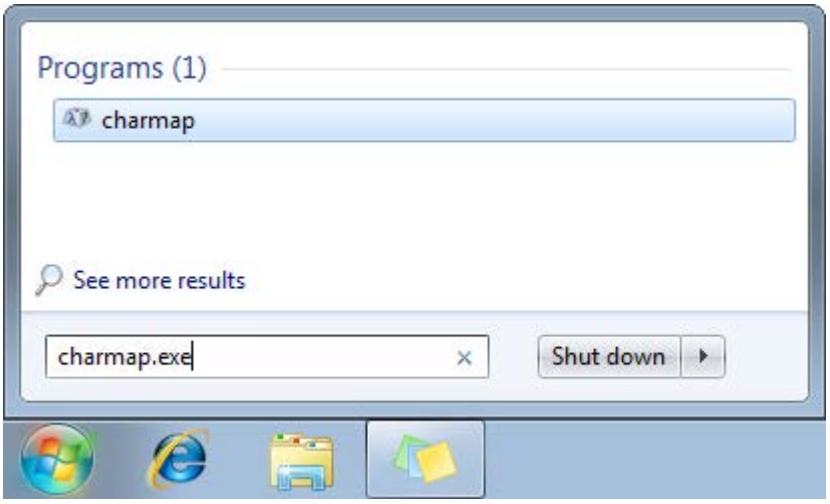

Figure 138: Accessing charmap.exe on Windows 7

Some code pages make more than these extra 128 characters available, but this requires more storage in the recorder's memory, which reduces the number of characters available for password and user ID. These languages are Chinese (Traditional), Chinese (Simplified), Korean and Japanese. For every character not in the ASCII character table on page 185 the number of characters that can be stored is reduced by one. This means a password can be as short as 3 characters, and a description as short as 19 characters (or 18 characters for a TRID30-7 or TRED30-7). The sample below shows the extended character overview and a character subset.

	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F
	。 FF61	「 FF62	」 FF63	、 FF64	・ FF65	ヲ FF66	ァ FF67	ィ FF68	ゥ FF69	ェ FF6A	ォ FF6B	ャ FF6C	ュ FF6D	ョ FF6E	ッ FF6F
ー FF70	ア FF71	イ FF72	ウ FF73	エ FF74	オ FF75	カ FF76	キ FF77	ク FF78	ケ FF79	コ FF7A	サ FF7B	シ FF7C	ス FF7D	セ FF7E	ソ FF7F
タ FF80	チ FF81	ツ FF82	テ FF83	ト FF84	ナ FF85	ニ FF86	ヌ FF87	ネ FF88	ノ FF89	ハ FF8A	ヒ FF8B	フ FF8C	ヘ FF8D	ホ FF8E	マ FF8F
ミ FF90	ム FF91	メ FF92	モ FF93	ヤ FF94	ユ FF95	ヨ FF96	ラ FF97	リ FF98	ル FF99	レ FF9A	ロ FF9B	ワ FF9C	ン FF9D	ﾞ FF9E	ﾟ FF9F
E0	E1	E2	E3	E4	E5	E6	E7	E8	E9	EA	EB	EC	ED	EE	EF
F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC			

Figure 139: Code page 932, Japanese language

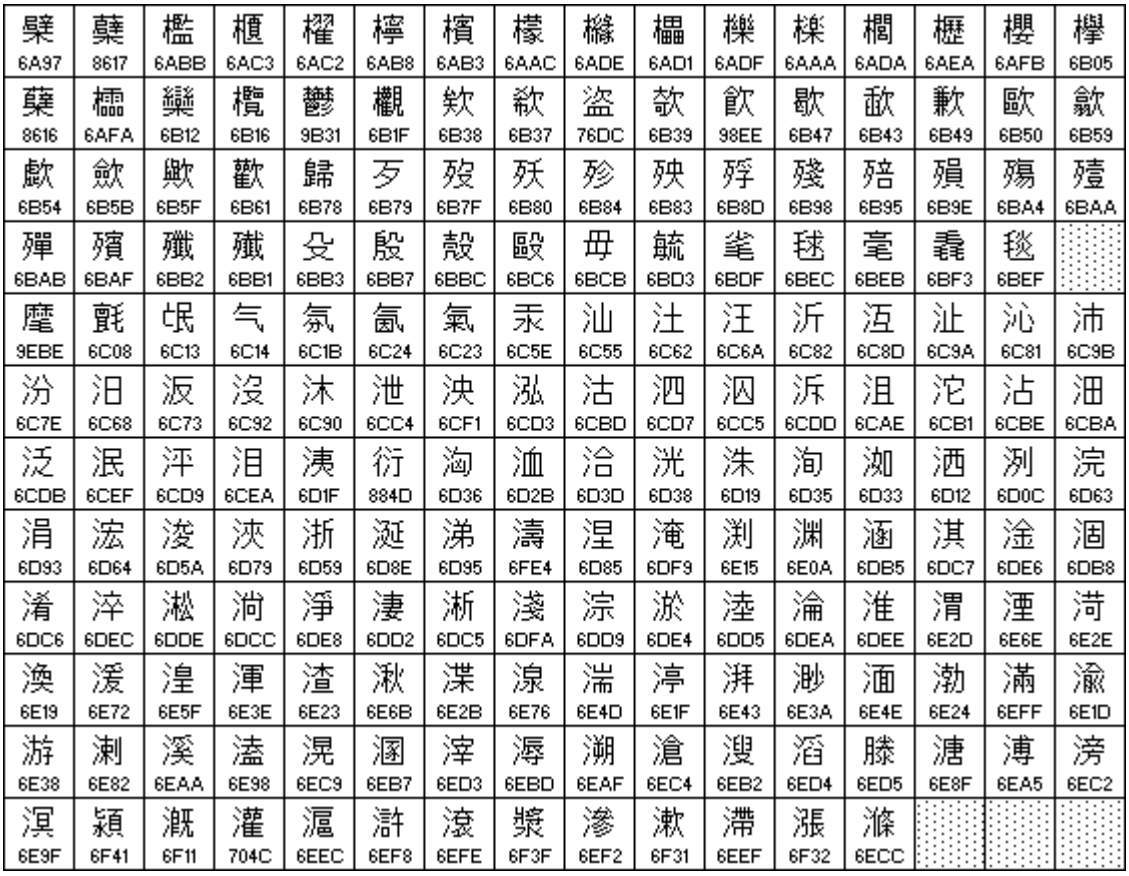

Figure 140: Code page 932, Japanese language, subset 91

You can find more information about the history and technical background of code pages via a number of online references.

Note: Although you can use the Windows character map to confirm a password on download, you cannot enter characters as a new password or description that are not available in your chosen input language with this method. If you want to use different characters you must switch the input language of your computer. Please refer to the instructions relating to your specific operating system how to do this.

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