LogTag®
Analyzer

User Guide

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An icon or menu in gray color cannot be clicked and its function is not available at this time.

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Text like this gives you tips on how to simplify tasks and how to get extra information.

Text like this highlights notes and key information that you should be aware of.

Text like this shows important information about issues that could cause you to inadvertently lose data.

Text in this font refers to features, tabs or dialogue boxes.

Links or references to other part in this document appear like this.

Links to external web pages appear in this format.

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Chapter 1
Introduction

LogTag Analyzer version 3 is the latest LogTag® software, using Microsoft's .NET technology.

It will allow easier integration into third-party developments and enables a path for supporting modern operating systems and multiple computing platforms in the future, such as Linux or macOS.

If you are familiar with LogTag Analyzer version 2.x, you will find it easy to make the transition to version 3.x. There are a few new concepts, which you can find by browsing the pages in this User Guide. The main differences are listed in the introductory guide What's new in LogTag Analyzer 3, available from https://logtag.com.

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 analyze the data
- configure the available options in the software so you can make best use of its features.

If you are an experienced users of a previous versions, you may skip some of the early chapters. If, however, you are about to use a newer version of a LogTag® product or Interface Cradle we recommend you at least skim the installation chapter for any relevant changes.

This guide covers version 3.2 release 5 of the LogTag Analyzer software. If you are unsure which version you are currently using, please read the section about Finding your software version on page 23.

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 Upgrading LogTag Analyzer on page 24. You can always get the most up to date version of LogTag Analyzer from the LogTag North America Inc website at https://logtag.com.

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

The LogTag® Recording System

LogTag North America Inc offer a range of logger 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 North America Inc offer a variety of different models. The product range is constantly being updated and new models added, so visit the LogTag Website at https://logtag.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 reach their intended destination.

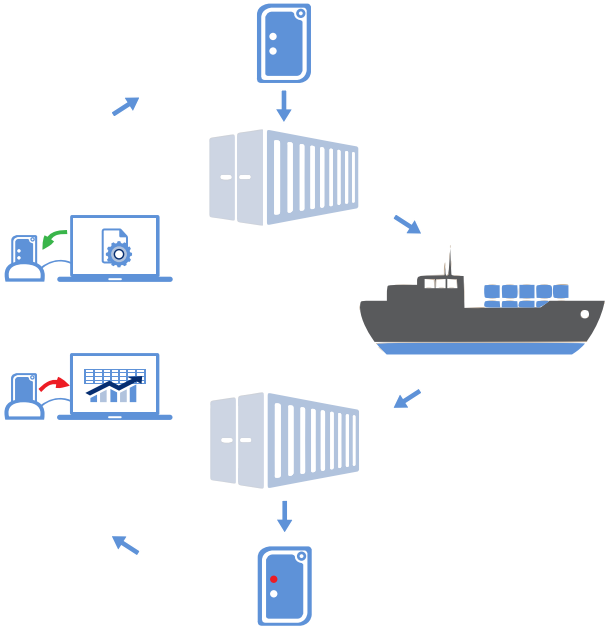


Figure 1: Typical distribution process using loggers

Other applications may involve stationary loggers placed in warehouses or fridges, such as the vaxtag®, as can be seen here.

Figure 2: Example of a stationary loggers application

Loggers

LogTag® temperature and humidity logger 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 each product visit the LogTag North America Inc website at https://logtagrecorders.com/product-range/.

Figure 3: Some of the LogTag® logger products

Probes

LogTag North America offer a range of probes featuring different tips and different lead lengths. The blue-sleeved probes from the ST100 family are used with standard external-probe temperature loggers, while green-sleeved ST10 probes complement the range of low-temperature loggers.

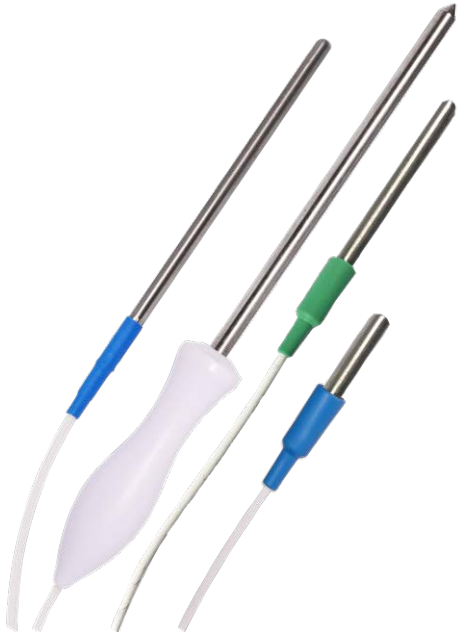


Figure 4: Selection of external probes for LogTag® loggers

Smart Probes are the latest addition to the range, and can be used with select external loggers, such as the latest generation of UTRED30-WiFi and TRED30-16CP loggers. These probes can be calibrated independent of the logger, reducing down time as the probes can simply be swapped without the need to return the logger for calibration.

Figure 5: Smart Probe model CP100

Software

Loggers are downloaded using the LogTag Analyzer software, which is also used to configure loggers. This User Guide explains in detail how to configure and download loggers, how to customize the settings and how to analyze and share the data.

Interfaces

Unless your product is one of the USB Loggers you will need an interface to communicate between the logger and the computer.

Most products use the standard interface cradle, where the LogTag® logger 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® unit. When inserting a LogTag® logger into the slot you feel a slight resistance as the contacts engage. Removing the logger will cause a slight clicking noise as the contacts snap back into their unloaded position.

New in 2018, the LTI-HID is the next generation USB interface that can be installed without requiring a proprietary driver. It also features two indicators at the top (red & green), which identify what actions the interface is currently performing.

Figure 6: TRED30 in standard USB interface cradle LTI/USB

Figure 7: LogTag® USB Interface LTI-HID

Installing the software

To use your LogTag® products you need to install LogTag Analyzer on your computer. This will allow preparing your LogTag® devices for recording, downloading, analyzing and sharing the data.

Experienced users may choose to skip this chapter. You should read it, however, if you are new to using a computer or installing software.

System requirements

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

- PC capable of running Windows® 8 or later, or Windows® Server 2008 R2 SP1 or later. Although you may be able to install the software on earlier operating systems by installing some of the prerequisites manually, only operating systems currently supported by Microsoft should be considered for installing LogTag Analyzer.
- Operating System must support .NET version 4.7.2[1]
- 180MB free disk space (plus 2.5GB if .NET is not yet installed)
- Internet Explorer 8.0 or later
- 1 available USB port to connect an interface or USB logger
- 1366 x 768, or higher, screen resolution[2]
- 65535 screen colors

If you wish to use LogTag® Online with LogTag Analyzer you will also need a supported browser and an internet connection, please refer to the LogTag® Online help file available from https://logtagonline.com/support.

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

macOS and Linux

There are no native applications for these operating systems. Both Linux and macOS offer several virtualization options, though, which allow you to run Windows software.

Linux offers Virtualbox or QEMU virtualization software, which are both free.

You can use several commercial virtualization programs on macOS, on both Intel86 and ARM based MAC's. VMWare Fusion and Parallels Desktop are both paid solutions, with VMWare also offering a free tier. A free option is also available (UTM, based on QEMU), but is not as easy to set up as the

[1] LogTag Analyzer cannot be installed on Windows 10 versions prior to 1607 as these do not support .NET version 4.7.2.

[2] Note that LogTag Analyzer works best if the operating system's display magnification has been set to 100%. When using a laptop in combination with an external screen, please ensure magnification for both is set to the same value.

paid versions. At the time the user guide is published, Virtualbox is available for Intel86 based computers, but not for ARM based M1 and M2 devices. Generally, all virtualization solutions have been tested and work well.

If you run either of those operating systems, please discuss the best option with your network administrator or contact our support.

.NET Framework

LogTag Analyzer version 3 is designed around Microsoft's .NET 4.7.2 framework. To install and run LogTag Analyzer you need a PC with at least a Windows 7 operating system.

The .NET framework 4.7.2 will likely be installed on most PCs, which had regular updates applied via Windows Update. On some PC's with Windows 7 Microsoft's .NET 4.7.2 Framework will need to be installed. The LogTag Analyzer Installer can determine the presence of the framework and will automatically download the framework directly from Microsoft, if it is not already present on the PC. In this case your PC will need to be connected to the internet to successfully complete the installation. This installation method will be suitable for single PC installations.

If you wish to install this version on more than one computer without .NET 4.7.2, you can download a standalone installer directly from Microsoft from this link: .NET Framework Offline Installer (external link)

Getting a copy of the software

The software can be download from the from the LogTag North America Inc website; navigate to logtagrecorders.com/software and click the LogTag Analyzer 3 link. Complete the registration details and click Download.

LogTag Analyzer is available for download in a number of different formats:

- ltanalyzer_32r5.exe

  This is a single executable installer file and the most popular option; no other files are required for installation of LogTag Analyzer software on your computer.
- ltanalyzer_32r5.msi

  This file is used by Network Administrators – it requires additional files and is best suited when distributing the software remotely to a number of PC's.
- ltanalyzer_32r5.zip

  You can download a zipped version of the file, which has a smaller download size. You will need an unzipping tool such as Unzip® to extract the single executable installer.
- ltanalyzer_32r5.iso (on request)

  The ISO file can be used to generate a CD, if you need to distribute the software to PC's without a network connection.

Click on the desired download link. Depending on the type of browser and its version you may get different windows to start and process the download. Modern browsers like Edge, Internet Explorer, Google Chrome or Mozilla Firefox typically have a special directory into which all downloads are copied, but you can also select your own.

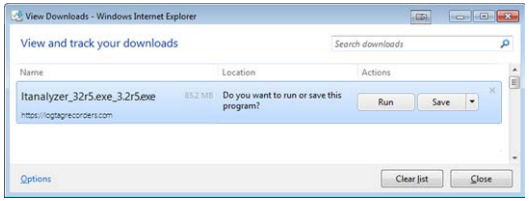


Figure 9: Downloading using Internet Explorer

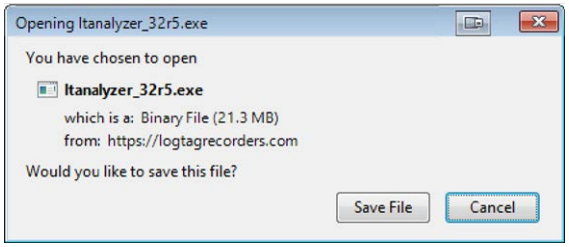


Figure 10: Download Window – Mozilla Firefox

LogTag North America Inc 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 web page. Please refer to the LogTag Analyzer Software License (on page 8).

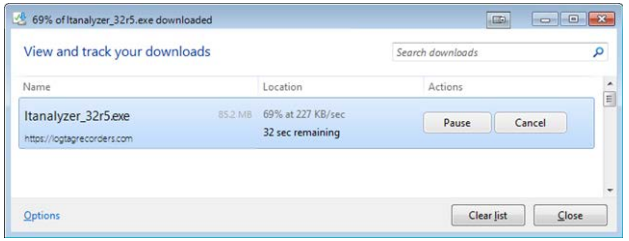


Figure 11: Download progress using IE

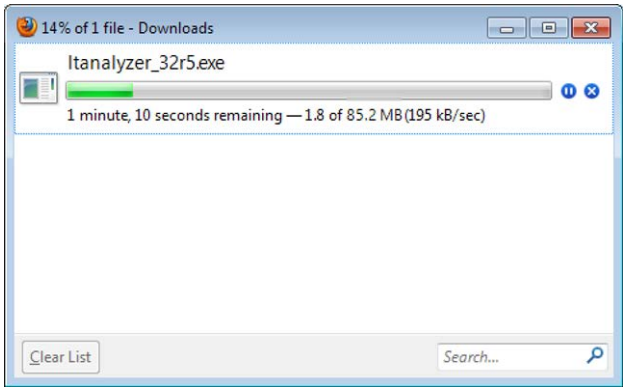


Figure 12: Download progress using Firefox

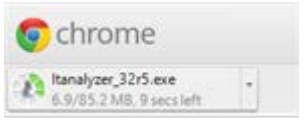


Figure 13: Download progress using Chrome

The installation process

You will require local administrator permissions for the PC on which you are installing LogTag Analyzer.

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).

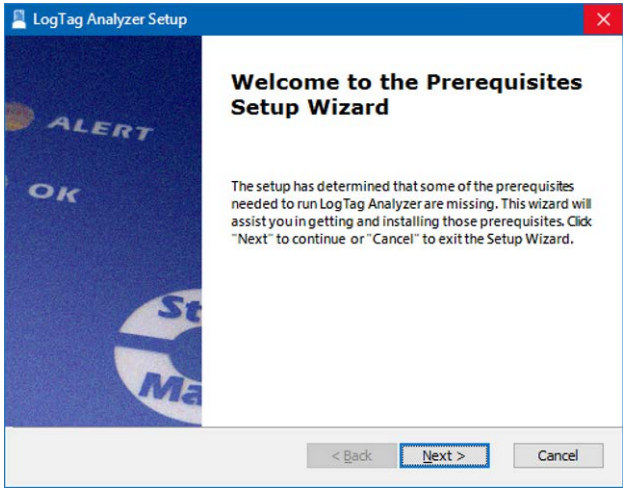
To proceed through each step of the installation process, click Next. If you want to change a previous step you can click Back. At any stage during the process, if you want to stop installing the software, click Cancel.

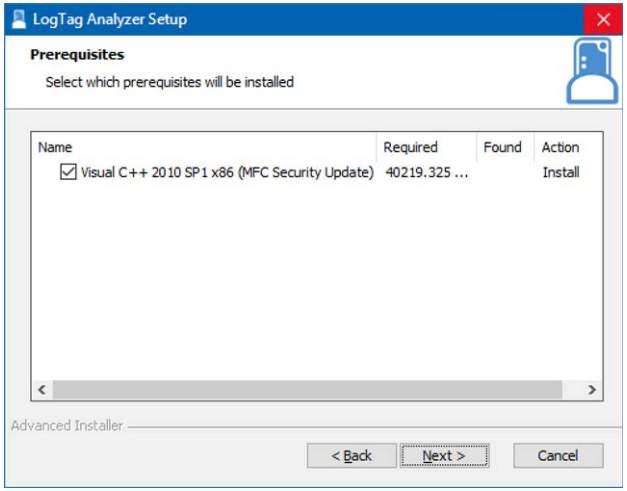
1. Select the installer language

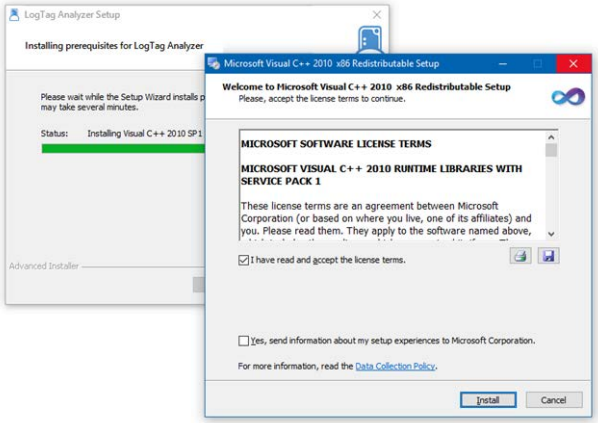
2. The software now checks that all prerequisite software packages are present. These include the .NET framework and the Visual C++ runtime libraries redistributable package.

   The .NET framework is included in all supported operating systems which are up to date with the latest updates. If not, you will be asked to download and install the framework, as it is not included in the installer package.

   The Visual C++ runtime libraries may already be installed, as they are used for many other commercial software. They are included in the installer package, and you will be asked to permit their installation, otherwise the installer will abort.

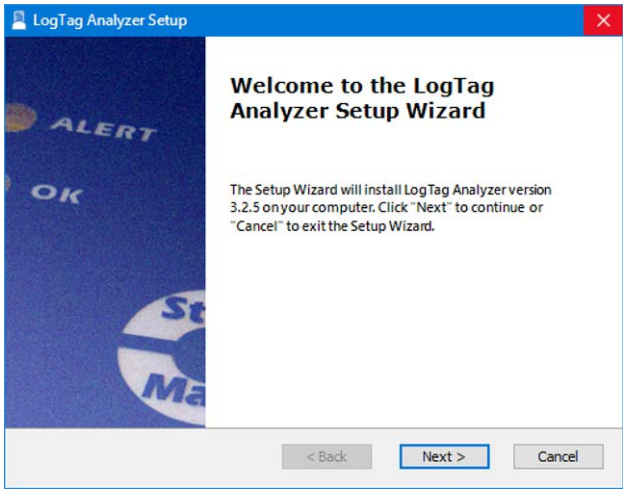




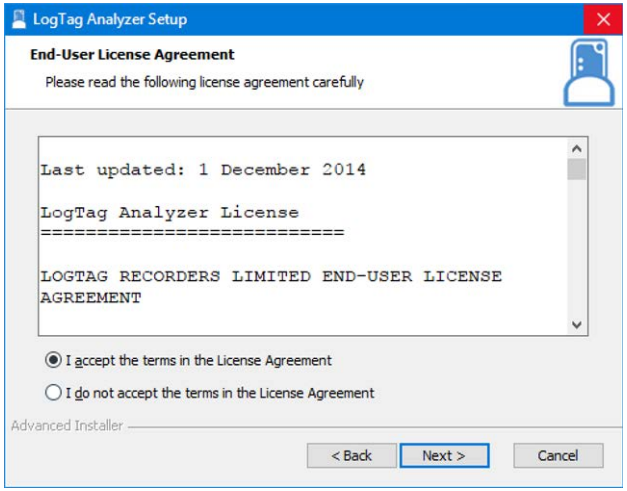


Once the installation is complete, click Finish and continue with the installation of LogTag Analyzer.

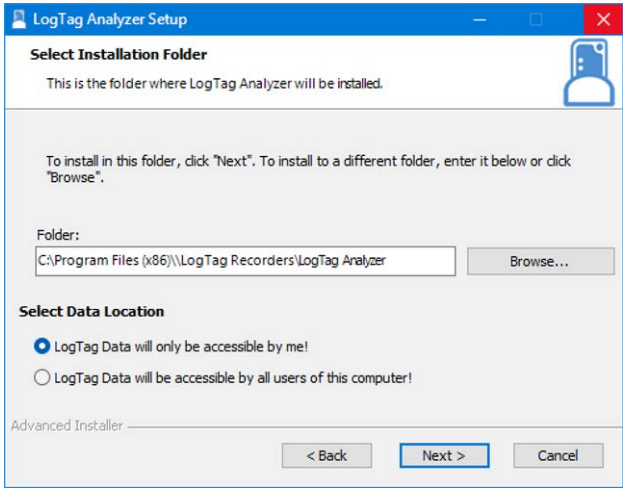
3. Accept the Welcome screen by clicking Next.



4. Accept the End-User License Agreement and click Next



5. Select the installation folder. You can type a folder name or browse to an existing folder. If the folder does not exist, it will be created for you.

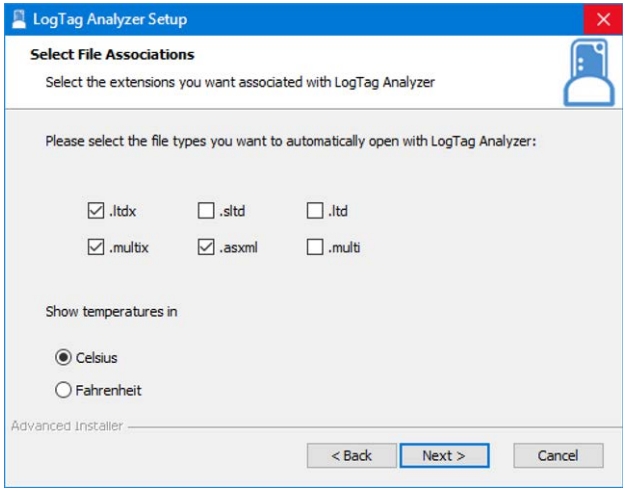


You can change the document storage location in LogTag Analyzer 's option settings once you have started the program, but you cannot change the program location. We recommend you leave all options at their default setting, especially if you are unsure of what option to select or what effects changing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

You can also select where you want the downloaded data from loggers to be stored. If you select LogTag Data will only be accessible by me, the default folder will be created in your Documents folder, and other users of the same PC will not have access to the data.

If you select LogTag Data will be accelerate by all users of this computer, this file location will be created in the Public Documents folder.

6. Select, which files you wish to associate with LogTag Analyzer (these files will, for example, automatically open in LogTag Analyzer when you double-click them in Windows Explorer).



- If you are installing LogTag Analyzer for the first time we suggest you select all file types.
- If you are upgrading from version 2, and you do not wish to use version 2 any longer, you should also select all file types.
- If you are upgrading from version 2, and you are planning on operating both versions, you can decide if you wish to associate the files in the right column with the new version (select those file types) or leave them associated with the older version (clear those file types).

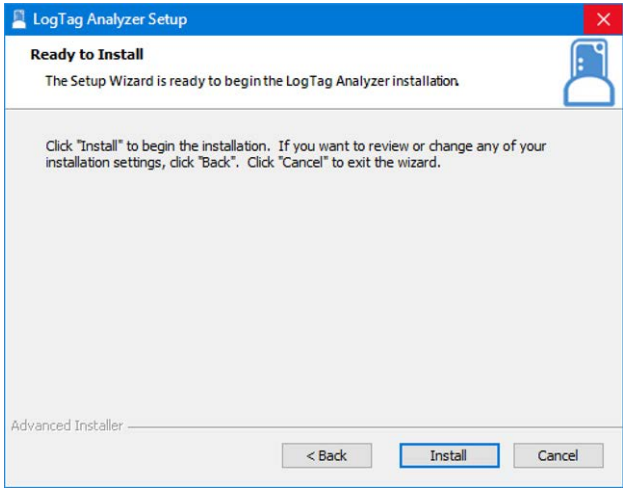
You can change this later by right-clicking a file, and clicking **Open with**.

During the first installation, you can also select the default temperature units to be either °C or °F.

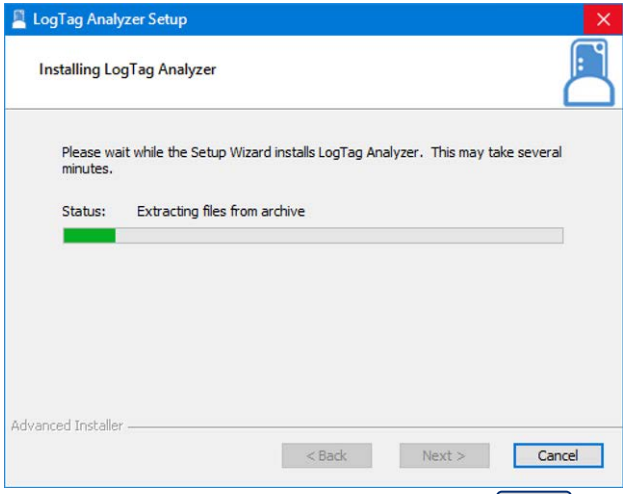
Again, you can change this later in "General Settings".

Click Next once you have made your selection.

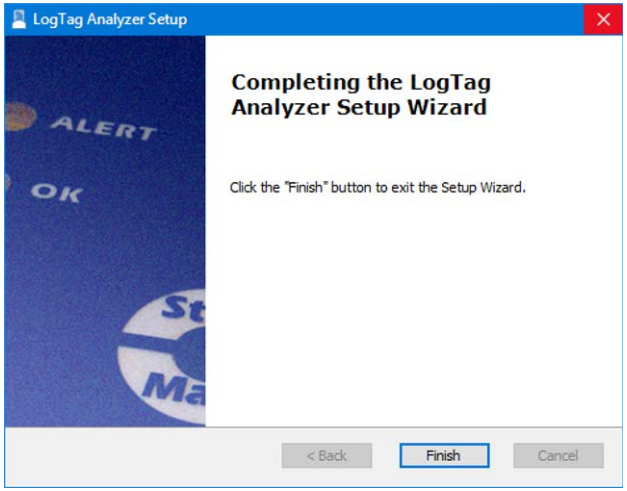
7. The installer now has all the information and is ready to proceed. Click Install to start the installation.



8. The installer is copying the required files to your PC.



9. When the installation is complete, click Finish to exit the installer program.



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 North America Inc. 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 Upgrading LogTag Analyzer on page 24).

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

Finding your software version

Click About LogTag Analyzer...from the Help Menu to display the About window.

This window displays the full version number of the software being used. You can use this to check if the same software version is installed on multiple computers or to find out which user guide to use.

When the software is updated, the version number of the software is increased.

You can also find major and minor version of LogTag Analyzer in the title bar:

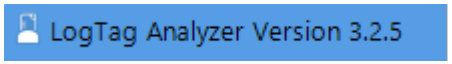


Figure 14: About LogTag Analyzer

Upgrading LogTag Analyzer

LogTag North America Inc will publish updates to LogTag Analyzer to introduce new or enhanced features, or to support new LogTag® models. LogTag North America Inc recommend that you always use the latest version of the software.

When you first install LogTag Analyzer, the Automatic Updates function is enabled, which means you will automatically be notified when an update is available. When the notification is displayed, you can choose whether or not you wish to download and update the software at this stage.

If you have disabled the automatic update function you can still get updates via the **Help** menu by clicking **Check Internet for updates**. Neither of these two options will transmit any information about you or your system to LogTag North America Inc, so you can rest assured your privacy is maintained.

To download the update click Download. The download progress will be displayed and you will be notified when it is complete.

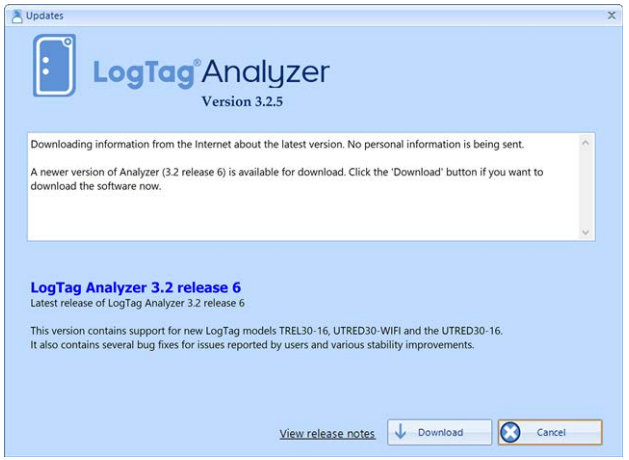


Figure 15: Checking for a software update

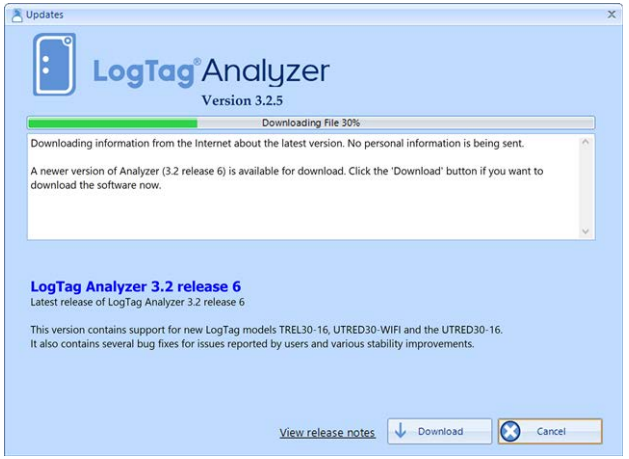


Figure 16: Downloading the Update

Click Install when the file has finished downloading and follow the on-screen instructions.

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. You may, however, need to check any shortcuts to the program you made yourself, as the location of the program files can change.

If you are unable to use either update option on the previous page you can download an upgrade installer file from the LogTag North America Inc website. We recommend you register your email address on the Software download page so you can be notified by email when an update is available. If a newer version is available, you can download the updated version of the installer file to your PC and then proceed with the installation process. The older version of the software will be replaced with the new version.

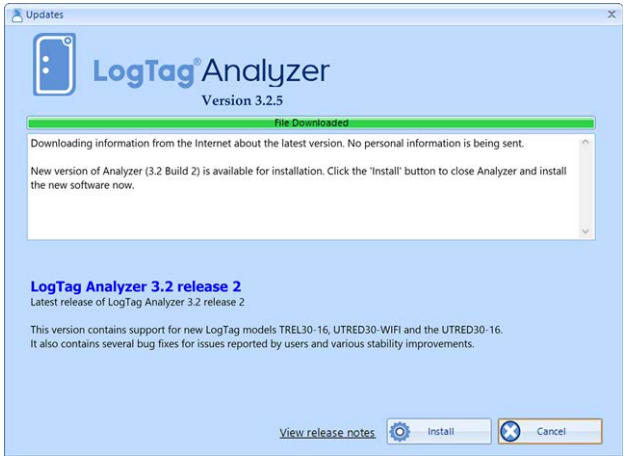


Figure 17: Ready to install

Migrating from LogTag Analyzer Version 2

LogTag Analyzer 3 can be installed on any computer that has LogTag Analyzer 2 already installed. There is, however, no option to cross-upgrade from version 2 to version 3 using an automated upgrade function. Instead, if you are currently using version 2 and you wish to upgrade to version 3, you must download the standard software installer package from our website and use the standard installation process as described in Installing the software (on page 15).

LogTag Analyzer 2 will not be uninstalled as part of this process and can still be used, even after LogTag Analyzer 3 is installed. New shortcuts will be created on the desktop for version 3 alongside those for version 2.

When you run the new version 3 for the very first time, any settings you have made in version 2 will be transferred to version 3 (with a few small exceptions). After that initial transfer, you can use either version independently of each other. Settings made in one version will not affect the other (for example, you could change the displayed temperature units so one version shows °C, the other °F). You can also update both versions independently of each other. The installation folder and shortcuts by default are different between the two versions.

Due to the nature of some of the features, you will need to migrate some of the settings manually:

- The User Server settings will not be transferred when you first install LogTag Analyzer 3. You can, however, export the settings from LogTag Analyzer 2 when you are logged in, then import the settings into LogTag Analyzer 3.
- FTP and SMTP settings are transferred, however, you will need to re-enter the credentials for these services. You will receive a warning when you first start the program.

Chapter 2

Using LogTag Analyzer

This chapter explain in detail how to use the software to configure and download loggers, how to analyze the results and how to share them with other users.

The User Interface 28
Initial Set-up 46
Advanced Set-up 46
Connecting the Interface 47
Configuring a LogTag® product for recording 48

The User Interface

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

You can find more information about the different areas here:

- Information about Menu commands on page 31
- Information about Toolbar commands on page 40
- Information about The Status Bar on page 43

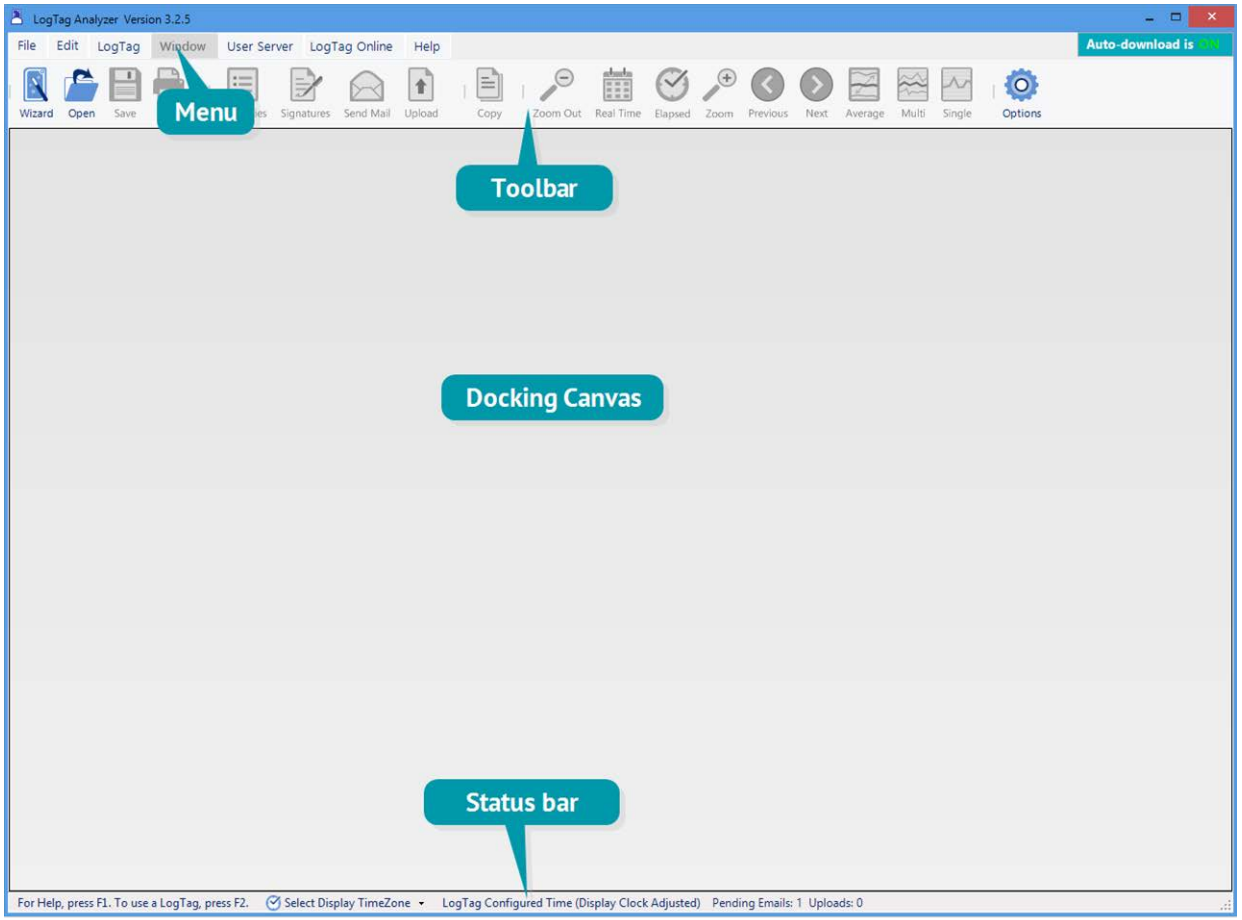


Figure 18: The workspace

When you open a file, it completely fills the docking canvas.

You can now zoom in and out, show and hide various elements of the chart, view the information in different forms and save or export the file to different formats

When you open additional files, they each open in a new file window tab.

Clicking a tab displays the corresponding file window. The window's title bar shows the full file title, while the tab may only show abbreviated information, depending on how many files are open.

File windows are initially **docked**, which means they are attached to the canvas. When they are docked, they move with the main program window. File windows can also be **floating**, which means you can move them anywhere on your PC's screen, even outside the program window and on to a second screen. To float a docked window, simply click and hold the file's tab, and drag it downwards. You can now independently move and resize the window.

Figure 19: Workspace with two files open

This allows you to have multiple windows on your screen.

To re-dock a floating window, click and hold the file's title bar and drag it on top of any docking icon:

- Docks the window to the top of the canvas
- Docks the window to the bottom of the canvas
- Docks the window to the left of the canvas
- Docks the window to the right of the canvas
- Docks the window to the existing window tabs

You can also dock a file window to another floating window, and use the **Tile** function to display windows side by side, separated by a movable divider.

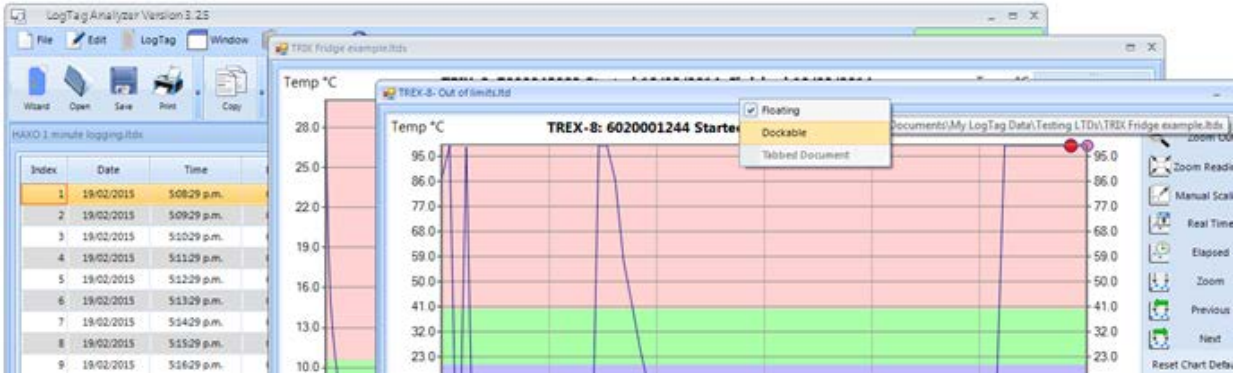


Figure 20: Multiple floating windows

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. The menu system contains lists of all the operations and commands that are available while using the software.

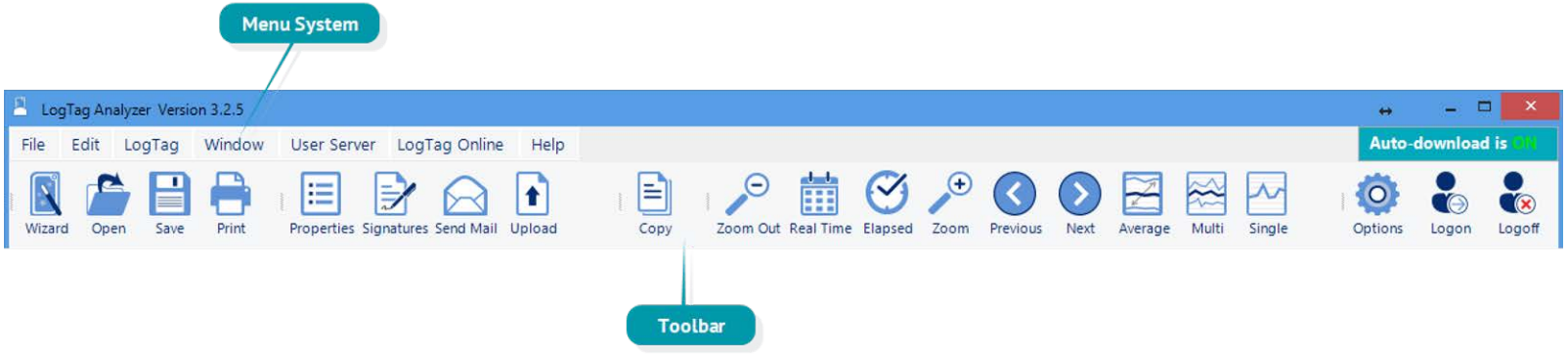


Figure 21: Menu and toolbar

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** (or pressing **ALT-F** on the keyboard), a menu similar to the one on the right appears.

The following table outlines the commands you can select along with a brief explanation. Some commands do not appear if no file is open.

Table 1: File menu - available commands

Command	Explanation
Open...	This will display the Open file dialogue, which will allow you to open files that were previously saved with any version of LogTag Analyzer, such as *.ltd, *.ltdx or *.sltd files and multi chart files such as *.multi or *.multix. Initially, the folder defined in Edit - Options - File and Folder Settings will be displayed. When you open a file after you browsed to a different location, LogTag Analyzer will remember this location for the next time you wish to open a file. If a multi chart file is selected, the LogTag Analyzer software will automatically show the opened file as a new multi chart (see Multi Charts (Combining Charts into a Single View) on page 111).
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 a different folder with the same or a different file name, in the same or a different file format .
Close	This will close the currently active file. You may be asked to confirm if you wish to save any changes, such as annotations or zoom settings. If no files are currently open this command will not be visible.
Upload	This will send an email with the currently active file attached to a list of recipients or upload the file to a ere-determined FTP site, as detailed in Sharing recorded data with others on page 138.
Print...	This will open a window allowing you to print the currently active window to a printer. This command is further explained in the section Printing the results on page 132.
Print All...	This will open a window allowing you to print all currently open windows to a printer. This command is further explained in the section Printing the results on page 132.
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.

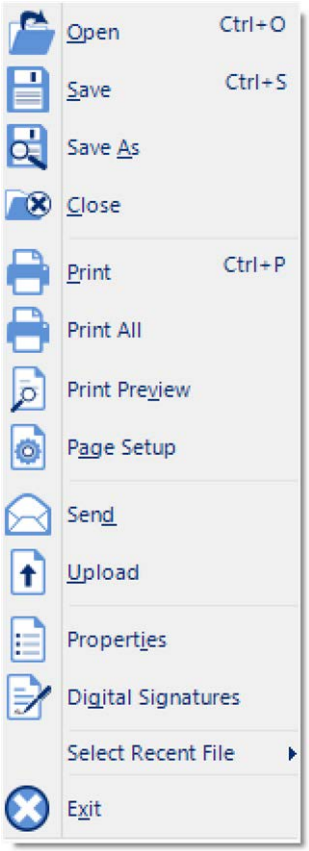


Figure 22: File menu

Command	Explanation
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.
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 directly from LogTag Analyzer on page 138.
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.
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. Further explanations can be found in the section about Digital signatures on page 95.
Select Recent File	This sub-menu, when clicked, shows a list of the most recent files you have viewed. This includes any files that were opened when you donwloaded a logger. To re-open one of these files, simply click the name of the file. The number of files included in this list can be adjusted in Edit - Options - File and Folder Settings.
Exit	This command will exit the LogTag Analyzer software. Any files currently open will be closed automatically. If a user is currently logged on to the User Server, the user will be automatically logged off.

Edit Menu

The following table outlines the commands you can select along with a brief explanation. Some commands do not appear if no file is open.

Table 2: 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. The **Copy** command behaves slightly differently for different tabs, please refer to the descriptions covering individual tabs for further details.
Zoom Out	This will undo the last zoom operation. If the chart is displaying all readings recorded, 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 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 on page 147.

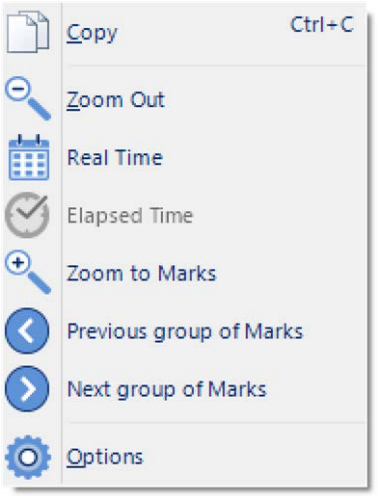


Figure 23: LogTag Analyzer Edit menu

LogTag® Menu

The LogTag menu contains commands for interaction with LogTag® products.

When you click **LogTag** (or press **ALT-L** on the keyboard), a menu similar to the one on the right appears. The following table outlines the commands you can select along with a brief explanation.

Table 3: LogTag menu - available commands

Command	Explanation
Configure	This will display a wizard to help you through the necessary steps to configure LogTag products for their next use. This command is explained in more detail in the chapter Configuring a LogTag® product for recording (on page 48).
Download	This will display a wizard to help you through the necessary steps to retrieve a copy of the readings stored inside the logger. This command is explained in further detail in the chapter Results from LogTag® Loggers (on page 92).
Hibernate	This will display a wizard to help you through the necessary steps to switch LogTag products to "Hibernation". This command is explained further in the chapter Hibernation - Prolonging battery life (on page 82).
Quick Re-configure	With this command you can re-configure a logger with the same settings as for the previous trip. This command is explained in further detail in the section Quickly re-configuring a LogTag® logger (on page 78)
Profiles	With this command you can configure a logger with a configuration profile previously created. This command is explained in further detail in the section about Configuration Profiles (on page 84).
Wizard...	This will display a wizard to help you through the necessary steps to retrieve a copy of the recorded readings stored inside a LogTag device and then prepare it for its next use. This command is explained in further detail in the chapter Configuring a LogTag® product for recording (on page 48).

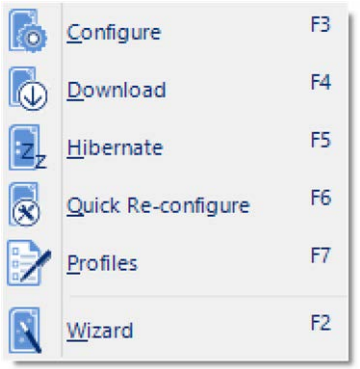


Figure 24: LogTag Menu

LogTag® Online Menu

The LogTag Online menu contains commands for interaction with the LogTag® web based storage and analysis portal, LogTag Online. You can find details about connecting LogTag Analyzer and LogTag Online in the section about Integrating LogTag Analyzer with LogTag Online. If you want to know more about LogTag Online and its features please go to https://logtagonline.com/support.

When you click LogTag Online (or press **ALT-O** on the keyboard), a menu similar to the one on the right appears. The following table outlines the commands you can select along with a brief explanation.

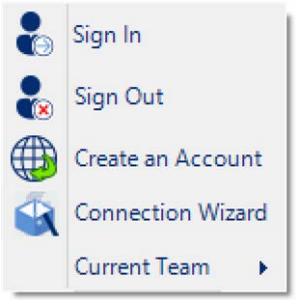


Figure 25: LogTag Online Menu

Table 4: LogTag Online menu - available commands

Command	Explanation
Sign In	This will display a dialogue where you can enter your user name and password for LogTag Online.
Sign Out	If you are signed into your LogTag Online account, you can sign out if you click this menu entry.
Create an Account	This will open your default browser and display a web page where you can create a new a LogTag Online account. For this, you will require internet access and an email address.
Connection Wizard	This will open the LogTag® Online Connection Wizard, which is used to configure the settings for WiFi enabled devices such as interfaces (LTI-WIFI and LTI-WM-WIFI) and real-time loggers (UTRED30-WIFI). The wizard is a stand-alone Windows app that will be installed together with LogTag Analyzer. You can find more information about the functionality of the LogTag® Online Connection Wizard in the wizard's online help. You can also access the Wizard from the Windows Start menu if LogTag Analyzer is not running,
Current Team	LogTag Online allows you to be a member of multiple teams, however, LogTag Analyzer can only be connected to one of the teams at any one time. You can choose which of your teams is connected by selecting its name in this menu entry. LogTag Analyzer will remember your team setting for the next time it is opened.

Window Menu

The Window menu contains commands that relate to the management of windows open in LogTag Analyzer, which display the contents of a LogTag® file.

Commands available in the Window menu:

Table 5: 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 file.
Close	Closes the currently selected window.
Close All	Closes all open windows.
Dock All	Maximizes all windows inside LogTag Analyzer's docking canvas, with a tab for each window.
Float All	Un-docks all windows, so they can be positioned freely around the computer monitor.
Current Windows	This sub-menu, when clicked, shows a list of the currently open windows. Click on an entry to bring the window to the front. If you want to change the currently selected window to one of the windows listed, just click/select the appropriate entry on this list.

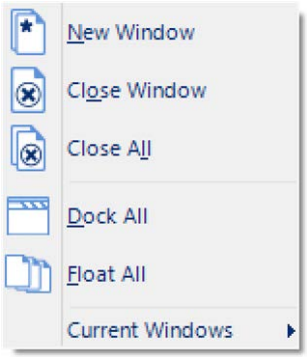


Figure 26: Window menu

User Server Menu

The User Server menu contains commands that allow you to log on and off. When clicking on User Server (or pressing ALT-U on the keyboard), a menu similar to the one one on the right appears.

The following table outlines the commands you can select along with a brief explanation. Some commands do not appear if no file is open.

Table 6: User Server menu - available commands

Command	Explanation
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 Analyzer software to connect to the User Server software.
User logoff	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 Analyzer software. This command will only be available if the Analyzer software is connected to the User Server software and the User Server administrator has granted the appropriate user permissions.
Settings...	This will open a window allowing you to enter the settings required to connect to or disconnect from LogTag® User Server.

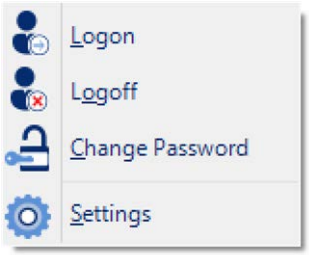


Figure 27: User Server menu

Help Menu

The Help menu contains commands that provide you with help and assistance when using the LogTag Analyzer software.

When clicking on Help (or pressing ALT-H on the keyboard), a help menu appears.

The following table outlines the commands you can select along with a brief explanation.

Table 7: 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 PDF viewing software (such as Acrobat Reader) that can read version 1.6 compliant PDF files to be installed on the computer.
LogTag® Home Page	This will open your default Internet browser software and display the LogTag North America Inc Internet site, https://logtag.com. This command requires that your computer be currently connected to the Internet to successfully display the LogTag North America Inc Internet site.
Request help	This will gather non personal information from your system to include in the email to be sent to software support at LogTag North America Inc, 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 on page 206.
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 Upgrading LogTag Analyzer on page 24.
About Analyzer	Display the version information for LogTag Analyzer.

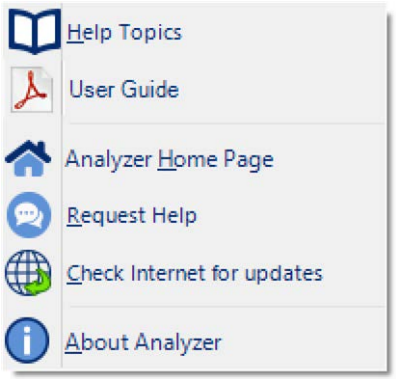


Figure 28: Help menu

Toolbar commands

The icons on the toolbar give you access to some of the most frequently used commands.

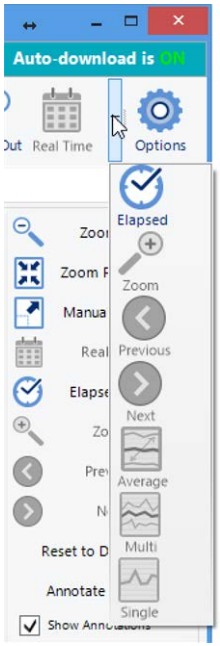
Figure 29: LogTag Analyzer toolbar

Table 8: Toolbar icons and their function

Wizard	Wizard Invokes the LogTag® Wizard. For more details please refer to Using the LogTag Access Wizard on page 78.
Open	Open Displays the file open window. This allows you to open previously saved LogTag® data files.
Save	Save Save a copy of the LogTag® data to a file on your disk drive.
Print	Print Opens the Windows Print dialogue. Please see Printing the results on page 132 for further details.
Properties	File properties Displays file properties about the currently selected file.
Signatures	File digital signatures Displays information about any digital signatures included in the currently selected file. Here you can also add new digital signatures to files or print copies of the digital signatures.
Send Mail	Send mail Creates a new draft email and attaches a copy of the currently selected file so it can be sent to a recipient of your choice. Please see Sending a file by email directly from LogTag Analyzer on page 138
Upload	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 139
Copy	Copy Places a copy of the currently displayed information to the Windows clipboard, so you can paste it into another Windows application.
Real Time	Real Time When this icon 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. Clicking the icon switches to date and time display.
Elapsed	Elapsed Time When this icon is active, the time axis represents the date and time. This is useful when you want to inspected at what date and time a certain event occurred. Clicking the icon switches to elapsed time display.
Zoom Out	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	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 multi chart, 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 computer resources when activated.
	Multi chart Displays all currently open charts together in one window using the same time axis.
	Single chart Opens all charts displayed in a multi chart in their own individual tabs (the original multi chart remains open).
	Options This will open a window allowing you to customize the software. You can find a detailed overview over all settings in the chapter Customizing the Software on page 147.
	Log on/Log off These icons are only displayed if LogTag Analyzer requires a connection to LogTag® User Server software in order to operate and are used to log on or off. Please see Connecting to LogTag® User Server on page 199 and User Server on page 186.

If you are working with a small computer monitor, not all icons may be visible. In that case click the down arrow next to the group where the icons are missing, and you will get an expanded view of the toolbar.



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 picture one on the right:

Table 9: Commands available in the print preview toolbar

Command	Explanation
Refresh	This will refresh the displayed data.
5 of 134 Page Navigation	This allows you to navigate between pages. These controls are disabled if there is only one page to be displayed.
Print...	This will open the operating system's print dialogue, allowing you to print a copy of what you see in the preview. This command is further explained in the section about Printing the results on page 132.
Page width Page width Whole page 500% 200% 150% 100% 75% 50% 25% View Zoom	Here you can select the zoom level with which the preview window displays the data. This works much the same as in other windows applications. It does not influence the printed data, just how you view them in the preview window.
Acrobat (PDF) file CSV (comma delimited) Excel 97-2003 Rich Text Format TIFF file Web Archive Export (Save As)	This function allows you to export the currently previewed data to one of the listed formats. These formats are additional to the export formats listed in Exports and Reports

Close the preview window with the Close button .

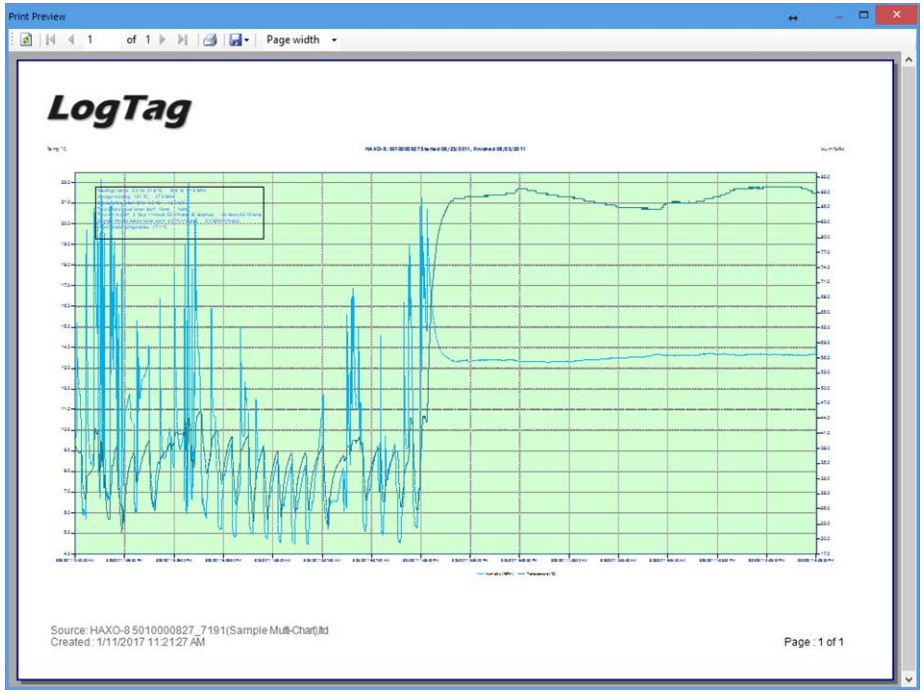
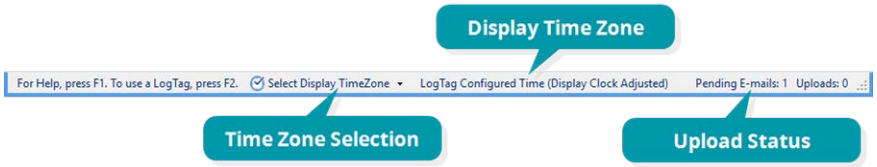


Figure 30: Print preview

The Status Bar

The status bar is located at the bottom of the LogTag Analyzer program window.



The status bar shows information about some of the software's active tasks and settings, and what you can do. You can also select the Time Zone for the data display.

Dates and Times

Every LogTag® product contains a real time clock, which it uses to determine the recording start time, when to take a reading and when to stop recording.

Often, the loggers are used for transit monitoring applications, where goods are transported between different countries, and frequently different time zones.

Time zone information is included in the loggers' memory, allowing you to relate shipments from different time zones to each other.

During configuration with a PC, the clock of each logger is set to the computer's time, and the local time zone of that computer is also stored in the logger's memory. When the logger is downloaded by the recipient, LogTag Analyzer is able to use the time zone information from the logger and the information from the PC used for downloading to display the data in a variety of different time zones.

Table 10: Time zones for data display

Time zone	What is displayed
Local PC Time Zone	All times are displayed in the time zone of the computer used for viewing the data. This is the most commonly used option, as it displays the dates and times on screen in your local time zone. Note, that this is not the same as the download time zone, if you were sent a file from a logger downloaded in a different time zone.
Download Time Zone	All reading times are displayed relative in the time zone of the computer used for downloading the data.
Configuration Time Zone	All reading times are displayed in the time zone of the computer used for configuring the LogTag® product. You would use this option if you wanted to view the data in the same way the sender of the logger would see it.
UTC/GMT Time Zone	All times are displayed in Greenwich Mean Time (Universal Time Coordinated). This is the best option when comparing different loggers from different senders in different time zones.

The currently used time zone is shown on the status bar:

The default time zone used when first opening a file is set in the options settings. If you quickly want to switch to another time zone, without affecting all other charts, you can click on **Select Display Time Zone** and choose the desired the time zone from the list.

For additional time zone settings please see Time zones on page 183

Upload Status

When either automatic or manual uploading or emailing of files is enabled, the upload status is displayed at the bottom of the LogTag Analyzer window in the status bar.

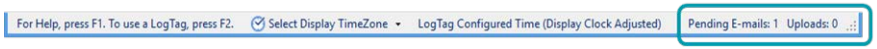


Figure 31: Status bar showing one pending email.

The email counter will decrease as emails are sent. Similarly, the upload counter will decrease as files have finished uploading.

Color Picker

In a number of different places throughout the software you can set a color for lines, text or shade areas. This is done with the help of a color picker, which works similar to selecting a color in other windows applications such as Microsoft Word.

To change a color for an item, click on its color selection box.

Basic Color Selection

The basic color selection window will appear. If it doesn't, the color for this item cannot be changed.

The color currently selected for the item is displayed on the right. Click on any of the colors in the honeycomb to select it. The New color is now shown on the right above the old color, so you can compare the two.

You can click the color picker and then click on any part of the screen to select that color.

You can enter a hexadecimal RGB color code directly into the field labeled #. This can be helpful if you have a corporate color scheme you are trying to match.

Advanced Color Selection

You can click on the Advanced tab in the color selection window to bring up a more refined selection mechanism. Here you have more detailed control over the color, and can also apply transparency.

Move the slider up or down to select the basic color **h**ue. Then set **l**uminosity (horizontal movement) and **s**aturation (vertical movement) in the color square and click on the desired color. Change the **a**lpha value to change transparency (0 = fully transparent, 255 is fully opaque). The corresponding hexadecimal RGBA color code is displayed in the field labeled #, where you can also enter a hexadecimal RGBA color code directly. As with the basic window the color picker is also available.

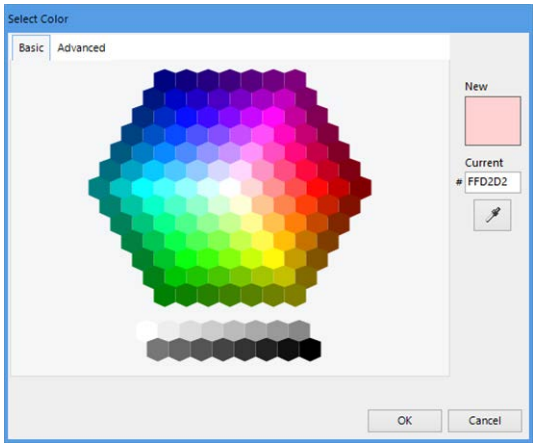


Figure 32: Basic Color Selection

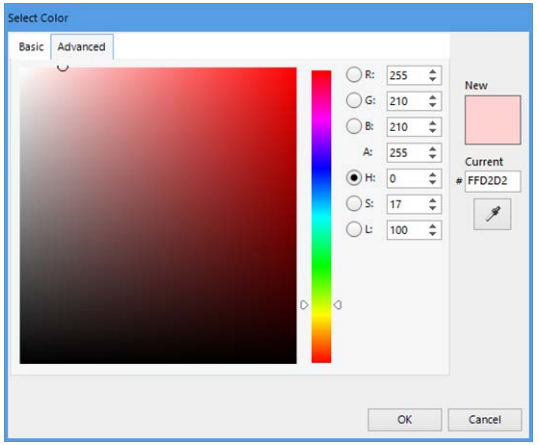


Figure 33: Advanced Color Selection

Initial Set-up

Before you start configuring and downloading loggers we recommend you customize some of the settings by clicking **Options** from the **Edit** menu:

- Define the display language and temperature units used (General Settings on page 149).
- Choose how time and date are displayed (Date and Time Format on page 182).
- Select how LogTag Analyzer names downloaded files and where these are stored (File and Folder Settings on page 171).
- Decide which communication ports LogTag Analyzer uses (Communication Ports on page 185).

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.

Advanced Set-up

Once you are familiar with the basic settings, you can refine your work-flow:

- Share data with colleagues and project stakeholders by exporting and emailing them (see Sharing recorded data with others on page 138).
- Enable the report logs, so you can track which loggers you have configured, and what settings were applied (see Activity Logs on page 188).
- Automate your work-flow with auto-downloading and auto-reconfiguration (see Automation on page 160).

Connecting the Interface

Tip: You can skip this step if you only use USB Loggers.

The standard interface cradles available from LogTag North America Inc connect to a USB (Universal Serial Bus) port.

These ports are typically located at the rear of workstations, but you can also find ports at the front, or at the sides if your computer is a laptop. If you are using a USB hub we recommend it has its own power supply.

LogTag Analyzer can communicate with multiple interface cradles at the same time; you may connect as many 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 software 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 North America Inc website for further information.

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

LogTag North America Inc also offers a serial (RS232) port interface. This can be useful for heavily visualized environments such as Citrix or VMWare, although should no longer be required with the introduction of the HID-based USB interface. Please contact LogTag for more information.

Figure 34: Rear of PC with 4 USB ports

Configuring a LogTag® product for recording

Some of the LogTag® products are delivered to you ready to start, but most of the time a logger will need to be configured before it can record temperature or humidity data. During the configuration process of a logger you define the settings that affect how it records data during its next trip, such as

- how and when to start recording, how many readings to record and at which interval;
- whether to stop recording after a defined number of readings or to record continuously;
- what alerts to process and at which temperature limits;
- if password protection is required for configuring or downloading; and
- what information to show on the logger's display.

To start the configuration process, insert the logger to be configured into the interface (or a USB socket if you have a USB logger) and click **Configure** from the **LogTag** menu or press **F3**.

Note: By default the Auto Download feature is enabled, which means LogTag Analyzer will download any previously recorded readings. Please see Enable automatic download of readings from LogTag® devices on page 160 for an overview of this feature.

The LogTag Configure window will be shown, and LogTag Analyzer will check all connected interface cradles and USB ports for attached loggers. Every LogTag® device found will be listed in the Progress Pane on the left side, showing the progress of retrieving its configuration settings.

When all loggers have been found, the configuration settings currently stored in the logger in the first interface found are shown in the Parameter Pane on the right. These are either the factory pre-set data, or the parameters used when this logger was last configured. Model number and serial number of this logger are shown in the Parameter Pane.

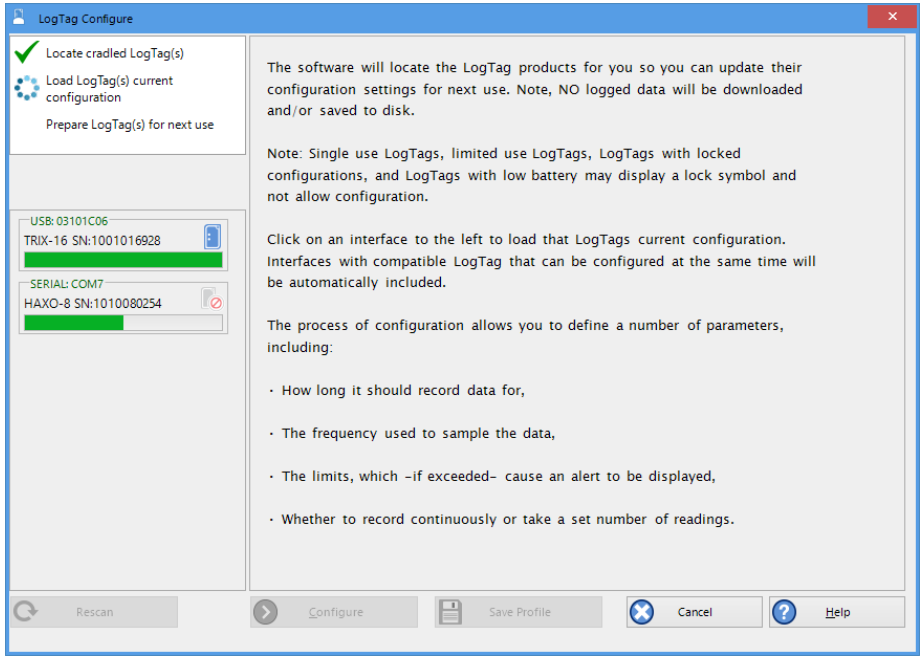


Figure 35: Locating loggers and loading initial parameters

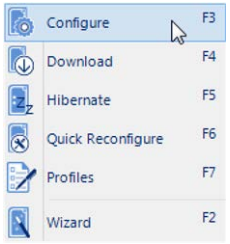


Figure 36: LogTag Menu Configure

Note: You can attach different logger models at the same time, however, you can only configure loggers of the same model at the same time.

In the example shown the first detected logger was a HAXO-8 in the RS232 serial interface. Therefore, the configuration parameters for this HAXO-8 are shown.
If you wish to configure any of the other loggers found, you can click on that logger's progress bar, and the parameter pane will now show the corresponding configuration data for that logger.
Depending on the logger model, different parameter tabs and different additional information will be shown.

You can now adjust the configuration parameters for the next trip.

Please note that some loggers are factory preset for specific applications and will only allow some of the parameters to be adjusted, but not all of them. Such loggers include, for example, the WHO PQS listed vaxtag® or USRID-16W models, which have fixed log interval and alarm settings.

Click the model name hyperlink, and your default web browser will open, showing the user guide for this model. Here, you can get additional information about specific configuration parameters for your model, and how to operate it. For this feature to work, your PC needs to be connected to the internet.

For some models, additional information is available, such as the ability to support Smart Probes or being able to print calibration certificates for the logger. Click the question mark symbol (?) next to the feature to get additional information from our online knowledge base.

When you have entered or adjusted the settings as desired, click Configure to upload these new configuration data to the device.

The logger is now ready to be started.

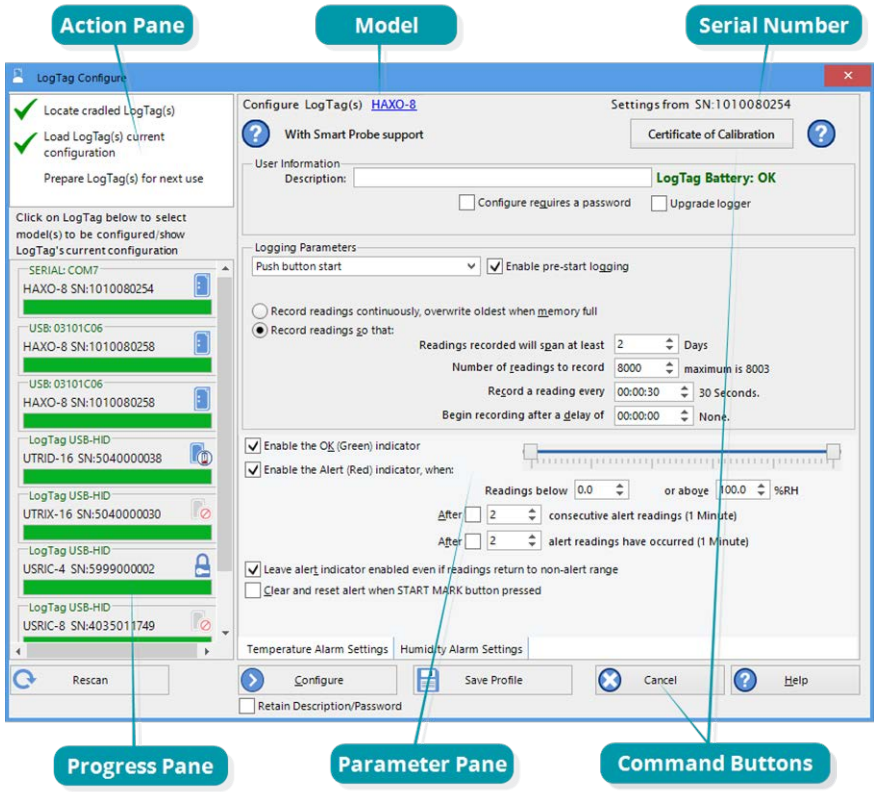


Figure 37: Configuration screen for a HAXO-8

Command Buttons

In addition to the Configure button, following other actions are available in this screen:

- Rescan
  Scans all connected interfaces and USB ports again. Click this button if you have inserted additional USB loggers you wish to configure, or not all connected USB loggers appear in the Progress Pane.
- Save Profile
  You can save the parameters as entered to a Configuration Profile. Please see Configuration Profiles on page 84.
- Cancel
  You can abort the configuration process by clicking this button.
- Help
  Clicking this button brings up a browser window, showing help for this topic.
- Repeat Configure
  This button is available only after one or more loggers have been configured. Clicking this button will scan all interfaces and USB ports for loggers again, and upload the entered configuration data to each eligible logger.
- Restart
  Click to start the configuration process from the beginning.
- Certificate of Calibration
  Click to view the logger's factory Calibration Certificate.
- Recover logger
  Click if a logger is to be recovered from a failed upgrade. Please see Recovering from a failed firmware update for further details.

Depending on the possible actions, not all buttons may be shown. If a button is not shown, its corresponding action cannot be performed.

Progress Pane

Each logger found will be listed in the Progress pane. It is represented by its model number, serial number and operational status, shown via different icons, which change once a logger is configured:

	When you see this icon displayed in the progress bar, the parameters entered for configuration will be applied to this logger when clicking Configure
	When you see this icon, the logger will not be configured when you click Configure, since the model is different from the one for which you have entered configuration parameters.
	A logger showing this icon cannot be configured, as there are no trips remaining. This applies to single use loggers or loggers that have a locked configuration. You will see this for example on SRIC-4 or USRIC-8 loggers when you attempt to configure them for a second trip.
	This logger has a low battery. Some models cannot be configured when they have a low battery.
	This icon is displayed after the logger has been successfully configured. This logger can now be started, or will start automatically, depending on the chosen start options. The progress bar will also show the word Configured
	This icon is displayed after an unsuccessful attempt to configure the logger. Further error messages will be displayed to indicate why the logger was not configured.
	This icon is displayed after the logger has been successfully configured, but the logger has some advanced features that the software could not set. This typically happens if you try to configure older and newer loggers together. When you hover the mouse over this icon you can see which features were not set.

While the software is sending the new configuration data to each logger, progress bars in the Progress Pane will identify the loggers that are being configured.

Once finished the progress bar shows Configured.

If you use Repeat Configure to configure another logger, you may update its configuration without having first saved previously recorded data.

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

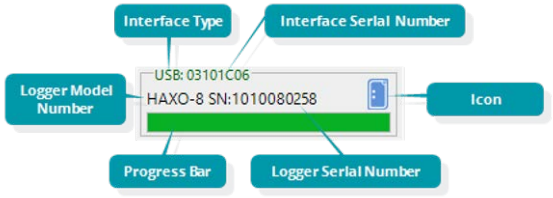


Figure 38: Progress Pane Indicator

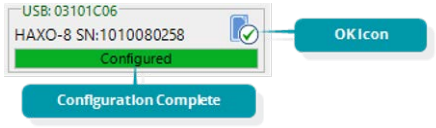


Figure 39: Logger configured

If additional loggers of the same model have been located, these loggers will also be configured with the new data.

If you enable Retain Description/Password, existing descriptions and passwords for each logger will be retained, instead of using the details from the configuration parameters entered. Note that you will still need to provide a password for loggers that have an active configuration password protection. On loggers with WiFi capability the existing network password will also be retained.

The next sections describe each configurable option; please note, however, that not every option is present for each of the LogTag® models.

Instead of entering every configuration detail repeatedly, you can configure loggers using pre-configured profiles, or prepare them for a new trip with the same configuration data as used for just completed trip by using the quick re-configure function. For more details on these options please see Configuration Profiles on page 84 and Quickly re-configuring a LogTag® logger on page 78.

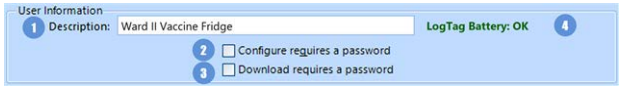
Working with more than one logger

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

1. You can connect multiple interfaces to your PC, so more than one logger can be configured or downloaded at the same time.
2. Use the Auto-download feature. To retrieve a copy of the recorded readings from multiple LogTag® products, simply insert each one into the Interface cradle (or plug them into the USB port). The software will automatically retrieve the recorded data, save it to disk and then display the information for you (Automation on page 160). You can repeat this for each product without needing to interact with the software.
3. Use the Repeat feature in the configuration window without having to re-enter the same parameters more than once, even with different descriptions or passwords.
4. Use a pre-configured Profile (Configuration Profiles on page 84) or the Quick Reconfigure feature (Quickly re-configuring a LogTag® logger on page 78)

User Related Configuration Parameters

User related configuration parameters are entered at the top of the Parameter Pane:



Description 1

(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. For loggers with two recording channels, such as the new UTRED30-16 and UTRED30-WiFi, a separate description field will be shown for each channel. This will make it easier to identify in the files which probe is monitoring what environment.

Each description can be up to 38 characters long (36 for loggers 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 logger. 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 Appendix on page 195 for a more detailed explanation.

To view the PDF file generated by a USB logger, 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 logger.

Configure requires a password 2

If you select this option, any user wishing to configure the logger in the future must provide this password. A new entry field appears, where you can specify which password you wish to use.

Passwords are case sensitive ("Bob" and "bob" for example are different passwords).

If you enter a new password, or change an existing password, you will need to verify the password when you click Configure.

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 the Appendix on page 195 for a more detailed explanation.

Due to the restrictions in the Description field you can only use ASCII characters in the password field when configuring a USB logger.

Download requires a password 3

If you select this option, the recorded data from the logger can only be downloaded after entering the correct password.

Only one password can be provided for each LogTag® unit. The same password applies to the Configure and Download actions.

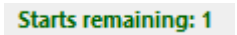
Battery condition 4

If the battery in the logger reports 'low', it should no longer be used. The software will display a warning in the top right corner.

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.

Remaining Starts

If the logger you are configuring has a limited number of starts, this will be indicated here.

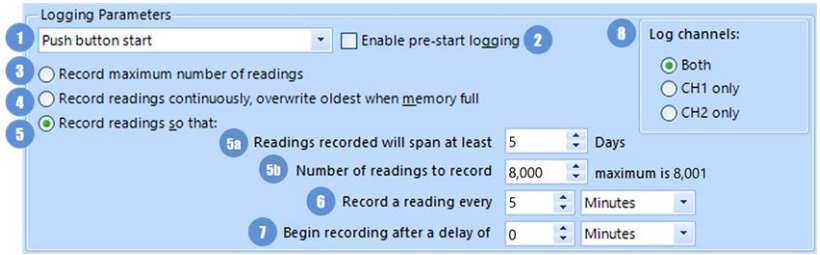


Upgrade logger

Some loggers can be upgraded, to enable new features that were not previously available. One example is permitting the "Password on download" option for some logger models. Such an upgrade can be applied by enabling **Upgrade logger**. Please note, however, that older software will most likely no longer be able to communicate with the logger once it has been upgraded.

Logging Related Configuration Parameters

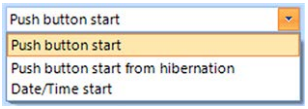
Logging related configuration parameters are entered in the middle section of the Parameter Pane:



Start method 1

(mandatory)

Click the field to set how and when a logger will start recording its next trip.



- Push button start

  When the 'Push button start' option is selected, the logger will start recording when the **START** button has been pressed and held until both the OK and Alert lights alternately flash on and off.

- Date/Time start

  When the 'Date/Time start' option is selected, the logger will automatically start recording at a specified date and time. Two additional entry fields will appear, one for selecting the date, the other for the time. Enable pre-start logging and Begin recording after... (delayed start) options are not available with a date/time start.

  Pressing the **START** 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 device before it is due to start.

- Push button start from hibernation

  When the 'Push button start from hibernation' option is selected, the logger will start as if programmed for 'Push button start'. The difference is that once the configuration is successfully uploaded to the logger it will be placed into hibernation. When the **START/Mark** button is pressed and held, the logger will wake from hibernation and start recording with the parameters as configured.

  > Note: When using this start option, the real time clock inside the logger is suspended until logging starts. When downloading at the end of the trip, the reading times are back-calculated based on the time of the computer on which the unit is downloaded. It is therefore necessary that computer is set to the correct time, so the downloaded data have the correct date/time.

  Please see Hibernation - Prolonging battery life on page 82 for more information.

Not every LogTag® model can support every start mechanism. If a start option is not listed during the configuration process, this option is not available for this model.

Enable pre-start logging 2

(optional)

When you enable Pre-start logging, the logger starts taking readings as soon as the configuration data have been uploaded. If you forget to press the **START** button, the data for the trip will still be available. This

ensures no critical data are lost. This option is further explained in the section Pre-start data collection on page 80.

Pre-start readings will not be recorded if the start method is 'Date/time' or 'Push button start from hibernation'.

Record maximum number of readings 3

(Profile only)

When you select this option in a profile, the logger fills the complete memory with readings, and then stops. This feature is useful for profiles that can be applied to products with different memory sizes, for example the USRIC-8 and USRIC-16 models.

Record readings continuously, overwrite oldest when memory full 4

(mandatory [1])

When you select this option, the logger initially fills the complete memory with readings, then overwrites the oldest data when the memory is full. For a more detailed explanation see Continuous operation on page 79

Record readings so that: 5

(mandatory)

If this is selected, the logger stops logging taking after a pre-determined number of readings. The following two fields determine the time these recordings will cover.

Please note that some LogTag® logger models can be stopped manually, so there may be fewer than expected readings.

[1] You must select either continuous recording, or recording for a defined time span

Readings recorded will span at least X days 5a

(mandatory [2])

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 logger takes a reading.

Number of readings to record (maximum is Y) 5b

(mandatory)

This field 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 product can store, however with a selected interval and a selected time span, you may not need to use all of the available memory.

Record a reading every X 6

(mandatory)

This determines how frequently the LogTag® records and stores humidity or temperature values. Select seconds, minutes or hours, then change the number to suit[3], either by clicking the up or down arrows, or by typing a number value directly.

If you want to use a log interval such as 1 minute 30 seconds, enter the number in full seconds.

Begin recording after a delay of X 7

(optional)

Enter the time that passes after a user has pressed the **START** button on the logger until the start of the recording. Select minutes or hours[3], then change the number to suit, either by clicking the up or down arrows, or by typing a number value directly. This feature is useful for example, when the logger could falsely trigger an alert because the

[2] The entries are interdependent, changing log interval may change the number of days the logger can take readings for

[3] Different models support different minimum/maximum log intervals and start delays. Please refer to the individual models' data sheets for more information.

environmental conditions to be monitored are quite different to the environment in which it is started.

If pre-start logging is enabled, the LogTag® logger will still continue to record pre-start readings during this delay period.

Log Channels 8

(mandatory, only for Dual-Channel loggers)

This option is displayed only for Dual-Channel loggers, such as the new UTRED30-16. Here, you can select which of the channels you wish to record. When you select CH1 only, the logger records temperature values only for the probe connected to the socket marked CH1, while CH2 only records only the probe plugged into CH2. Both means that both channels will be recorded. This is also the ex -factory default.

Note that the number of activated channels has no influence on the number of readings you can record. This will remain the same, no matter how many channels are activated for recording.

You will not be able to retrieve any readings from a channel that is de-activated. If you select CH1 only, and plug the probe into CH2, no readings will be recorded if no probe is plugged into CH1. We therefore recommend to leave this settings on Both, unless you have specific reasons to de-activate one channel.

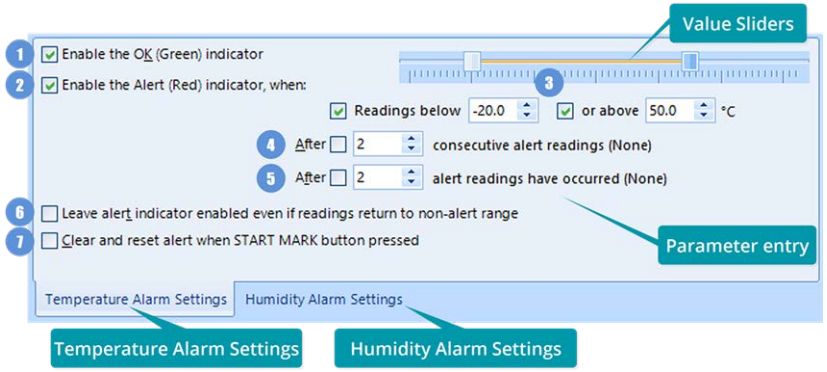
Configuring Alarms

All LogTag® loggers can display a visual alert if one or more configured alarm trigger conditions have been met. Some models also have the option for the alarm to be audible (see Audible Alarm as described on page 60). Each alarm trigger condition consists of a threshold value, an activation type (which can be instant, consecutive or accumulative [4]) and a delay time, 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.

The threshold parameters are shown in LogTag Analyzer when the logger's readings are downloaded and displayed.

Alarm related configuration parameters are entered in the bottom section of the Parameter Pane:



[4]

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

You will find one or more tabs, depending on the logger model you wish to configure. Click the tab's label to show the parameters for that tab.

HAXO-8, HASO-8 and UHADO-16 loggers show two tabs, one for temperature alert conditions, one for humidity. Dual-channel loggers also display two tabs, so you can configure different alarm settings for each channel.

Note that some values apply to both tabs simultaneously, such as the OK indicator field.

Standard Alert Related Configuration Parameters

Enable the OK (Green) indicator 1

This determines whether or not the green LED should blink while the LogTag® is recording. This is not available for display products.

Enable the Alert (Red) indicator when... 2

This defines whether or not the red light should activate when an alert condition has been detected. An alert occurs when one or more of the conditions described below have been met. When an alert condition has occurred, this indicator will flash at a regular interval.

Readings below X or above Y (inclusive) 3

You can set the upper and lower threshold limits by typing the appropriate information directly in the boxes, or by moving the value slider, or a combination of both. If readings stay inside the range specified by X and Y the alert indicator will not activate. If a reading of X and below, or Y and above is recorded, the alert indicator may light up, depending on the alert conditions. Charts will display alert readings according the settings made in the Charts section of the Options Screen.

The values entered in these boxes are included in the alert range. In the example later in this section 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.

Some logger models allow you to enable upper and lower alerts independent of each other; this is useful in situations where one of the

alert thresholds is irrelevant to your recordings and, if left activated, may falsely activate the alert LED. In this case there will be one check box for each alert.

After X consecutive alert readings (W minutes) 4

Tick this box and enter a number into the adjacent field if you want to trigger an alert condition once X number of consecutive alert readings are recorded. Note that the number of minutes shown will depend on the number of alert readings you enter into the box AND the recording interval already specified. For example, if X is 3 and two readings are above the upper threshold limit, but the subsequent reading is below the upper threshold limit and still above the lower threshold limit then the alert indicator will not activate. Maximum value is 256, minimum is 2.

After X alert readings have occurred (W minutes) 5

Tick this box and enter a number into the adjacent field if you want to trigger an alert condition once a total number of alert readings have been recorded, regardless of whether they are consecutive or not. Maximum value is 256, minimum is 2.

You can increase or decrease the values with the arrows next to the fields. Please note these are linked and certain combinations may not be allowed.

Leave alert indicator enabled even if readings return within alert range 6

If this option is enabled, the alert indicator will remain active, even if the current reading does not meet the alert conditions specified by the previous controls.

If this option is disabled, the alert indicator will remain active only if the current reading meets the alert conditions specified by the previous controls.

Please note, however, that this setting is only applicable if an immediate alert is configured; if consecutive or accumulative alert settings are configured this box has no effect, and the alert indicator will always remain visible once an alert has occurred.

Clear and reset alert when START MARK button pressed 7

If this feature is enabled, any user can turn off an active alert by pressing the **START/MARK** button directly on the device. This will also reset the internal alert counters as if no alert condition had occurred at all while the LogTag® was recording.

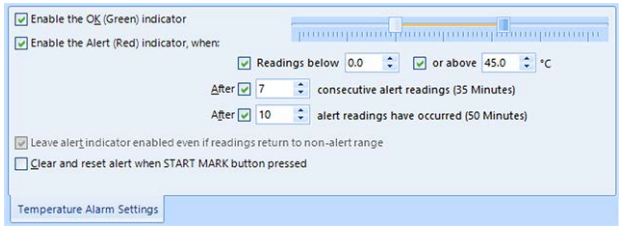
Should the logger subsequently detect a further alert condition, the alert will activate again.

Once the LogTag® 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 alert conditions are indicated if 5 continuous readings are out-of-range or 7 total readings are out-of-range. Alert parameters should be set as follows:



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

Table 11: 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 alert condition is met. The maximum number of consecutive out-of-spec readings is only 2 (5 required.) The total out-of-range events equals 2 + 2 + 2 = 6. The alert condition is 7 total, so no alert is triggered. No Flashing Red Alert Indicator

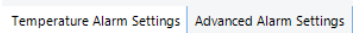
What the LogTag® recorded	What the LogTag® indicated
4 readings out-of-range, return to normal, 4 readings out-of-range	The first alert condition is not met, as the maximum number of consecutive alert condition readings is only 4 (5 required.) The second alert condition however IS met since the total alert condition readings equals 4 + 4 = 8. The alert condition is 7 total. so the alert IS triggered. Flashing Red Alert Indicator
4 readings out-of-range, return to normal, 2 readings out-of-range	Neither alert condition is met. The maximum number of consecutive alert condition readings is only 4 (5 required.) The total number of alert condition readings equals 4 + 2 = 6. The alert condition is 7 total, so no alert is triggered. No Flashing Red Alert Indicator
6 readings out-of-range, return to normal	The second alert condition is not met, as the total out-of-range events equals 6 (7 required.) The maximum number of consecutive alert condition readings however is 6, the alert condition is 5 consecutive readings, so the alert IS triggered. 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, place a tick in the box next to "Enable the Alert (Red) indicator when" and remove the ticks in both boxes next to the "After X consecutive alert readings" and "After X alert readings have occurred".
2. You cannot enter a number into the "After X consecutive alert readings" field which is larger than the number in "After X alert readings have occurred", since the latter alert condition would always be met first.
3. Similarly, you cannot enter a number into the "After X alert readings have occurred" field which is smaller than the number in "After X consecutive alert readings". The software will adjust field values as appropriate.

Advanced Alert Settings

Some loggers support more detailed alert settings than described before. If LogTag Analyzer encounters one of these loggers, additional tabs are visible in the Parameter Pane:



You can access the extra tab by clicking on the tab's label.

In the advanced settings the red alert indicator can now be configured independently for upper and lower alert values.

Readings above X
Readings below Y

(inclusive)

In addition to entering the threshold levels, tick the boxes next to "Readings above" or "Readings below" to enable the alert conditions for only the upper or only the lower threshold settings, or for both. If both boxes are ticked, the behavior is the same as for the standard alert settings. The charts will display alert readings according to the settings made in the Charts section of the 'Options' Screen.

After X consecutive alert readings (W minutes)
Readings above
Readings below

Tick the boxes next to "Readings above" or "Readings below" to establish whether only readings above and including the upper threshold or only readings below and including the lower threshold should count towards the consecutive alert readings. If both boxes are ticked, the behavior is the same as for the standard alert settings. If the Alert Indicator is disabled for either the upper or the lower alert, the respective box for the consecutive alert is grayed out and cannot be ticked.

After X alert readings have occurred (W minutes)
Readings above
Readings below

Tick the boxes next to "Readings above" or "Readings below" to establish whether only readings above and including the upper threshold or only readings below and including the lower threshold should count towards the total number of alert readings. If both boxes

are ticked, the behavior is the same as for the standard alert settings. If the Alert Indicator is disabled for either the upper or the lower alert, the respective box for the alert total is grayed out and cannot be ticked.

The advanced settings tab is displayed automatically if an advanced configuration is already found in the logger to be configured. If you do not wish to use the advanced settings, click the Temperature Alarm Settings tab.

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 41: Advanced Alert Settings - Sample settings

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

Table 12: 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 alert 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 alert readings). The total out-of-range events equals 2 + 4 = 6. The alert condition is 7 total, so no alert is triggered, as again the 8 readings below 0 °C do not count towards alert 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 alert condition is not met, as the maximum number of consecutive out-of-spec readings is only 4 (5 required.) The second alert condition however IS met since the total out-of-range events equals 4 + 4 = 8. The alert condition is 7 total. so the alert IS triggered. Flashing Red Alert Indicator

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

Audible Alarm

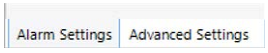
This option is available in TRED30-16R, UHADO-16, UTRED30-16 and UTRED30-WIFI loggers and can be found in the Advanced Settings or the Alarm Settings tab. When you enable this option, the logger will sound an audible alarm when an alarm is triggered. Please refer to the Product User Guide or Data Sheet of your specific model to establish if it has a beeper fitted.

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 respective Product User Guides for more information.

Display Logger Advanced Settings

The Alarm settings in loggers with a display (TRID30, TRED30, TRED30-16R, TREL30-16, UHADO-16, UTRID-16, UTRED-16, UTREL-16, USRID-16, UTRED30-WIFI, UTREL30-WIFI, UTREL30-16 and UTRED30-16 loggers) are similar to the Advanced Alert Settings on the previous page or the USB Logger File settings on page 66, hence they are not explained again here.

The loggers do, however, have an additional configuration tab.



When you select this tab, you can access the settings specific to the display:

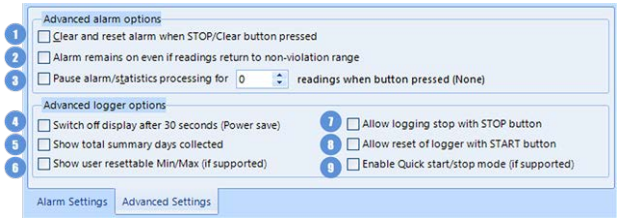


Figure 42: Advanced alert options for display loggers

Clear and reset alarm when STOP/CLEAR button pressed 1

If this option is enabled, any user can turn off an active alarm directly on the device 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 logger was recording. When the logger subsequently registers a further alarm condition, the alarm will activate again. Once the logger 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 2

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, the alarm symbol will only stay on 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.

Pause alarm/statistics processing for X readings 3

If this option is enabled, pressing either button on the device 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 4

If this option is enabled, the display will turn off after 30 seconds to save battery power.

Show total summary days collected 5

If this option is enabled, the display shows the number of days for which statistics have already been collected.

Please refer to the LogTag® Product Specification & User Guide documents for TRID30,TRED30 and TRED30-16R loggers on the LogTag North America Inc website at https://logtagrecorders.com/product-range/ for a detailed description of the functionality of these products.

Note: When referring to TRID30 and TRED30 products, versions with both the fixed (F-suffix) and replaceable (R-suffix) battery are included, unless a suffix is specifically mentioned.

For more information please refer to the UTRID-16 PDF Recorder User Guide, available from the LogTag North America Inc website.

Show user resettable Min/Max (if supported) 6

This option only applies to newer TREL30-16 and TRED30-16R models. These devices can display trip min/max settings in addition to the daily min/max settings. If you enable this setting, these min/max settings will be displayed when you review the day statistics. The min/max values can be reset any time while the unit is logging. For more information please refer to the Product User Guides for the relevant products.

Allow logging stop with STOP button 7

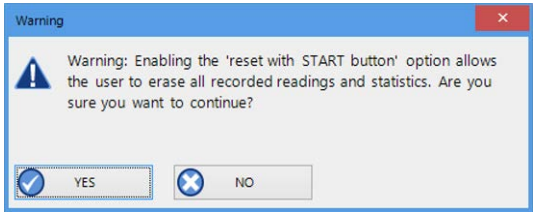
If this option is enabled, the logger can be stopped by pressing the **STOP** button. It will no longer take any readings, however, you can still review the day statistics and download the logged results to a PC with LogTag Analyzer.

Allow reset of logger with START button 8

If this option is enabled, TRID30, TRED30 and TRED30-16R loggers can be reset to the same conditions as if they had been freshly configured by LogTag Analyzer. You can then start another trip by simply pressing the **START** button.

When this option is enabled, anyone with access to the logger can erase all recorded readings and statistics without saving the data to a PC first. Please use this option with caution!

A warning box will be displayed to remind you this is enabled and can result in loss of data.



Enable Quick start/stop if available 9

This option only applies to TRED30-16R models. If enabled, starting and stopping a TRED30-16R is faster than that of TRID30 and TRED30.

Instead of holding the start button for 6 seconds (TRID30 and TRED30), you will only need to press the button for approx. 1 second until the unit starts or stops. For more detailed information please refer to the TRED30-16R User Guide, available on the LogTag North America Inc website at https://logtagrecorders.com/product-range/.

If disabled, the standard start/stop method (6-second button press) is used.

Show alarm screens during review

(not shown in sample screen)

This option only applies to the UTRID-16. If selected, up to 6 additional screens are shown when reviewing the data on the display. These screens show the temperature alarm threshold, and the time above or below that threshold. If the box is cleared, only the minimum and maximum screens are shown.

For UHADO-16, UTRED30-16 and UTRED30-WIFI models trip min/max settings are permanently being shown on the display. If you enable this setting, a user may reset the min/max values any time while the unit is logging.

Additional Features for TRED30 and TREL30 models

These models show a further tab, where you can enable additional features for this product:

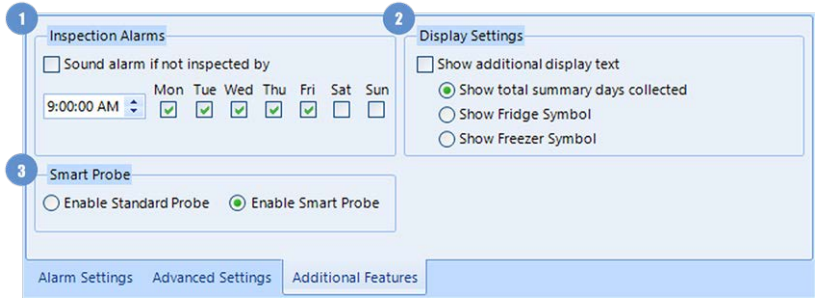


Figure 43: Inspection alarms and fridge/freezer symbols

Inspection Reminder Alarm 1

When enabled, this alarm triggers when the logger's **REVIEW/Mark** button was not pressed between midnight and the time entered, on the selected days. Once triggered, the buzzer will sound and the time digits will blink until the alarm is cleared by pressing **REVIEW/Mark**.

If the **REVIEW/Mark** button was pressed, no alarm will occur for that day.

In the screenshot above, the alarm would be activated if the **REVIEW/Mark** button has not been pressed by 9:00am on weekdays. The alarm would not trigger on weekends as it has not been enabled in the configuration.

If the feature is disabled, an Inspection Reminder Alarm will not trigger.

The feature is also available in the advanced options for a configuration profile and is carried forward during quick-reconfigure. If a profile with an enabled Inspection Reminder Alarm is used to configure a TRED30 or TREL30 that does not support this feature, you will see the familiar warning triangle, reminding you that not all loggers will have been configured with this feature (see the table of icons on page 51).

Fridge/Freezer Indicator 2

On the display you can show the number of days for which statistical data are stored in memory. For newer models you can select if you wish to show this number, or instead a symbol, indicating if the logger should be placed in a fridge (Fd) or a freezer (Fr).

To enable this feature, select Show additional display text and select one of the three options.

Simply selecting the display of the fridge or freezer symbol does not change any temperature alarm levels. Please make sure you have selected appropriate temperature alarm trigger conditions that correspond to the symbol you have selected to avoid incorrectly placed loggers.

If you disable this feature, no text will be shown on the recording display.

The feature is available in the advanced options for a configuration profile, and is also carried forward when using the quick-reconfigure function. If a profile, that has the fridge or freezer symbols enabled, is used to configure a model that does not support this feature, you will see the familiar warning triangle, reminding you that not all loggers will have been configured with all features enabled. Enabling this feature and selecting Show total summary days collected will also work on earlier units.

For more information about these features and screen samples please refer to the TRED30-16R or TREL30-16 Product User Guides.

You will require LogTag® Analyzer version 2.9 or later to configure and download loggers with these features.

Enabling Smart Probes 3

This section of the window will only be shown for the new TRED30-16CP and TREL30-16CP loggers, which support the new CP110 and CP11 Smart Probes. Unlike the UTRED30-WiFi and UTRED30-16 models, you must select which probe you will use with the logger during the configuration process.

If your probe features a small case as shown below, it is one of the new Smart Probes. You must enable the Smart Probe feature so your logger records temperature data.

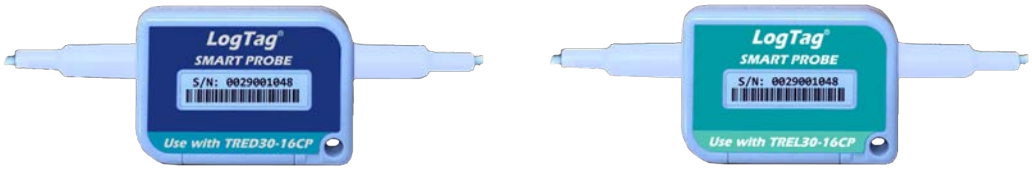


Figure 44: CP110 and CP11 Smart Probes for TRED30-16CP and TREL30-16CP Loggers

If your probe does not have such a case, it is a standard (analogue) probe, and you must enable the standard probe.

If you enable the feature without using a Smart Probe, or vice versa, you will not record the correct temperature!

How is my calibration affected when swapping probes?

Probes of the same type can be swapped during recording, however, you will need to observe some rules if you wish to maintain a calibrated system:

- You can swap one Smart Probe with a different one without re-configuring the unit. If the new probe is calibrated, the complete logger and probe system will remain calibrated.
- You can also swap one standard probe with a different standard probe, however, to maintain system calibration the logger and probe will have to be re-calibrated as a system.
- If you swap a Smart Probe with a standard probe you will need to re-configure the logger, select "Standard Probe" during configuration and also re-calibrate the system if required.
- If you swap a standard probe with a Smart Probe you will need to re-configure the logger and select "Smart Probe" during configuration. If the probe itself is calibrated, re-calibration of the system is not required.

USB Logger File settings

LogTag Analyzer allows you to set additional options for USB loggers, which decide:

- which type of files are generated at the end of the trip
- settings for time, temperature units, MKT parameters and
- how the individual elements of the generated PDF file will be displayed.

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

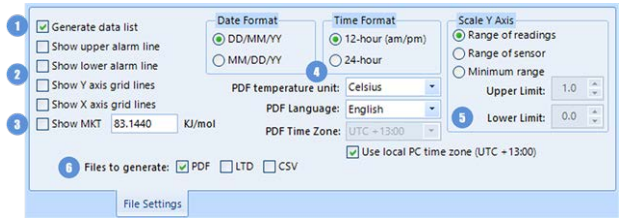


Figure 45: File Settings tab for USB loggers

Generate Data List 1

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.

Select this check box to show additional data list pages with a single row for each reading, along with the with date, time and temperature values, plus any special events that were recorded against this reading.

When you clear this box only the report summary page will be created.

Alarm and Grid Lines 2

To assist with orientation on the chart, several lines can be shown or hidden. Following options are available:

Show upper alarm line

Show lower alarm line

Select which alarm line will be displayed on the PDF. Clear the 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.

Show Y-axis grid lines

Show X-axis grid lines

Select which grid line will be displayed on the PDF. Clear the 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 Mean Kinetic Temperature (MKT) 3

Selecting this box calculates and displays the MKT value on the PDF report. If selected, you can accept the suggested default value of the Activation Energy of 83.144 KJ/mol, or type a custom ΔH value in the text entry field. 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 logger, the custom value can also be used for the MKT calculations in the software. This is controlled by a setting in the customization for the Mean Kinetic Temperature (on page 136)

Regional Settings 4

This group of parameters allows you to customize regional settings of the PDF report. Usually, this would be set to the region of the person evaluation the data.

Date format

Select one of the options that corresponds to the date format you wish to use for the PDF report. You can choose between DD/MM/YY and MM/DD/YY formats.

Time format

Select one of the options that corresponds to the time format you wish to use for the PDF report. You can choose between 24- and 12-hour (am/pm) formats.

PDF Language

Select the language of the PDF generated by the logger. Available languages are:

- English
- French
- German
- Russian
- Spanish

Please note that this feature is only available on newer models. If you are unable to select a language other than English during configuration, the feature is not available for your logger. The unit's display always shows English characters regardless of the chosen language.

PDF Temperature units

Select the temperature units used on the PDF report and in the CSV file from the list. For USB logger models with display this also sets the unit shown on the display. It is not possible to configure different units for PDF and Display, or to configure this after the trip has completed.

PDF Time Zone

You can clear the Use local PC Time Zone 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.

Note: The time zone displayed in the PDF cannot be adjusted by the receiver! To view the logger'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 on page 182 for further details.

Use local PC Time Zone

When selected, the PDF file will display times and dates in your local PC's time zone. The time is automatically adjusted for daylight saving.

Chart Scaling 5

These settings control the zoom level of the chart display. Please note that you cannot zoom the date/time axis of the chart.

Y-axis scaling

Select one of the available options to scale the temperature axis for the chart of the recorded readings.

- Range of readings; this scales the chart area, so the highest and lowest temperatures recorded are displayed at the top and bottom of the area. 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 logger.
- Minimum 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. This is useful if you wish to easily compare readings from multiple loggers in similar environments.

If readings outside your selected range are recorded during the trip, the scaling is adjusted so the chart always displays all recorded readings.

RH-axis scaling

For UHADO-16 loggers, two Y-axis scales are displayed, one for temperature (left) and one for humidity (right). The scaling selection made here affects the RH scale only, the temperature is adjusted to suit.

- Range of readings; this scales the chart, so the maximum and minimum recorded humidity values are displayed at the top and bottom of the area. If you choose this option, the maximum screen area is used to display all recorded readings.
- 0-100%; this scales the chart to show the full humidity range of the logger.
- Minimum range: When you select this option, the entry fields for the two humidity values become active. Enter the values you wish to use as maximum and minimum values for the chart's RH-axis. This is useful if you wish to easily compare readings from multiple loggers in similar environments.

> If readings outside your selected range are recorded during the trip, the scaling is adjusted so the chart always displays all recorded readings.

Files to generate 6

Select which file type the USB logger should automatically create when plugged into a USB port. Once generated, the files will be accessible on a read-only drive or mounted device via your file system.

> The files created by the USB logger 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.

If you clear all check boxes, no files will be generated, and you will need to access the data with LogTag Analyzer.

USB Loggers

There is a short delay after a USB logger is plugged in, before it can be accessed by LogTag Analyzer. The logger 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.

- If LogTag Analyzer is running when a USB logger is plugged in, the file generation that usually takes place is suppressed to allow fast communication with the software.
- If the software is not running, the logger now generates the on-board files it has been configured for. 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. Loggers with a display show a blinking USB symbol, or the word 'busy'.

If you need to access the files, and LogTag Analyzer is running, please close the software and wait for the on-board files to be generated.

Multi-Alarms in USB Loggers

USB loggers can be configured for up to 6 different alarm trigger conditions, depending on the model.

- All USB logger models have a primary upper and a primary lower alarm. For some loggers such as USRIC-4, USRID-16 and some older USRIC-8 and UTRIX-16 models these are the only alarms available.
- USRIC-8, UTRIX-16, USRID-16W, UTRED30-WIFI and UTRED30-16 allow four freely configurable alarms in addition to the primary upper and lower alarms, for a total of 6 temperature alarms.
- UTRID-16 and UTRED-16 allow two upper and two lower alarms in addition to the primary upper and lower alarms, for a total of 6 temperature alarms.
- UHADO-16 allows two freely configurable temperature alarms in addition to the primary upper and lower alarms, for a total of 4 temperature alarms. It allows a single primary upper and lower humidity alarm, but each alarm can be configured with different, independent delay values.

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.

You need to observe some basic rules when entering alarm conditions into the 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 higher threshold values than any previously entered alarm.
- Any additional lower alarms must have lower threshold values than any previously entered alarm.
- 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 alarms upper alarms, and you cannot make all alarms lower alarms either.

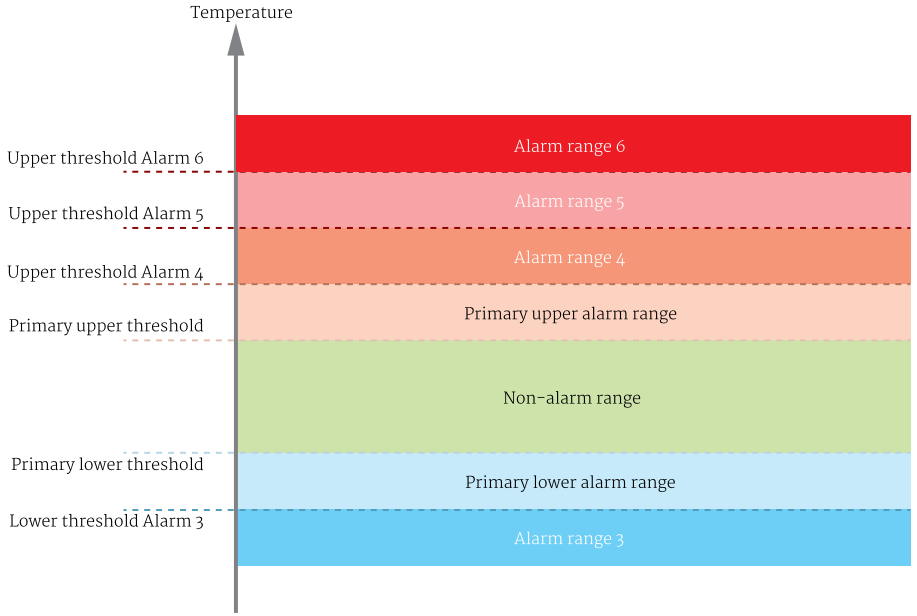


Figure 46: Alarm ranges for USRIC-8M

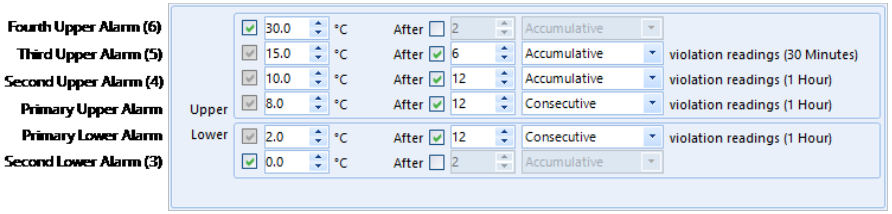


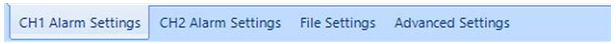
Figure 47: Representation in LogTag Analyzer

- Threshold values for adjacent alarms can be equal and combined with different alarm types and delay time values. 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 alarm will be triggered, if either 10 readings in total are above 8 °C, or 5 consecutive readings above 8 °C have occurred.

Any alarm condition that is activated will be shown on the PDF and in the software.

Dual-Channel loggers

For Dual-Channel loggers, two alarm tabs are presented, one for each channel. All alarm parameters are set individually for each channel, except that the red Alert LED will light and the buzzer will sound as long as one of the channels still has an active alarm.



If only one of the channels is activated in Log Channels, you cannot enter data into the tab for the other channel.

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 USRIC-8 (from serial number 5035127752) and UTRIX-16 (from serial number 5040022407) 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.

For any loggers that do not support the advanced alarm settings, only primary upper and lower alarms will be set. The remaining alarms will be disregarded.

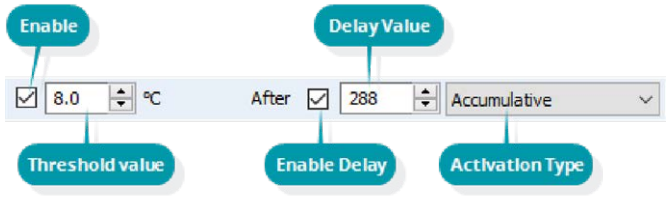


Figure 48: Entry line for alarm trigger conditions

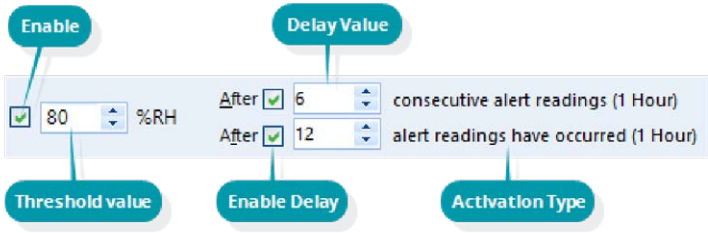


Figure 49: Entry line for RH alarm trigger conditions

For UTRID-16, UTRED-16 and UTREL-16 loggers a slightly different screen is shown. Here, the alarm symbols that appear on the LCD are depicted next to the entries in the software. The rules above are the same with one notable addition; a maximum of three upper and three lower alarm conditions can be entered.

The way alarms are shown on loggers with a display depends on the model. Please refer to the particular model's product user guide for information on what symbols will show with what alarm.

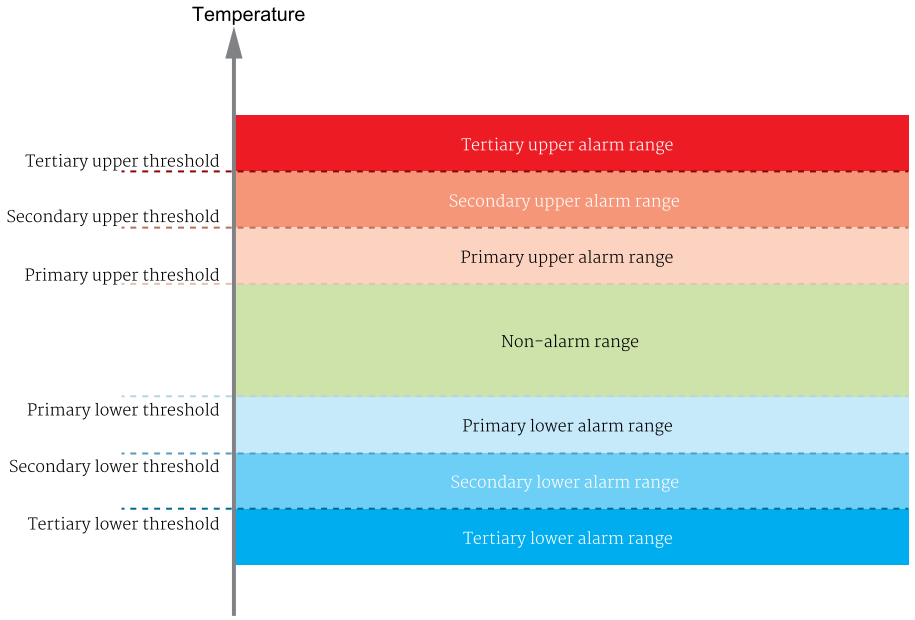


Figure 50: Alarm ranges for UTRID-16

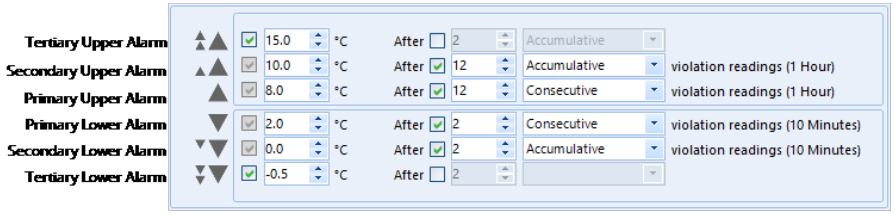


Figure 51: Representation for UTRID-16

Updating USB Loggers

Starting with version 3.1 release 10, LogTag Analyzer allows the option to update USB loggers directly through the software, rather than via separate apps.

From time to time LogTag North America Inc will publish updates that can be applied to a USB logger to enhance functionality and add new features, or to improve how the logger currently works.

This feature can be enabled or disabled in the General Settings (on page 149).

You will need an active internet connection and access to the LogTag North America Inc website at logtagrecorders.com to be able to use this feature.

If the feature is enabled, you will be given the option to update any logger for which an update is available, as part of the configuration process.

You will see:

- the model ID of the USB logger for which an update is available
- if the update is critical (an existing feature isn't working as expected) or a feature update (new functionality or enhanced features are available)

  You can find more information about the new and updated features on the LogTag® USB Logger Update page.
- a progress bar once you have started applying the update

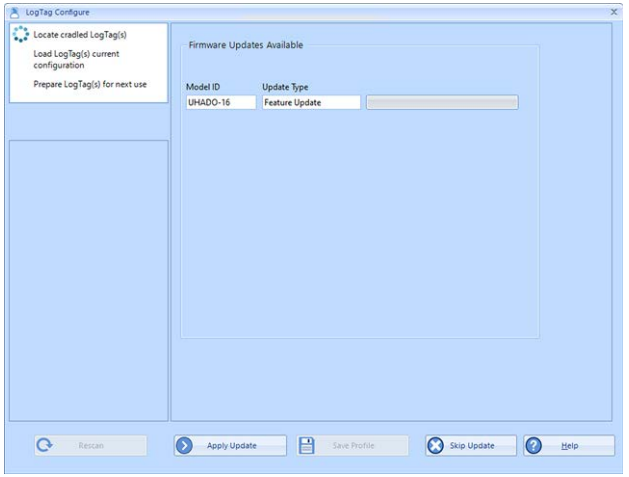


Figure 52: An update is available for a USB logger

To start the update process, click Apply Update. The progress bar indicator changes according to this sequence:

(the logger is being switched to accept the update)

(the current firmware is erased)

(the update process is about to start)

(the update is in progress)

During the update process the logger's Alert LED will be permanently on. For models with a display, the word **boot** will appear.

You should not remove any loggers during this process. If, however, the update process is interrupted, you may see this on the screen:

If this happens, simply start the logger configuration from the beginning.

You can skip the update process by clicking Skip Update. You will then be presented with the normal configuration screen.

Once the upgrade has successfully completed, you will see this confirmation screen:

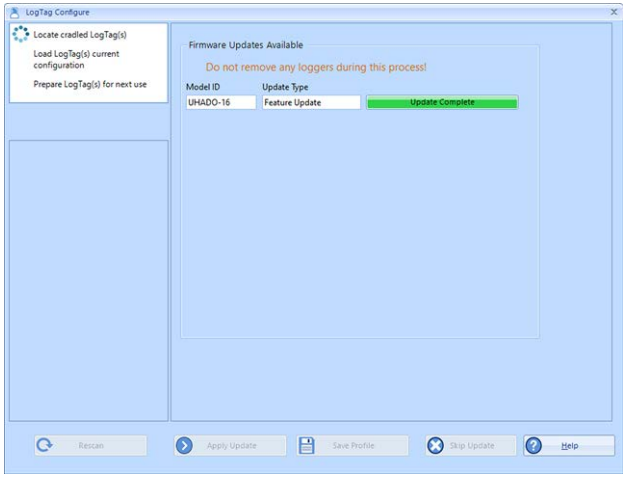


Figure 53: The update has successfully completed

Keep the logger connected until you see the Configuration screen, then continue as normal with the configuration.

If -for some reason- the upgrade process fails, and your logger continues to show **boot** or a red LED, please follow the steps in Recovering from a failed firmware update (on page 210)

Wireless Connection Parameters

Factory-new UTRED30-WIFI or UTREL30-WIFI loggers do not contain any wireless LAN settings. Although you can configure your wireless settings in LogTag Analyzer, we strongly recommend you run the WiFi Connection Wizard first before configuring the recording parameters here.

When configuring a logger with built-in wireless capability such as the UTRED30-WIFI, an additional tab is available, allowing you to enter the connection details for your Wireless Network (WLAN, WiFi Network).

Since units from the factory do not come with any pre-configured wireless connection data, you will need to enter details here when you configure a device for the first time.

You will need to have the following details available to connect to your WLAN:

- SSID (Service Set IDentifier) or Network Name

  This is the identification of the wireless network you wish to connect to.

  Click **Select SSID** to show a list of available networks. Select one of the network names from the list of available networks.

- Wireless Security Settings

  This is sometimes also called the Authentication Method. You need to ensure the logger is configured for one of the authentication methods your network supports:

  - **WPA2-PSK**

    This is one of the most common connection methods for small businesses, which only requires a password and the network name to be set correctly in order to connect to the network.

  - **Open**

    This security method does not require you to enter a password, however, open networks often require a login on a special web page called a captive portal. Although newer models of the UTRED30-WiFi supports open networks, it does not support a captive portal. Your IT administrator can add an exception in your network, so your logger can still connect.

  - **EAP-PEAP (with MSPCHAP2)**

    EAP-PEAP is an enterprise authentication method, which requires a username and password to connect to the wireless network. Your IT administrator will be able to tell you if your organization uses such a method, and what you need to enter.

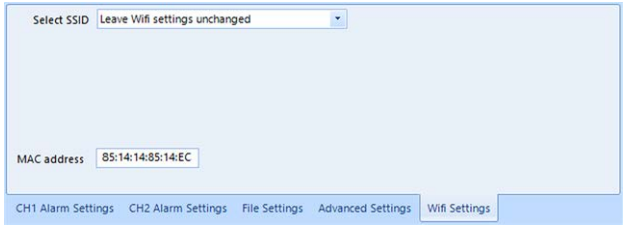


Figure 54: WiFi Settings tab for units without a WLAN configuration

- **Other**

  Occasionally, we may provide new authentication methods for our wireless loggers through an updated Connection Wizard, and someone else may have configured these settings in the logger for you. If LogTag Analyzer detects one of these new authentication methods, it will still show the configured SSID when you click Select SSID, however, it will not be able to identify the authentication method, but display "Other" instead. You can also not see password or user name entry fields. Unless you wish to connect to a different network, we suggest you click "Leave WiFi settings unchanged", this will ensure the wireless settings stored already inside the logger will remain unaltered.

  Note: You can change the authentication to a known method, but once the logger is configured, you will not be able to restore the previous authentication method with this version of LogTag Analyzer. This can only be done using the same software that generated the new authentication method in the first place.

  If during configuration you are not offered a specific authentication method, your logger does not support that method.

- WiFi Password

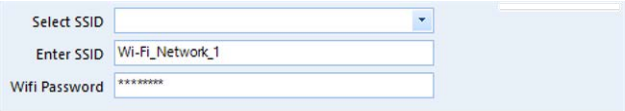
  This is sometimes also called the Network Security Key, Pre-Shared Key (PSK), Passphrase or simply the Network Password. This is required for all WPA2-PSK networks.

- User name, Password

  When you use an enterprise authentication method, you will need to provide a user name and a password to be able to connect to the network.

If necessary, your IT Network Administrator can advise you of these settings, usernames and passwords.

If the network to which you want to connect the logger is not in range or hidden (in other words, it does not appear on the list of networks), you will need to specify the settings by typing the SSID and password of that network, once you have clicked **Select SSID**.



This is required, for example, if you intend to deploy the device at a location with a different WLAN to what is available at your current location.

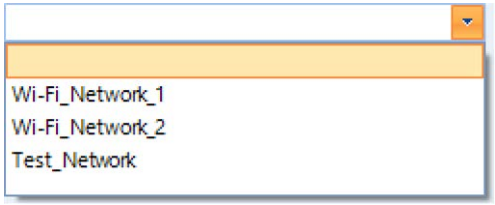


Figure 55: Available wireless networks

Please note that LogTag Analyzer does not check the validity of SSID or password. Please ensure that the correct password is entered. **The majority of connection errors are a result of entering an incorrect password.**

LogTag Analyzer will allow you to configure a logger with an empty SSID. This is equivalent to disabling WiFi and you will get a warning symbol and a tooltip in the Progress Pane indicator that such a logger will not connect to any wireless networks.

When re-configuring a UTRED30-WIFI at a later stage, you have the option to leave the settings unchanged. This is the default setting offered when you re-configure the device.

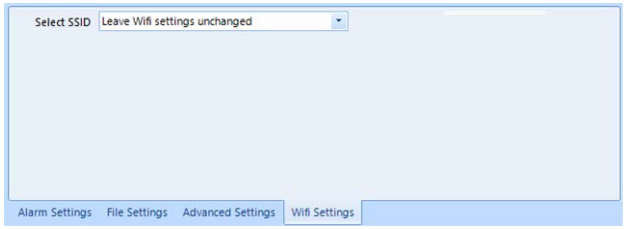


Figure 56: WiFi Settings tab

Using the LogTag® Online Connection Wizard

To enter WLAN settings you can also use the LogTag® Online Connection Wizard.

The LogTag® Online Connection Wizard is available by clicking **Connection Wizard** from the LogTag Online menu, or from the Windows Start menu in the Start – Programs – LogTag Recorders shortcut folder. The connection wizard allows you to:

- configure wireless and network parameters of your WiFi enabled loggers
- configure wireless and network parameters of your WiFi enabled interfaces
- create an account with LogTag® Online (or sign in if you already have an account)
- register wireless devices against your account

You can find more information about the LogTag® Online Connection Wizard at http://lt.help/c843e.

Using the LogTag Access Wizard

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

The LogTag® Access Wizard performs following tasks:

1. All connected interface cradles and USB ports are checked for attached LogTag® products. If any of them contain previously recorded data these are downloaded and saved.
2. The configuration window is displayed.

The Wizard performs the functions Downloading and Configuring in sequence, so you do not lose any data.

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

When the wizard completes, you can click Restart Wizard, and the process will start from the beginning.

Figure 57: LogTag Access Wizard from toolbar

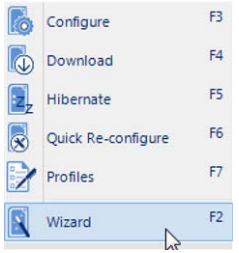


Figure 58: LogTag Access Wizard from menu

Quickly re-configuring a LogTag® logger

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

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

There are certain rules when using this function:

- You can use multiple interfaces. Each LogTag® device detected in an interface is re-configured with the same data used for its previous trip. Loggers do not have to be of the same model, and can each have different configuration settings.
- Re-configuration is only possible for loggers which used the "Push button" or the "Push button from hibernation" start method for their previous trip. If the logger'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 logger 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.

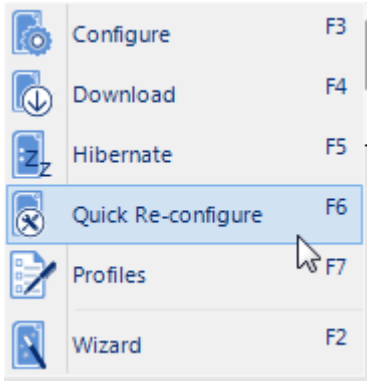


Figure 59: LogTag® quick-reconfigure function

- If the unit is still logging when you reconfigure it, you will be asked to confirm whether or not you wish to stop the current trip.

Automatic Re-Configuration after Download

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

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

Once enabled, a logger is automatically downloaded once inserted in the interface cradle, and immediately re-configured for logging, using the same settings as for the trip just completed. You will receive a confirmation once the configuration is complete.

If the logger is still logging during download, you also need to acknowledge that it must stop recording before a re-configuration can proceed.

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

If the logger 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 logger 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 logger. Therefore, if the file location for storing data is not accessible at the time of downloading, the re-configuration will not proceed.

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.

Not every model supports continuous operation. If you configure a LogTag® and you cannot select this option, your model does not support this feature.

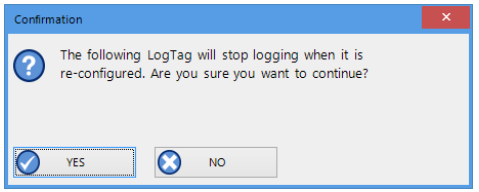


Figure 60: Confirmation request to allow stopping the logger

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 logger will automatically start recording as soon as configuration is completed. It will record at the same sampling interval as defined in the configuration and will continue to record until the user starts the product by pressing the START/MARK button. Once started, it will record started readings as per the configuration settings. 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 logger accidentally is not started at the appropriate time, the readings will still be available to view later.

When the readings are retrieved later, any pre-start readings will be separately displayed, so the user can quickly identify the readings recorded before and after the logger was started.

All LogTag® models have a finite amount of memory to store the readings they records. Therefore, while the logger is recording pre-start readings it will operate in its 'continuous operation' mode, which is explained further in the section Continuous operation on the previous page. Once its memory is full, the oldest pre-start reading will be overwritten with the latest pre-start reading, or the latest started reading if the logger has been started.

Once started, the logger will first fill any remaining memory, then overwrite the oldest pre-start readings until the complete memory is filled with started readings.

If a LogTag® product 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.

Restricting Access

You can enable a password protection feature, which requires any user to enter the correct password when they next configure the LogTag® logger for recording. This prevents a user from accidentally erasing data

During configuration, select **Configure requires a password**. A password entry field appears, where you can enter a password.

A confirmation of this password is required.

Figure 61: Password entry

Tip: Sometimes users tick the password required box, 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.

Protecting Recorded Data

Not only can you protect a logger's configuration; most models can also be set up so they require a password before you can access recorded data. This function can be enabled in the main configuration screen by selecting **Download requires password**. The same password is used to protect configuration and download.

The features can be used independently. You can use a download password without a configuration password, and vice versa, or use both passwords, or none.

Note: For USB loggers, **Download requires password** cannot be enabled if you enable any on-board files to be generated.

Password Rules

The password can be up to 6 characters long (16 characters for USB loggers) 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 loggers.

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 Code Pages on page 196 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 logger. A window similar to this will appear:

Once a password has been stored in the device, it can only be accessed by providing the correct password. Therefore, if you forget the password you will no longer be able to access the LogTag® Passwords are case sensitive – the passwords "Bob" and "bob", for example, are different.

Figure 62: Password confirmation

Hibernation - Prolonging battery life

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

While a logger is hibernated it will:

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

The only exception is when the logger 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 hibernated logger, go through the usual process of Configuring a LogTag® product for recording (on page 48).

To hibernate a logger, select **Hibernate...** from the **LogTag** menu.

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

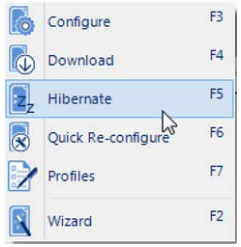


Figure 63: Hibernating a logger

You will see the window one on the right when hibernating a logger.

One of the following icons will show next to each of the items in the list:

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

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

The extent to which Hibernation will prolong the battery life of a LogTag® product varies between different models and versions.

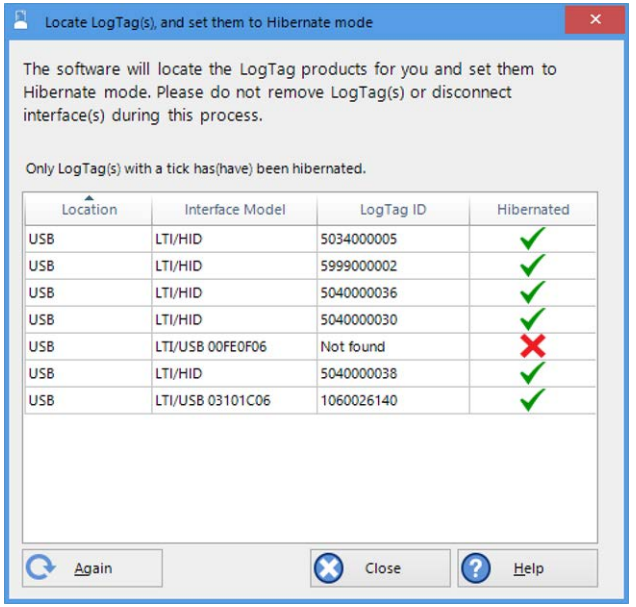


Figure 64: Hibernating multiple loggers

Starting and using the LogTag® logger

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

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

The different start methods are explained in more detail in the section about Configuration Parameters.

For exact procedures how to start a logger please refer to the individual Product User Guides and Quickstart Guides, available for download from the product web pages at https://logtag.com.

Configuration Profiles

To simplify the task of configuring multiple loggers 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, then use the profile to configure loggers as required.

Configuring a logger 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.
3. Click Configure loggers.

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

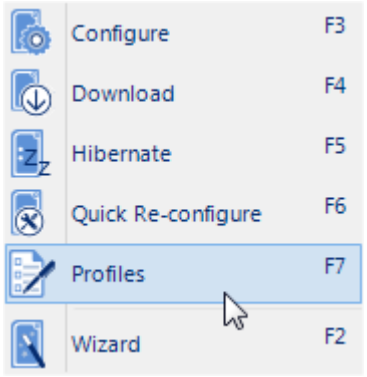


Figure 65: LogTag Profile Menu

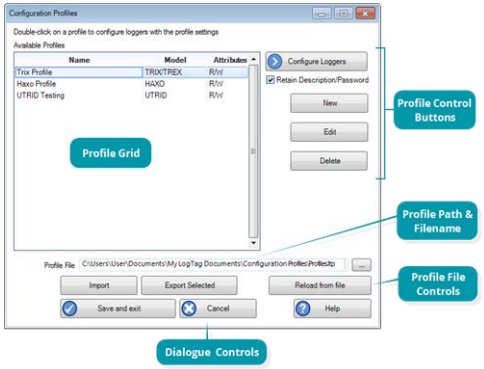


Figure 66: Configuration Profiles Main Window

Profiles Grid

When you first select this feature the profiles grid will be empty. You will fill the grid by adding profiles, or importing profiles.

Profiles from the grid can then be used to configure loggers. A single click on the column title will sort the profile using this column. Double-clicking on a profile will configure all loggers 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.

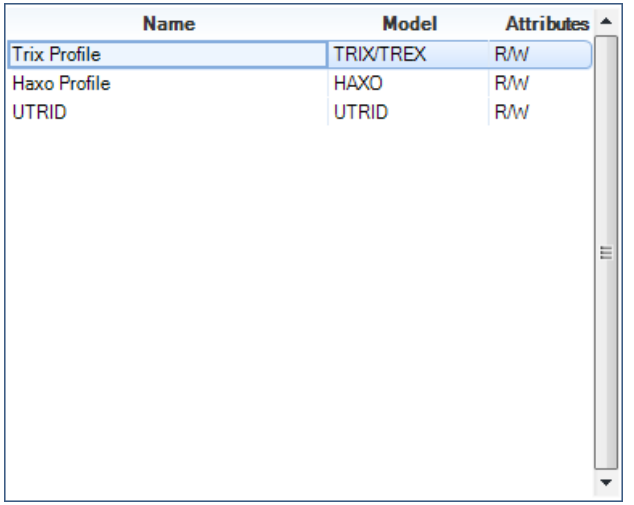


Figure 67: Profiles in the profile grid

Profile Control Buttons

Clicking on a profile row and clicking Configure LogTags will configure all loggers currently attached, using the parameters stored in the profile (you can also do this by simply double-clicking the profile name).

To be configured, loggers must have the same model name as in the profile.

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

Clicking New will bring up the Edit Profile window without any parameters. Type a Profile Name into the text entry field and select a Model from the list.

Once you have selected a model, the configuration parameters for this model appear. They are the same parameters as already described in Configuring a LogTag® product for recording

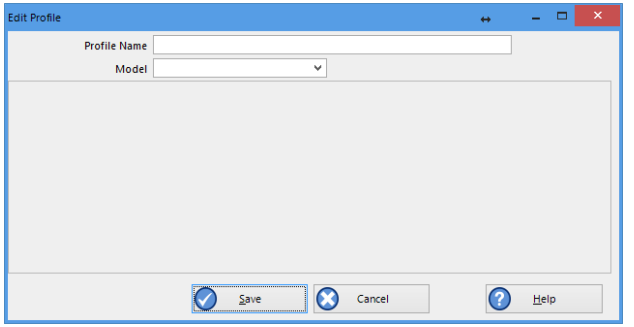


Figure 68: New profile window

When you enter the configuration parameters for a WiFi enabled logger, but do not enter any WiFi settings, any logger configured with that profile will not connect to a WiFi Network. Use the WiFi Wizard to connect this logger to the desired WiFi network.

The same window will be displayed when you click Edit. 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 and the profile name.

Click Save to store the profile in the Profile file, Cancel to discard any changes and Help to display the help screen for this window.

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 organize 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://lt.help/68jib.

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 on the Import button, a file explorer window will open. Browse to the profile file from which you want to import the profiles 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. A file explorer 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.

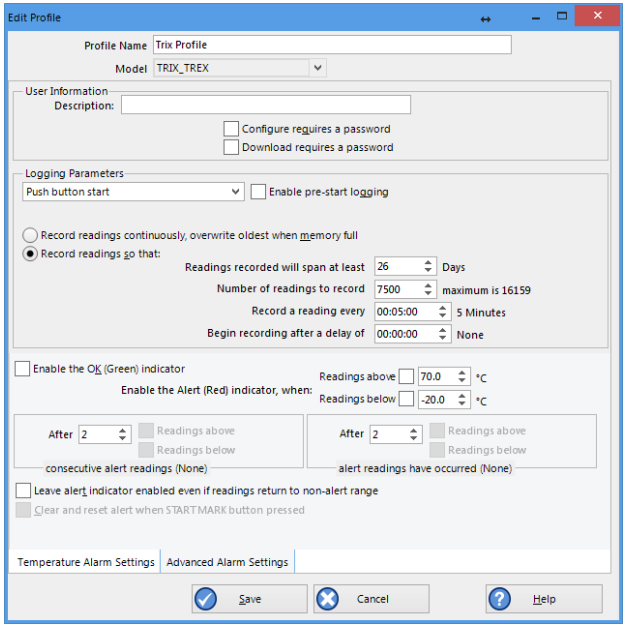


Figure 69: Editing a TRIX-8 profile

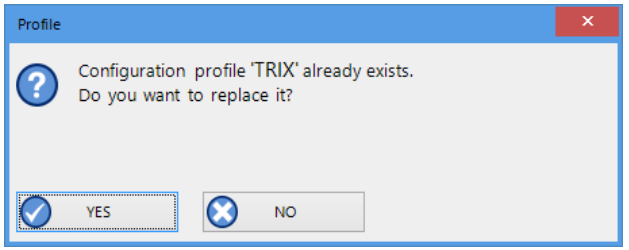


Figure 70: Prompt when overwriting an existing Profile

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 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 loggers and you want them all to start at the same time you should use the standard configuration method and the Repeat function.
- You cannot configure one type of logger 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 logger with a password protected configuration, this same password must be provided in the profile. There is no separate password confirmation dialogue.
- Loggers that can be upgraded to use a download password will automatically be upgraded when a profile is applied using this feature.

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

Table 13: Profile error messages

Message	What it means
"Logger does not support advanced alert settings"	You have selected a profile which has separate upper and lower alert settings, but the logger you wish to configure does not support this. You will need to use a different profile, or use a different logger if this feature is important for this trip.
"Logger cannot record more than X readings"	You have selected a profile that requires the logger to take more readings than fit into its memory. You will need to use a different profile, or use a different logger if 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 logger 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 logger with the new password. If the logger 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 logger 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 logger if this feature is important for this trip.
"Logger only supports latched master alarm"	Loggers typically can have a setting applied that allows an alarm to reset if conditions go back to within specification. Some older TRID30 loggers do not support this feature, and if you attempt to configure such a logger 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 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 logger 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 logger.

Calibration Certificates

Starting with version 3.1.6, you can view and print a logger's factory calibration certificate directly from LogTag Analyzer.

You can access the certificate:

- by clicking Show Certificate from the report tab after the logger was downloaded
- by clicking Certificate of Calibration during configuration of the logger

The certificate issue date is the date the logger was first configured.

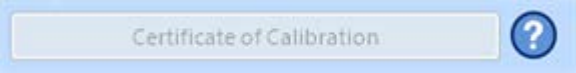
You can also access the factory calibration certificate from the report tab when opening a saved data file, provided the recorded data are from the period during which the certificate was still valid.

You will not be able to access the certificate:

- before the logger is configured for the first time. You will not be able to click Show Certificate until the configuration is uploaded successfully to the logger
- after the logger was adjusted by a third-party calibration laboratory using LogTag® Calibrate
- if a logger was manufactured before 1. April 2019
- for indicator products
- on a multi chart report

If a logger was first configured with a version of LogTag Analyzer prior to 3.1r6 you may still be able to view the calibration certificate. Please note, however, that the certificate date may differ from that on the certificate issued by your distributor. In this case, the distributor issued certificate is correct.

For additional information you can click the icon next to the calibration certificate button:



Even if you choose not to view the certificate, a PDF of the certificate document will be saved to "My LogTag Documents", in the "Certificates" folder when you configure a logger for the first time.

Figure 71: Factory Calibration Certificate

Smart Probes

Starting with version 3.2r2, LogTag Analyzer can show additional calibration information for LogTag data files from loggers that used Smart Probes to record temperature, in addition to the logger's own certificate.

Following applies when viewing these certificates:

- When you display the contents of a data file from a logger, that had Smart Probes connected when it was recording, up to two additional tabs are available in the certificate window.

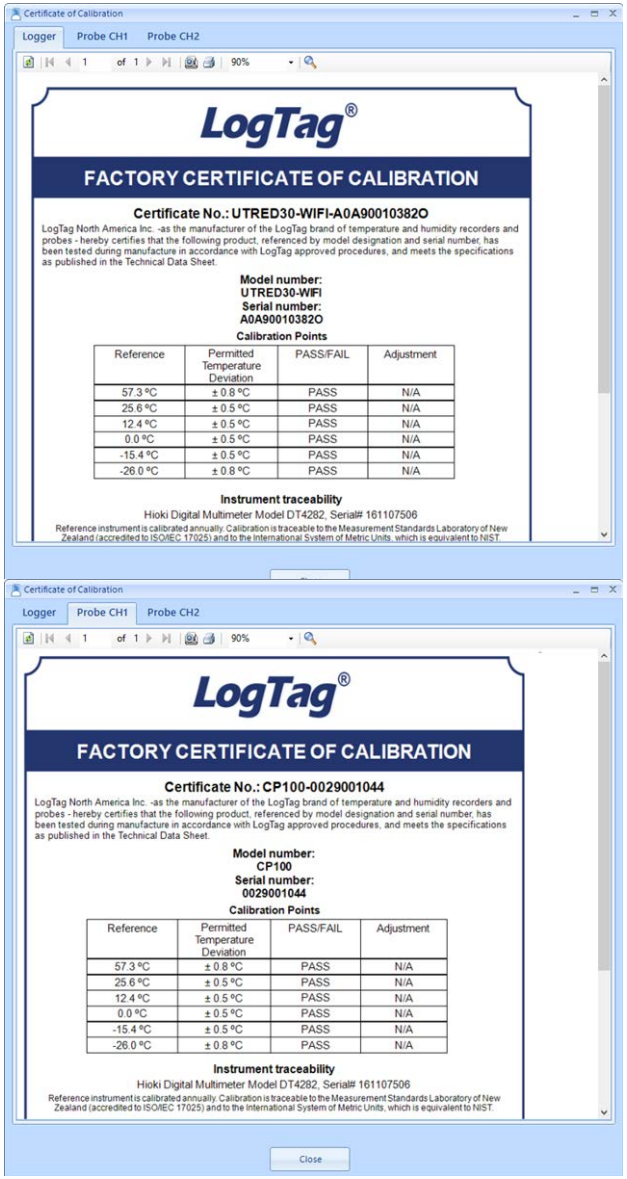
  The tabs show :

  - The calibration certificate for the logger itself.

    This certificate only applies when the logger is operated with an ST10 or ST100 analogue probe.

  - The certificate for the Smart Probe connected to channel 1.
  - The certificate for the Smart Probe connected to channel 2.

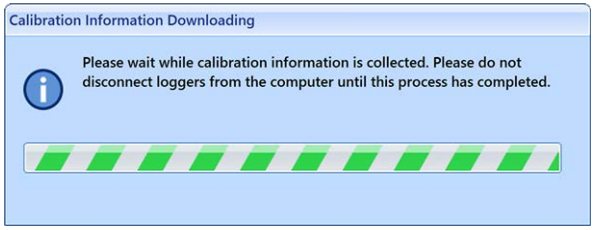
    Either tab will only be shown if a Smart Probe was connected to this channel during logging.
- Click the corresponding tab to display the certificate for the Smart Probes.



- If a Logger or Smart Probe were calibrated and adjusted by a third-party laboratory, a message will be displayed on that tab, as shown on the right.

You can also view certificates for Smart Probes currently connected to a logger during the configuration process:

- If a logger is being configured for the very first time, the calibration information for both the logger and the probes can only be accessed after the logger has completed the configuration process.
- To view the calibration information for the Smart Probes, these must be connected to the logger when you click Certificate of Calibration after the configuration has finished. At this point, LogTag Analyzer interrogates the logger to determine if Smart Probes are connected, and to retrieve their information.[1] During this time you will see a warning message, asking you not to remove the logger from the PC.



- When this process is complete, you will see the Certificate tab for the logger, plus any Smart Probe certificates.

> The logger's certificate will be automatically stored, even if you do not click Certificate of Calibration (this is the same as with other logger models). To store the Smart Probe certificates, however, you will need to view the certificates, so the Calibration information can be downloaded from the probes.

- If a logger was previously used, you can click Certificate of Calibration even before the configuration data have been transferred to the logger. In this case, any Smart Probe certificates displayed in the tabs will be of the probes last connected, which may be different to the currently connected probes.

> You can only view the certificates for the currently connected Smart Probes if you click Certificate of Calibration after the logger configuration is complete.

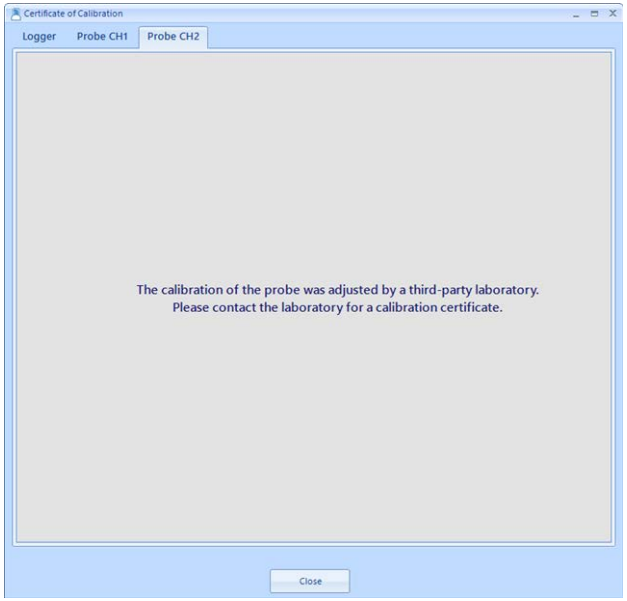


Figure 73: Probe calibration was adjusted

[1] This process will proceed, even if no Smart Probe is connected to either logger channel.

Results from LogTag® Loggers

Once a LogTag® has finished its trip, you can:

- download the data to a PC (the section below explains this in more detail);
- view and analyze the information (as detailed in the section Analyzing the results; and
- print the information or save it to other formats (as shown in Printing the results).

LogTag® products store all recorded data in their internal, non-volatile memory. You can download the data as many times as you want, as long as the logger 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 it may also be a folder in Public Documents. You can customize this location to your requirements File and Folder Settings as described on page 171.

Downloading data stored in a logger 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 logger once this process has started.

If the LogTag® is currently recording while you retrieve the information, it will continue to record without interruption. If the logger 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® logger:

- via automatic download

  Slot the product into the interface cradle, or plug it into a USB port while the LogTag Analyzer software is running (even when 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. While the software is retrieving the readings you will see an animation. A new animation will be displayed for every new logger attached.

  You can also enable the option to automatically re-configure the device with its current settings (see Automatic Re-Configuration after Download on page 79).

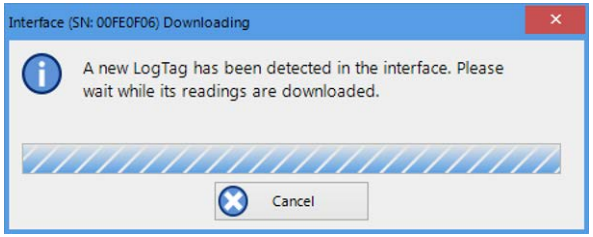


Figure 74: Downloading a LogTag® automatically

- 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 retrieves the readings stored in the logger and then offers to configure it for its next trip.

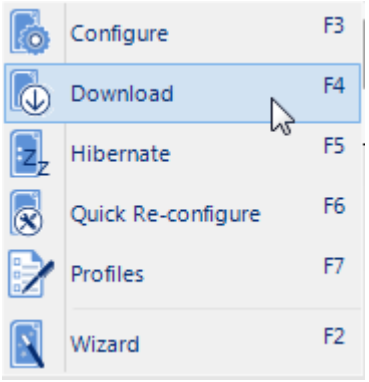


Figure 75: Download Menu

Figure 76: Wizard Toolbar Icon

Progress Pane

When you initiate the download manually, rather than using the auto-download feature, the LogTag Download window will be displayed. Each logger found will be listed in the Progress pane, much the same as in the Configuration Window.

When you see this icon displayed, communication was established, but no data were downloaded. The most likely cause is that there are no readings in the logger.

When you see this icon, no logger was found in the attached interface.

Data from this logger was downloaded, but the logger has a low battery. It should not be used for another trip

This icon is displayed after the logger has been successfully downloaded and the data saved. The progress bar will also show the word Downloaded

This icon is displayed after an unsuccessful attempt to download the logger. Further error messages will be displayed to indicate why the logger was not downloaded.

When the logger has completed its trip and you wish to see the recorded readings, place the LogTag® into the Interface Cradle.

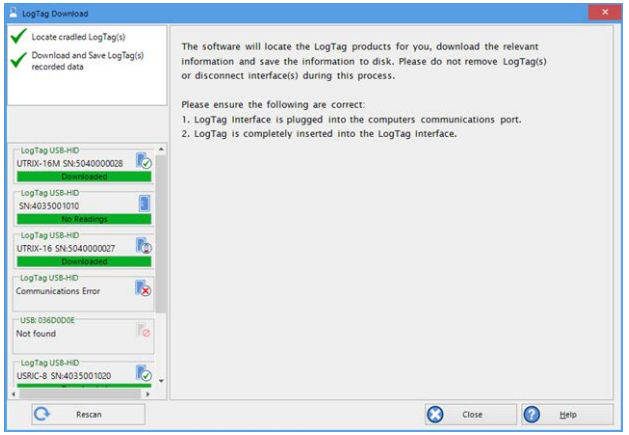


Figure 77: Progress Pane when downloading data

If the LogTag® is still recording it will continue to do so. A USB logger, however, will not record temperatures while plugged in; instead it will record Paused readings.

The software will automatically download any readings and save them in a file.

Once the readings have been successfully downloaded, the software will display the information. The chapter Results from LogTag® Loggers on page 92 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 Reconfigure with same settings after automatic download on page 160.)

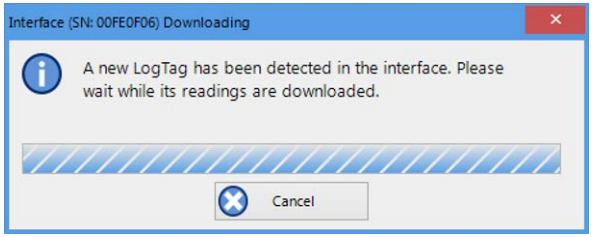


Figure 78: Downloading a LogTag®logger

LogTag® Data files

Every time you download a LogTag® Logger to your computer the data are automatically saved to a file with a *.ltdx file extension (LogTag® Data Extended). This file is then opened, and presented to you on screen. When you download a LogTag® product, and view the data, you are therefore viewing the file that was saved when the LogTag® was downloaded.

The *.ltdx file is unique to LogTag® products and can only be read by LogTag Analyzer software.

You can customize a number of options for this file in the Edit - Options window:

- You can define the file's name, for example by specifying details about the logger from which the data were downloaded (File Name on page 172)
- You can decide if existing files with older data should be overwritten or kept (Uniqueness on page 177)
- You can automatically have files sent to email recipients and FTP sites (Automation on page 160)
- You can decide which additional other file formats are created, for example PDF files (Exports and Reports on page 179)

You can also combine data from multiple files as on page 99.

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

Note: If the logger you are downloading has not taken any readings, a message such as the one one on the right will be displayed.

Figure 79: No Readings to download!

File generation for Dual-Channel loggers

When downloading Dual-Channel loggers, such as the new UTRED30-16 or UTRED30-WiFi models, several files will be generated:

- a *.ltd file, containing the complete data for both channels
- a *.ltdx file, containing only the data for channel 1
- a *.ltdx file, containing only the data for channel 2

Both *.ltdx files will be saved, then opened and be presented in the selected default tab. File names will be generated as usual, with the suffix CH1 and CH2 added as appropriate. The *.ltd file will only be saved, but not opened, and will also not appear in the Recent File list.

Note: If your default file format is set to *.ltdx, the *.ltd file will be deleted once both *.ltdx files have been generated.

If you decide to open the *.ltd file again, instead of the *.ltdx file, no new files will be generated. Instead, the already saved file will be opened, including any changes you have made, such as 120.

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 for their quality control and assurance systems.

Digital signatures allow users to record an event in a LogTag Analyzer file along with their digital signature. To add digital signatures to data files, LogTag Analyzer must be connected to the LogTag® User Server software. For more information how to connect see User Server on page 186, or contact your local network administrator.

To add a signature to a file, open the file and click **Digital Signatures** from the **Edit** menu, or click Signatures located on the toolbar, which will display the File Properties window with the Digital Signatures tab already activated.

Figure 80: Digital Signatures toolbar button

Then click **New** to start adding a digital signature.

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

Click OK to permanently add the digital signature to the file or Cancel to abort. Multiple digital signatures from the same or different users can be added to a single LogTag Analyzer file. You can see all digital signatures that were applied to a file when Viewing file properties (on page 98) or in the Report Display on page 124.

Note: The time and date displayed in the signature window is always UTC, regardless of the date and time settings made in Date and Time Format on page 182.

How secure are my data

LogTag® files are encrypted and contain checks to detect if the file changed since it was originally created. If LogTag Analyzer detects that a file has been tampered with, or has become corrupted, it will not open the file.

In addition, LogTag® devices automatically insert error detection codes during recording, which are used to detect data errors. When these detection codes for a block of recordings fail the integrity validation, the relevant readings are marked as non validated readings. Non validated readings are displayed differently to validated readings to indicate that they have failed this integrity test.

Non validated recordings typically occur in the 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.

As the software does not modify any of the recorded data in 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 out 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 in the memory of 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.

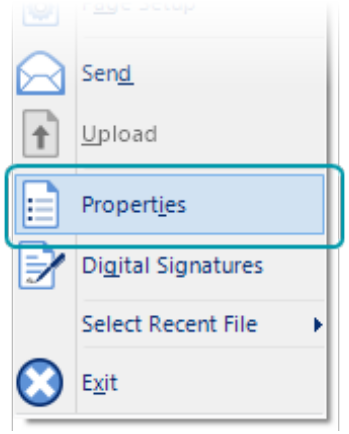


Figure 81: File properties Menu

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

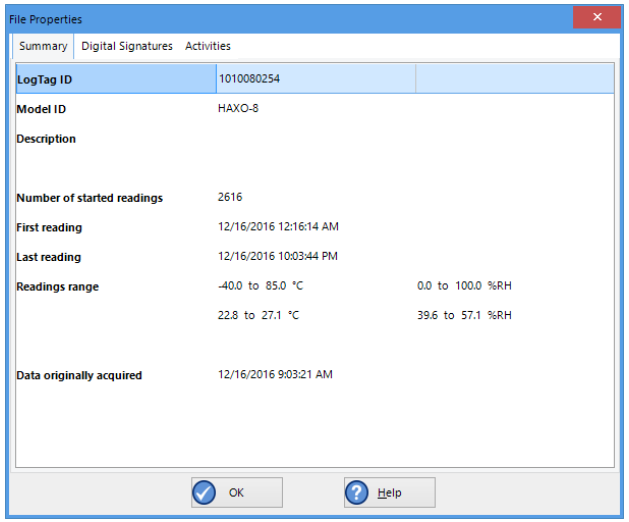


Figure 82: File properties

Saving a Multi Chart File

If the main LogTag Analyzer window currently displays a multi chart (see Combining charts onto a single chart), you can save it by clicking on the toolbar 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 *.multix.

A multi chart file contains a copy of each individual file that makes up the chart along with any zoom settings, annotations and the information that describes which relation the data files have to each other.

To open a previously saved multi chart configuration file, click on the toolbar icon or select **Open** from the **File** menu , then select the "*.multix" 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.

You can save a multi chart file as a PDF, but not as any of the other export file types.

Selected LogTag® Data files (*.sltd)

The file type *.sltd is a legacy file type, which you can open with this version of LogTag Analyzer. In this file LogTag Analyzer version 2.X allowed you saving data zoomed to a particular time window. When opening a *.sltd file, LogTag Analyzer version 3.X will extract the data for the complete trip and present the data zoomed to the time window stored in the file.

Since the new *.ltdx format has this function built in, the support for saving this file type has been discontinued.

Calling up previous results

To open a stored file, click the Open toolbar icon or click **Open...** from the **File** menu. This will display the Open file dialogue.

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

You can also open files directly from your LogTag® Online account. Please refer to the section about Integrating LogTag Analyzer with LogTag® Online for more information.

The files that have most recently been opened are listed in the **Select Recent File** sub-menu the bottom of the **File** menu. After the software has been installed for the first time, there are two files in this list, even though no files have been opened yet. These are sample files, which have been installed along with the software, so that users can see an example of how a LogTag® file looks. 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**. 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.

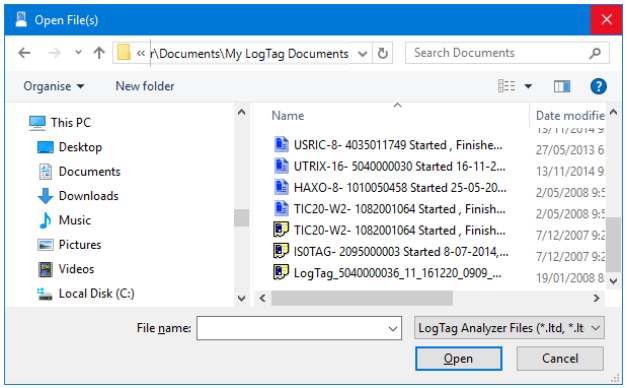


Figure 83: File Open dialogue window

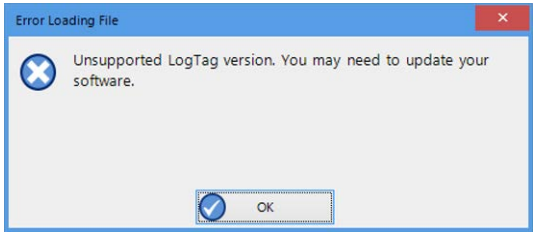


Figure 84: File not compatible with current version of LogTag Analyzer

Analyzing the results

Data are displayed and analyzed in file windows, which appear inside the main LogTag Analyzer window. Each file window displays the data of a single logger and has a series of View 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 Multi Charts (Combining Charts into a Single View) on page 111.

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

Table 14: View 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 loggers.

Not all tabs may be displayed. You may for example see only Report, Chart, Data and Summary, if the LogTag® does not have a statistics memory.

The readings range determines which section of the trip is shown in the view tabs. Click on the drop down arrow and select the range you wish to display. Note that you can only make this selection in the Chart and Data view tabs.

Table 15: Reading range selection

Tab selected	Information displayed
Pre-start Readings	The file window only shows data for pre-start readings, but omits any readings taken after the logger started. This cannot be selected if the logger has not taken any pre-start readings.
Started Readings	The file window only shows the data for readings taken after the logger started, but omits any readings taken prior to the start. This cannot be selected if the logger has only taken pre-start readings
All Readings	The file window shows the data for all readings taken by the logger.

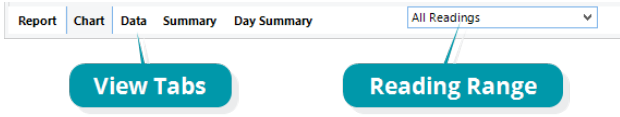


Figure 85: View tabs and reading range selection

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.

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 .

You can see how temperature (and humidity if applicable) changed during the trip.

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.

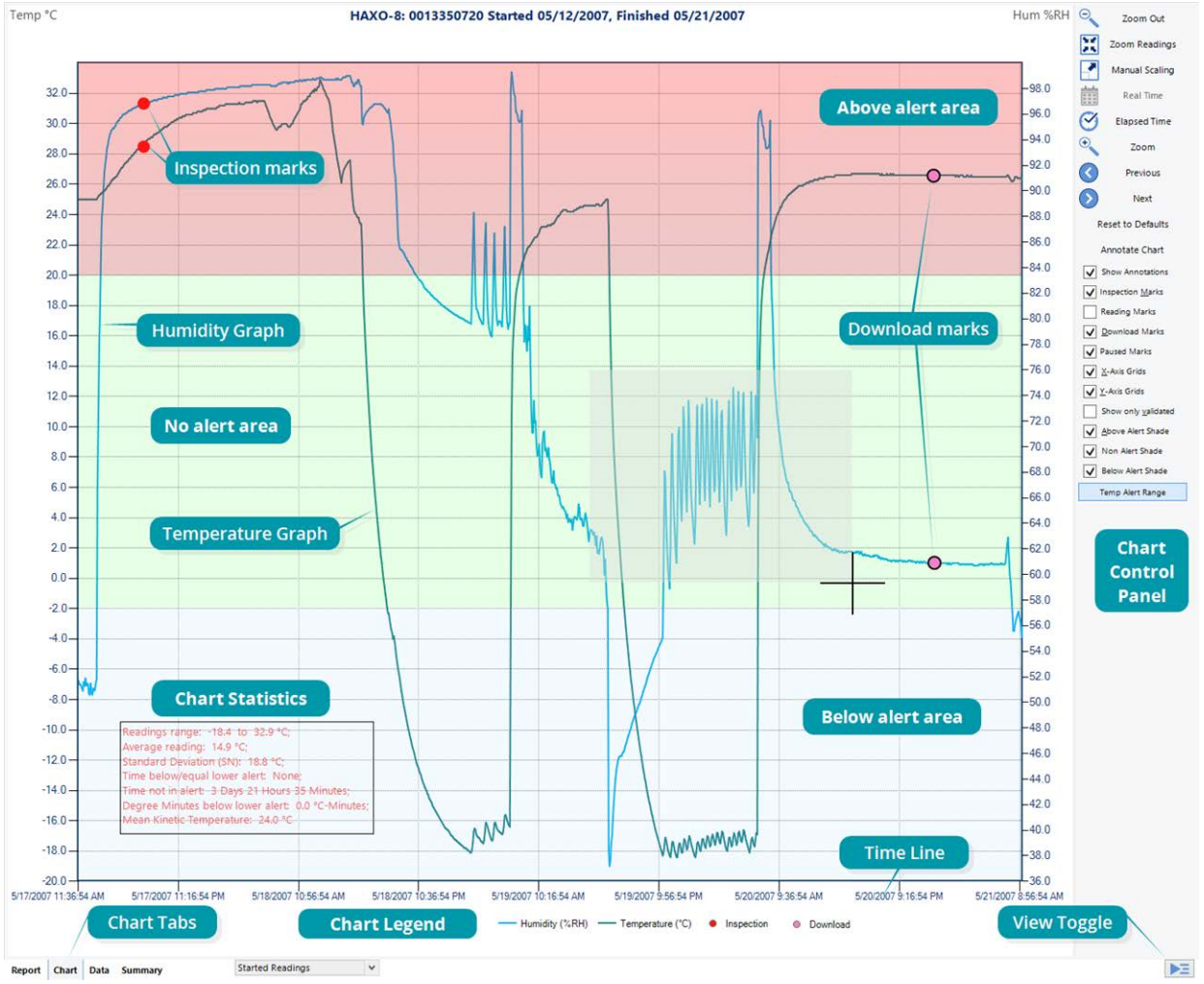


Figure 86: Chart display

When you release the left mouse button, the area highlighted now fills the window. 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.
- A Paused mark will be shown when the product records readings for which the statistics functions are suppressed.
- A Min/Max reset mark will be displayed for each time the min/max display on a logger is reset.

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.

When elapsed time is chosen for the x-axis display, the tooltip will also show the elapsed time.

You can also add annotations (Chart annotations) to the chart.

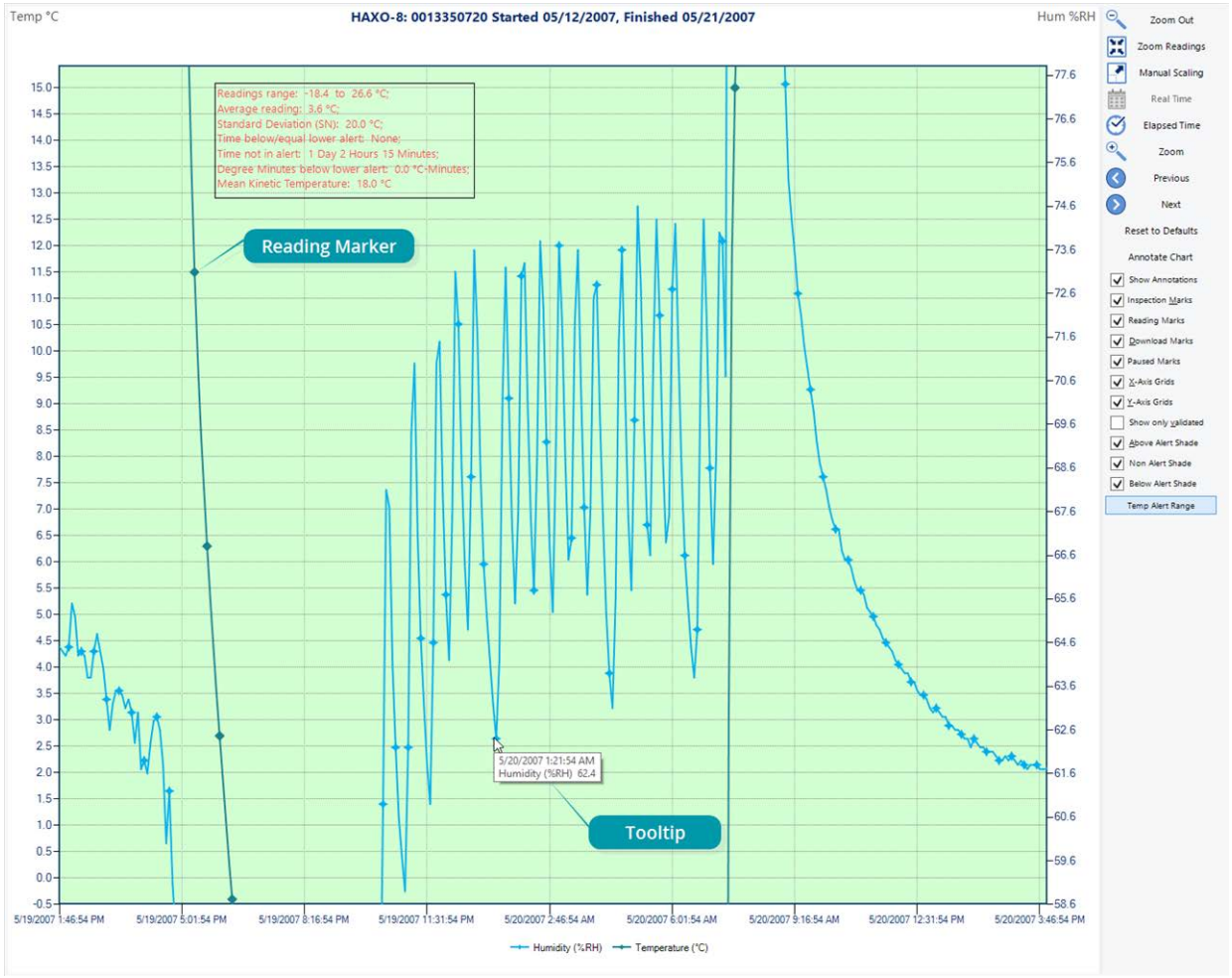


Figure 87: Chart display while zooming with the mouse

The chart area displayed in the window can be copied to the clipboard by:

- right-clicking anywhere on the chart and clicking **Copy** from the shortcut menu;
- pressing **CTRL-C**; or
- clicking **Copy** from the **Edit** menu.

This picture can then be pasted into any Microsoft Windows® application.

The chart is copied to the clipboard at its current zoom range.

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 **Chart Control Panel**, or the shortcut menu when you right-click on the chart.

These 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 Controls) and the Annotation menu (see Chart annotations on page 120) to display text on the chart.

To close a window, click ✕ on the file window tab. You can also click ✕ on the right side of the window. When you right-click in a file window tab, you can also close the file itself, but also close all other files, or close all files.

The Chart Control Panel

The chart control panel provides you with an easy way to turn elements of the chart on or off, to annotate the chart and to manipulate which part of the data is being displayed.

The upper part of the chart control panel contains some of the functions you can also find on the toolbar. These are replicated here to give you easy, convenient access in one location. These include scaling functions, time axis and inspection mark zoom.

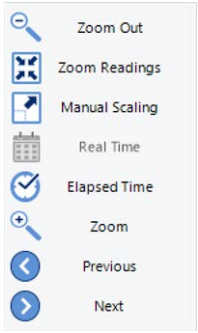


Figure 88: Upper Chart Control Panel

The lower part of the Chart Control Panel controls what additional information is displayed on the chart. The default values for the various grid lines, markers and shadings are set in Edit - Options - Charts.

The options you set in the chart control panel are stored with the chart, provided you save the file after you have made the changes in the chart.

At a later stage, if you wish to return to the default settings you can click **Reset do defaults.**

You may also receive charts from other users with settings different to your own. These charts can also be reset to default values using this method.

Table 16: Additional information for Charts

Feature	What this feature does
Align charts (multi chart only)	Shifts all charts so their first readings align on the canvas. Please see Aligning Charts on page 114 for more information.
Reset do defaults	Changes the appearance and position of all charts so they correspond with the settings made in Edit - Options - Charts.
Annotate chart	Opens the Annotation Panel and allows you to annotate the chart. Please see Chart annotations on page 120 for further details.
Show annotations	Select, if you wish to show the chart's annotations, clear, if you wish to hide them.
Inspection Marks	Select, if you wish to show each recorded Inspection Mark in the chart, clear, if you wish to hide them. This setting also controls the Min/Max Reset Marks.
Reading Marks	Select, if you wish to show the chart's Reading Marks, clear if you wish to hide them.
Download Marks	Select, if you wish to show each recorded Download Mark in the chart, clear, if you wish to hide them.
Paused Marks	Select, if you wish to show each recorded Paused Mark in the chart, clear, if you wish to hide them.
X-Axis Grids	Select, if you wish to show the X-Axis (vertical) grid lines, clear, if you wish to hide them.
Y-Axis Grids	Select, if you wish to show the Y-Axis (horizontal) grid lines, clear, if you wish to hide them.
Show only validated	Select, if you wish to show only validated readings on the chart, clear, if you wish to hide them. Please see How secure are my data on page 96 for further information about non-validated readings.

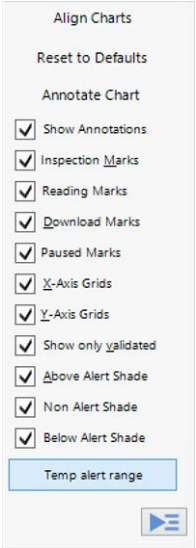


Figure 89: Lower Chart Control Panel

Feature	What this feature does
Above Alert Shade (single-chart only)	Select, if you wish to show readings above the upper alarm limit with a different background color, clear, if not. Loggers with more than 2 alarms may show more than one background color. Please note these cannot be turned off individually.
Non Alert Shade (single-chart only)	Select, if you wish to show readings in the non-alert area with a different background color, clear, if they should appear with a white background.
Below Alert Shade (single-chart only)	Select if you wish to show readings below the lower alarm limit with a different background color, clear, if not.
Temp alert range/ Hum alert range (HAXO-8 single-chart only)	If the button shows Temp alert range, the alert shading uses the temperature maximum and minimum alert values for the shading. If the button shows Hum alert range, the alert shading uses the humidity maximum and minimum alert values for the shading. The Y-Axis grid lines also adjust so they align with the corresponding divisions.
Hide/Show (/)	Clicking hides the Chart Control Panel when it is currently shown, clicking shows the panel when it is currently hidden.

Manual Scaling

Sometimes you will want better control over the temperature and humidity scale, or the time window in which readings are displayed, than you can achieve with the mouse zoom.

To do that, you can enter the zoom values directly:

Right-click anywhere on the chart area and select Manual Scaling. The dialogue as shown 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 logger model.
- Range of readings; the chart is zoomed so the axis covers the minimum and maximum reading values (with a small margin added).
- Custom Range

  When selecting this option you have complete control over which part of the graph is displayed.

  You can specify

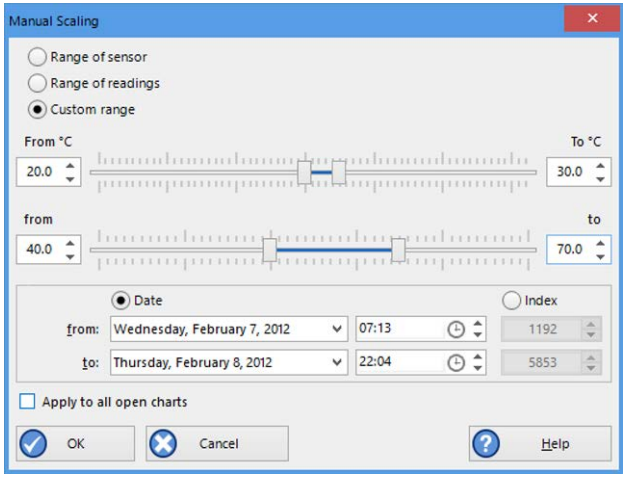


Figure 90: Manual scaling window

- The temperature (and humidity ranges if applicable) for the y-axis.
- 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 logger'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.

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.

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, or Cancel to abort.

To return to the previous zoom level, click **Zoom Out** from the **Edit** menu, click

on the toolbar or right-click anywhere on the graph area and select **Zoom out**. You can do this individually for each chart. You can also right-click and select **Zoom Readings.**

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. Note that these controls are disabled when a multi chart tab is active.

	Zoom to inspection marks This zooms the chart so readings are shown between the oldest reading recorded and the first inspection mark 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 not available when the oldest reading is already being displayed.
	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 not available when the newest reading is already being displayed.
	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.

For this function, Min/Max Reset Marks are treated as if they were Inspection Marks.

In addition to zooming out and manually scaling the chart, you can right-click anywhere on the chart and use these additional functions:

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 logger 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.

If either of the these menu points are grayed 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 these and two additional settings as the default when files are opened or loggers are downloaded.

From last download mark to last reading

This zooms the chart so readings are shown between the last download mark and the newest reading in the data. You can use this function to look at the last set of data where a logger 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.

From last inspection mark to last reading

This zooms the chart so readings are shown between the last inspection mark and the newest reading in the data. You can use this function to look at the last set of data where inspection marks are placed at multiple points in the trip and you are only interested in the last portion of the trip.

Multi Charts (Combining Charts into a Single View)

You can overlay data from multiple loggers in one view. When you click

in the toolbar, all file window tabs containing data for a single logger are combined into one window, where you can access a Multi Chart, a Multi Report and a Multi Data listing by clicking the corresponding tab.

Charts will be shown in different colors, as chosen in the color palette in the **Options** for **Charts**, where you also define the composition of the Chart Legend. The legend contains an entry for each chart showing the chart's color and the description defined in the settings.

You can annotate a multi chart in the same way you annotate a single chart, including a summary statistic.

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

When you close a newly created multi chart, it will either be stored automatically, or you will be asked if you want to store the chart. This depends on the settings made in File and Folder Settings as described on page 171.

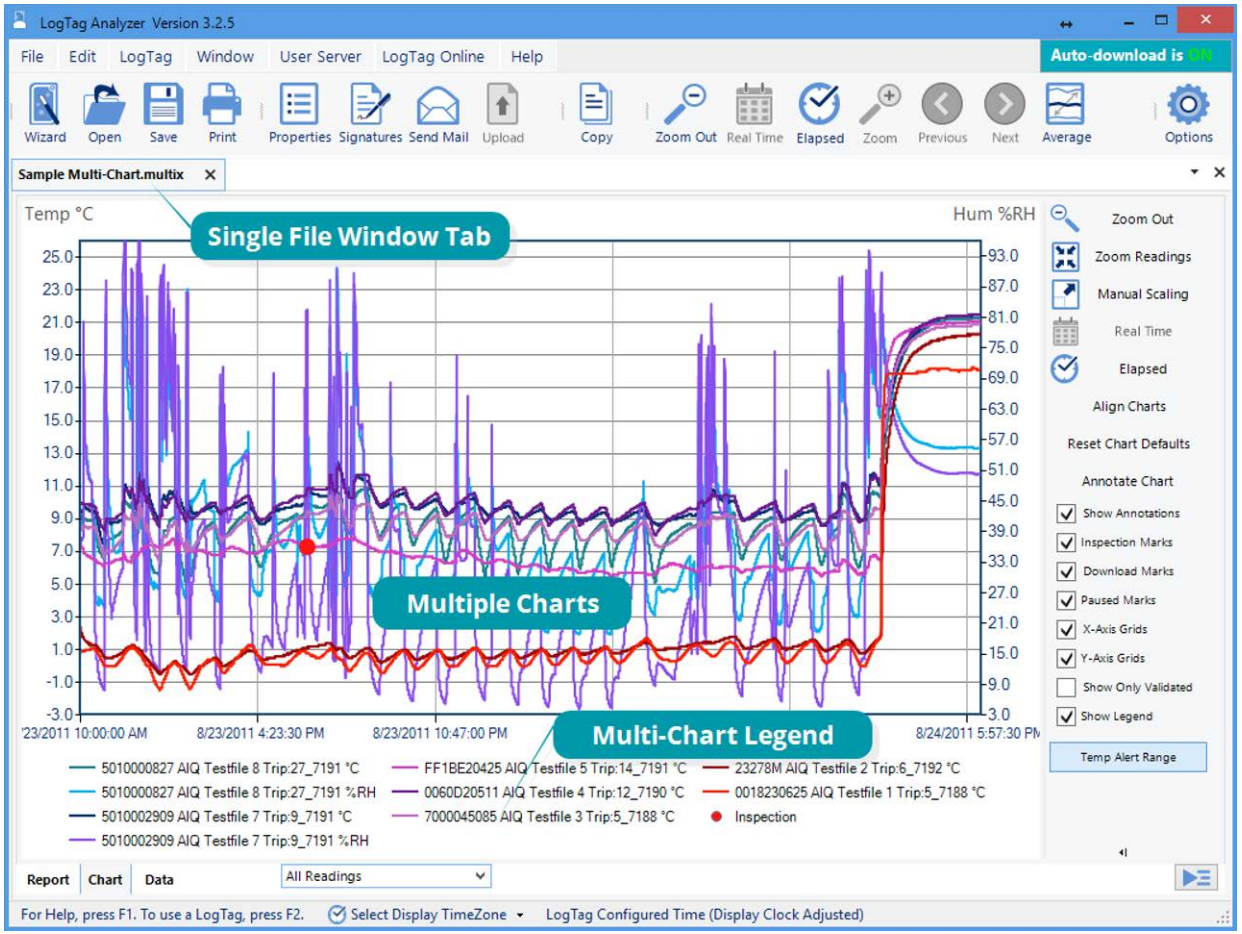


Figure 91: Seven charts combined into a multi chart

Hiding and Showing Charts

In the multi chart window you can hide each chart individually. Right-click anywhere on the chart, point to the entry of the file you wish to hide and click to clear the tick. To show the chart again, repeat the procedure and select the name again.

You can also hide all humidity readings, or all temperature readings. A tick will indicate the readings that are hidden. To show these readings again, click the entry once more.

> Note: If the temperature readings are hidden, and you click **Hide Humidity Readings**, the temperature readings will be shown and the humidity readings hidden.

Opening additional files

If you open additional files, these will initially be shown in separate file window tabs, including data from freshly downloaded loggers. You can add the data for these files to an existing multi chart. Right-click anywhere on the multi chart and point to **Attach Document**. Click the name of the file you wish to add.

Removing files from the multi chart

If you wish to permanently remove a file from the multi chart , hide the chart as described above, then save the file.

> Once saved, hidden files will be permanently removed from this chart. To prevent data loss, ensure a copy of the individual file was saved.

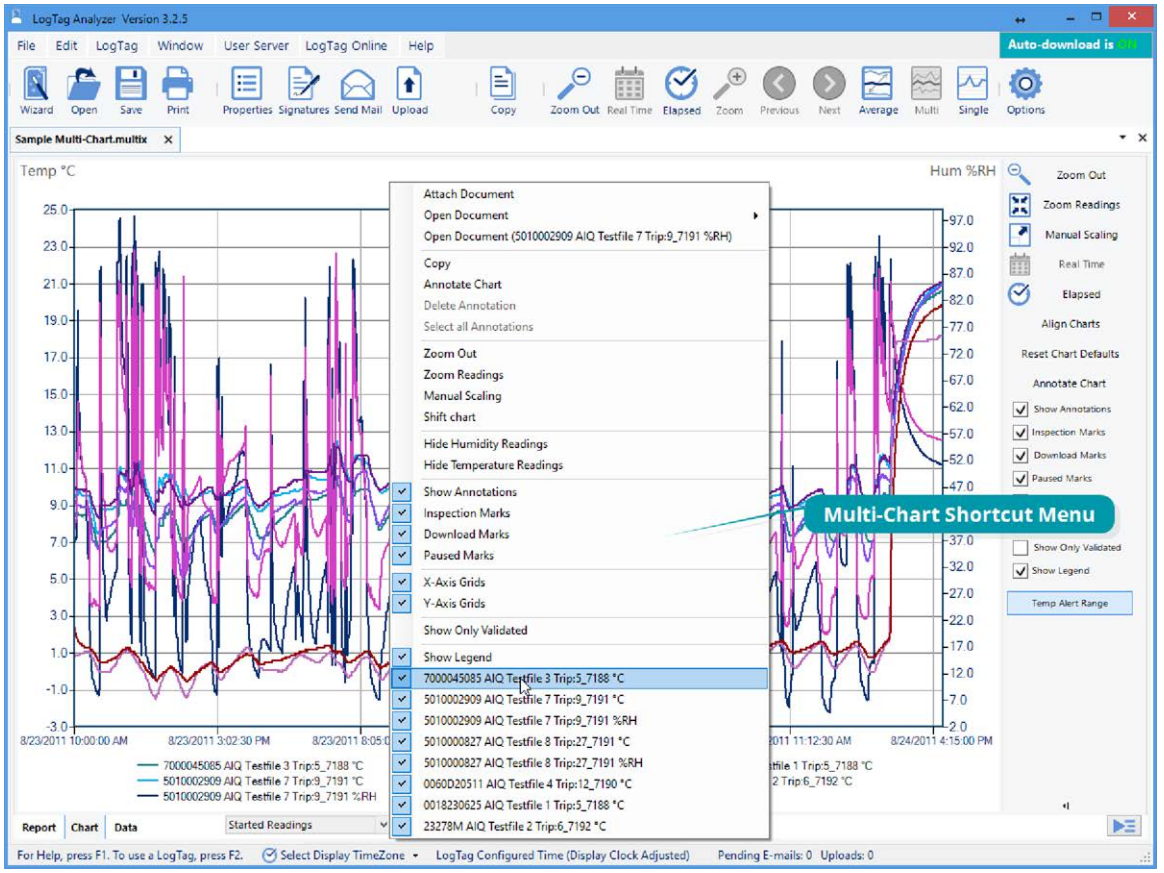


Figure 92: Shortcut Menu after right-clicking on chart area

More than one multi chart window

If you open at least two additional files, you can generate a second multi chart by clicking the multi chart icon from the toolbar. All files shown in separate windows will be combined into a new multi chart window. The new multi chart window additionally contains all charts from the original multi chart, but they are initially hidden. They can be shown as described on the previous page.

The Summary tab is not available in the multi chart display. If you require additional information about the chart data, activate the display of the desired statistics in the Chart Statistics section in the Options Window (Chart Statistics on page 154). The chosen values will be displayed separately for each chart.

Extracting individual files from a multi chart

A multi chart contains the complete data sets for each of the loggers from which is was generated.

You can view the data for each individual chart in a single-chart window by extracting them to a *.ltdx file.

Right-click anywhere on the chart, click **Open Document** and click the name of the file you wish to extract. A new file window tab will open, showing the contents of the extracted file, which is saved in the same location as the multi chart.

Aligning Charts

Select Align Charts from the Chart Control Panel to automatically align all charts in the current multi chart window to the earliest start time:

- When Started Readings is selected, the charts are aligned so the first started reading is shown at elapsed time zero. Charts with no Started readings (i.e. charts with only pre-start readings) are hidden in this view.
- When Pre-start Readings is selected, all charts with Pre-start readings are aligned so the earliest Pre-start reading is shown at elapsed time zero. Charts with no pre-start readings are hidden in this view.
- When All Readings is selected, all charts are aligned so the earliest reading is shown at elapsed time zero, regardless whether this is a Pre-start reading or a Started reading.

Every chart is assigned a different color based on the Chart palette and elapsed time is shown.

If you use the toolbar Icon to switch to Real Time, the charts will be shown in their original relative position.

Shifting Charts

For easier data comparison, chart start times can be shifted while you are viewing the multi chart display.

To shift a chart, move the mouse pointer over the chart until a tooltip from that chart is displayed. Right-click, then click **Shift Chart**. A dialog box will be displayed, where the new start time and date can be selected.

Click the down arrow next to the date to display a calendar where you can select the new start date. Highlight the hours or minutes from the time and use the up and down arrows next to the time to change the numbers.

You can revert the chart to its original display by clicking **Original start time**.

To apply the selected start date and time click OK .

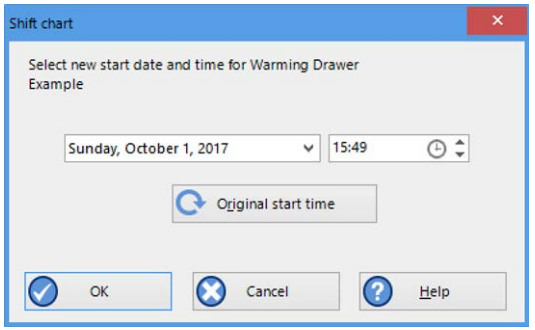


Figure 93: Shifting a chart

Min/Max/Average Chart Display

When you click the Average icon

in the toolbar, the currently active multi chart file tab will now show charts for the calculated values of minimum, maximum and average readings, instead of the individual charts.

Switching from Average display to Standard display and vice versa, or changing the Readings Range will force the multi chart to be re-drawn according to the default settings. You can then use the standard zoom controls to show the portion of the charts you want to see.

You can annotate the Average Chart in the same way as any other chart tab; such annotations will be visible in the other chart tabs and are stored with the multi chart when saved. An annotation that is linked to a data point on the chart will still be shown, even if the data point itself is no longer being displayed.

Please note the following behavior:

- Zoom settings will not transfer to the Average tab.
- 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, the maximum number of data points or loggers that can be shown in the average chart is restricted. If you try to show average charts outside these limits, you will see this warning message:
- 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 (Charts on page 155).
- Due to the large number of calculations performed in this feature, specifically when opening large numbers of charts spanning long periods, having the Average displayed can occupy large amounts of memory and run slow. Therefore we recommend only turning the feature on when required.

Clicking on the Average Icon in the toolbar again will turn the average display off. Selecting the single charts command in the toolbar will open each chart in the multi chart in a separate File Window, however the Average Chart tab will not be closed.

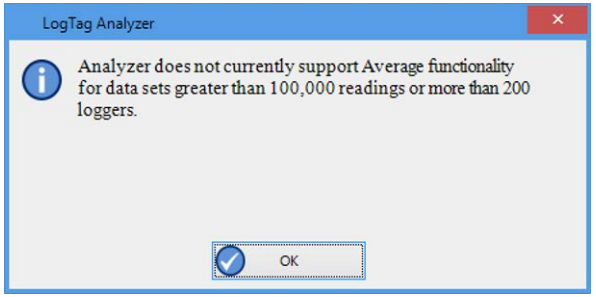


Figure 94: Warning: Too many charts open

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 loggers, one with a 5 minute log interval (A) and the other (B) logging every 2 minutes.

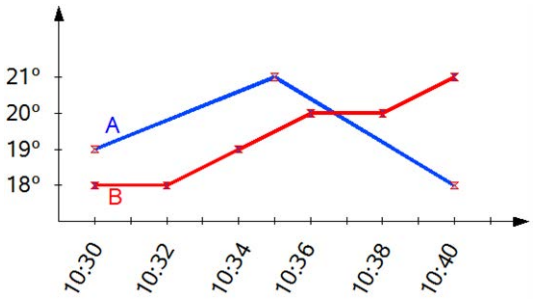


Figure 95: Multi chart data - as recorded

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 had it taken a reading at that time.

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

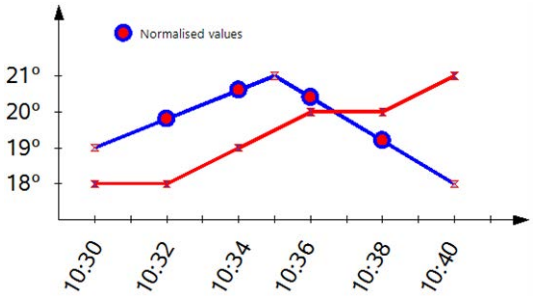


Figure 96: Multi chart data - normalized

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.

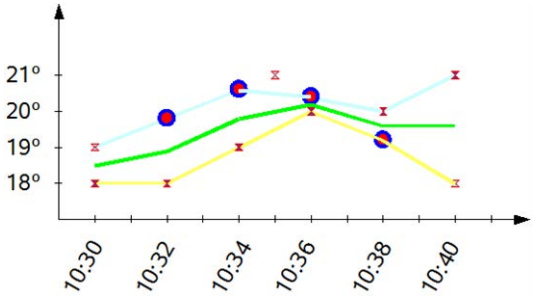


Figure 97: Multi chart data - normalized min/max/average curves

> Note: The charts in above example are based on loggers 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.

Dew Point

Theoretical background

At any given temperature, air can contain no more than a certain amount of water vapor before it is saturated. Relative humidity is one way of describing how much water vapor is currently present in the air in relation to how much there would be if the air was saturated.

Relative humidity is therefore described as a percentage. The higher the temperature, the more water vapor the air can hold, the lower the temperature, the less.

The dew point is defined as the temperature air needs to cool down to, so it becomes saturated with moisture. The water vapor then condenses and forms, for example, dew, rain, fog or snow.

If a foreign body is brought into an environment, and it is colder than the dew point, moisture will form on the surface of that object.

Knowing dew point and its difference to the current temperature will allow you to assess how likely it is that condensation will form on the goods or materials you monitor.

Since dew point is closely related to temperature and relative humidity, it can be calculated if those are known, for example, using a temperature and humidity logger such as the HAXO-8 or UHADO-16. LogTag Analyzer uses the Magnus formula with the Sonntag ITS-90 constants for an approximation of the dew point, that does not take into account atmospheric pressure. The approximation is typically accurate for temperatures between -45 °C and +60 °C, but carries some small errors, which can be estimated from the chart below. The formula is less accurate for water vapor over ice.

$$Dp_{(T,RH)} = \frac{\lambda \times \left(ln\left(\frac{RH}{100} \right) + \frac{\beta \times T}{\lambda + T} \right)}{\beta - \left(ln\left(\frac{RH}{100} \right) + \frac{\beta \times T}{\lambda + T} \right)}$$

Figure 98: Formula used for dew point

$Dp_{(T,RH)}$	Dew point calculated from relative humidity and temperature
T	The temperature at the calculated data point.
RH	The humidity at the calculated data point.
β	17.62, Sonntag ITS-90 constant
λ	243.12°C, Sonntag ITS-90 constant

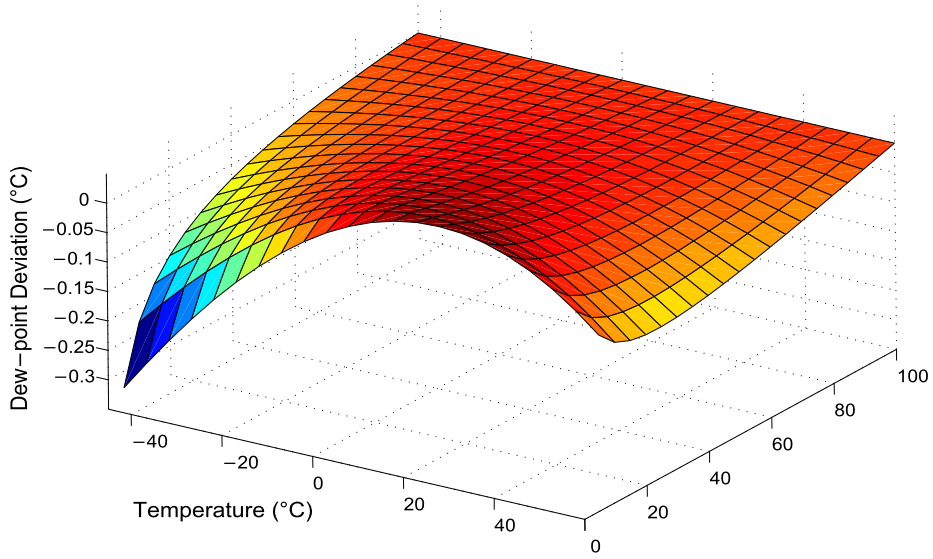
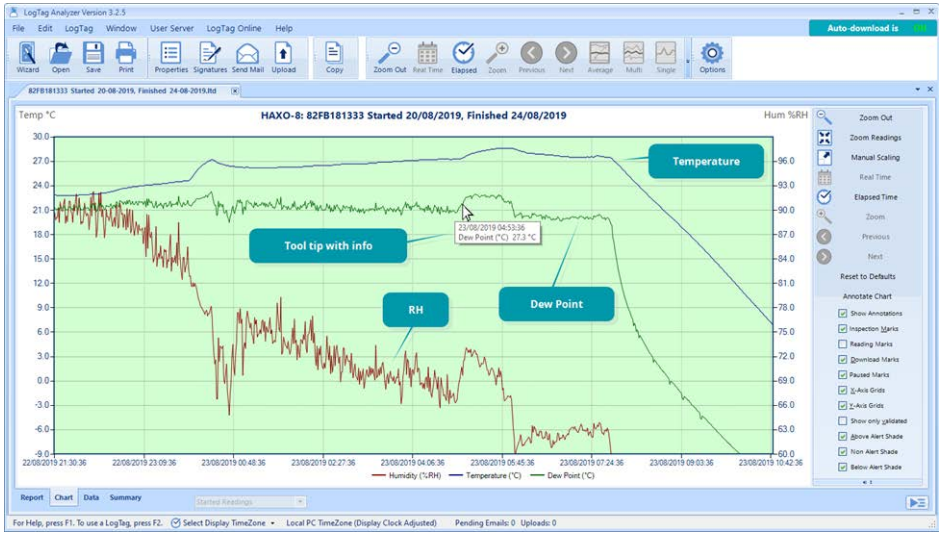


Figure 99: Approximate dew point error for humidity/temperature

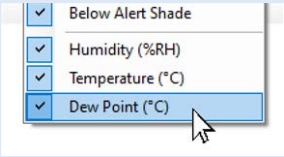
Application

The dew point shows as an extra line on charts for temperature and humidity loggers, such as the HASO-8, HAXO-8 or UHADO-16.



By default, this feature is disabled. You can enable it in **Options** in the section about Charts on page 155.

If the dew point line is enabled, you can toggle it off and on by right-clicking anywhere on the chart and clicking the Dew Point entry:



If the dew point line is disabled, this menu entry is not available.

Dew point lines are not currently supported on multi-charts.

Chart annotations

You can include additional information in your chart tab by adding textual and graphical annotations. Annotations are stored in the *.ltdx file and will be shown again when you next view the file. Annotations will be printed, and will also be shown on anyone else's computer, if you are sharing annotated files. You can place up to 58 individual annotations.

If a chart's annotations are currently shown, you can hide them by right-clicking anywhere on the chart and clearing the tick for **Show Annotations**. You can show them again by selecting **Show Annotations**. You can also perform both actions via the Chart Control Panel.

Adding Annotations

To start annotating charts, right-click anywhere on the chart and select **Annotate Chart** from the menu. This will open the basic view of the Annotations Panel.

You can also open this by clicking **Annotate Chart** from the Chart Control Panel.

When the Annotations Panel is open, an annotation will be placed at the position of the mouse pointer every time you click the mouse button on the chart canvas. You can choose different types of annotations with different behavior.

The following table explains what each of the options in the Annotations Panel mean and how they influence the look and position of the annotation:

Table 17: Basic annotation options

Option	Selection	What it does
Anchor type	**Chart Point**	If a Chart Point annotation is placed, the annotation will always be linked to the time stamp of the reading on which the mouse pointer is positioned when placing the annotation. If the chart is zoomed or panned, and the data point is not visible, the annotation is also not shown. When a chart becomes part of a multi chart, all chart point annotations for the single chart are also visible in the multi chart. Chart point annotations are good for marking specific times on the chart with additional information.
	Background	If a Background annotation is placed, the annotation will always be linked to the position on the canvas in which it was placed. Even if the chart is zoomed or panned, the annotation will always stay in the relative position from the canvas edges. Background annotations are good for placing information relating to the entire chart. The Statistics Information for example is placed on the canvas using a background annotation.

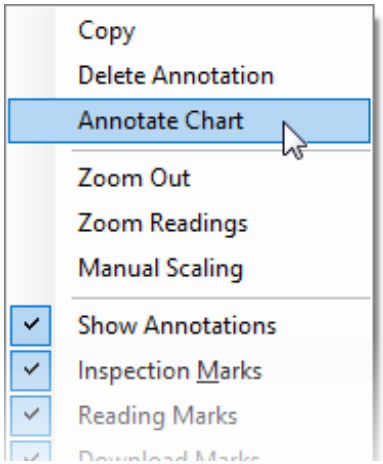


Figure 100: Chart Right-Click Menu

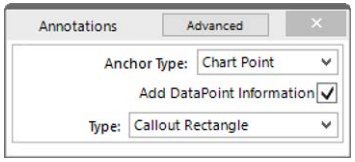
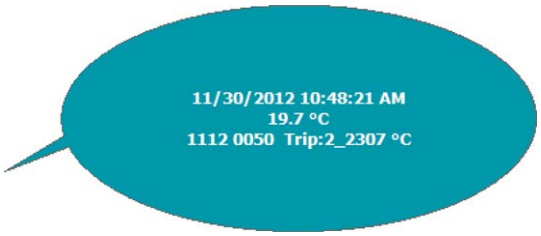


Figure 101: Chart Annotation Panel

Option	Selection	What it does
Add DataPoint Information	**Enabled** **Disabled**	This option can only be selected when the Anchor type is Chart Point. If enabled, text will automatically be added to a callout, showing date, time, value and type of reading. If disabled, the callout will be empty.
Add Series Information	**Enabled** **Disabled**	This option can only be selected when the Anchor type is Background. If enabled, text will automatically be added to a callout, showing the charts series information from the legend. If disabled, the callout will be empty.
Type	**Callout Rectangle**	When this annotation type is selected, a rectangular callout shape is used when placing the annotation. If the Anchor type is Chart Point, a pointer to the related reading is also added, To add text or change the automatically placed text double-click the annotation.
	Callout Ellipse	When this annotation type is selected, an elliptical callout shape is used when placing the annotation. If the Anchor type is Chart Point, a pointer to the related reading is also added, To add text or change the automatically placed text double-click the annotation. 
	Line	When this annotation type is selected, you can place a line on the drawing canvas: • Move the mouse pointer to where you wish the line to start • Press and hold the mouse button • Move the mouse pointer to where you wish the line to end • Release the button

Option	Selection	What it does
	Arrow	When this annotation type is selected from the drop down, you place an arrow on the drawing canvas: • Move the mouse pointer to where you wish the arrow head to start • Press and hold the mouse button • Move the mouse pointer to where you wish the arrow tail to end • Release the button
	Rectangle	When this annotation type is selected from the drop down, a rectangular shape is placed on the drawing canvas. This rectangular area is useful for highlighting sections of the chart, but please note that you cannot place text inside this shape.
	Chart Statistics	This annotation is only available as a Background annotation. When it is selected from the drop down, a rectangular callout is placed on drawing canvas, and text will automatically be added to the callout, showing the information defined in Chart Statistics on page 154, for example range of readings or min/max/average values. Tip: If you wish to place a rectangle with text inside, place a Chart Statistic Annotation and replace the text with your own.

You can refine the appearance of annotations in the advanced view of the Annotations Panel. This view can be activated by clicking the **Advanced** button when the Annotations Panel's basic view is shown.

You can click **Basic** to return to the basic view. If you close the Annotations Panel while in advanced view, next time you open it, it will also show the advanced view.

You will be familiar with these options from many other Windows programs:

Table 18: Appearance settings

Group	Selection	What it does
Style	**Line width** **Line Style** **Line Color** **Color** **Transparency**	These parameters define the look of the shape object that is placed with every annotation. Line width, style and color define the outline of the object, color determines the object's fill color and transparency defines how opaque or transparent the object will be. 100 is equal to the object being fully opaque, 0 to the object being fully transparent.

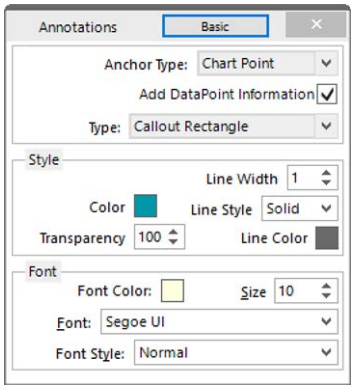


Figure 102: Advanced View of the Annotations Panel

Group	Selection	What it does
Font	**Font Color** **Size** **Font** **Font Style**	These parameters define the properties of the font used for text inside the callouts. Note that only a small selection of system fonts is available.

Note: Mouse zooming and panning is disabled when making annotations.
You can, however, still use manual scaling to zoom to the desired section of the chart.

To stop annotating the file, close the Annotations Panel; right-click anywhere on the chart and select **Annotate Chart** from the menu. You can also close it by clicking **Annotate Chart** from the Chart Control Panel or by clicking the Annotations Panel's **Close** button . If you change file window tabs, the Annotations Panel closes automatically.

Chart annotations added in the chart tab will also show in the chart displayed at the bottom of the Report Display on the next page, which is much smaller. If you want the text to remain legible in the Report tab, you may need to choose a larger font and increase the size of the surrounding frame to suit. If you intend to print the Report we recommend you trial a suitable size for the font using the advanced view.

Editing Annotations

To change the position of an annotation, use the mouse and point to the annotation. When the pointer has changed to ✥, press and hold the mouse button, move the annotation to the desired location and release the button.

To change the size of an annotation, click inside the annotation. The sizing handles appear. Use the mouse and point to one of the handles until the cursor changes (↕, ↔, ⤡, ⤢ or +). Press and hold the mouse button and drag the handle to the desired size.

To edit the text of an annotation, double click the annotation.

Deleting Annotations

To delete an annotation, click inside the annotation and press the **Delete** key. You can also right-click inside the annotation and click **Delete Annotation**.

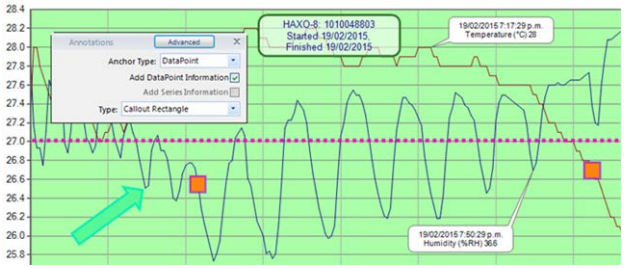


Figure 103: Chart with different types of annotations

Report Display

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

The graph area shows the same chart segment as the one you see in the chart tab. The zoom controls do not work in the report tab, so if you wish to show only a particular segment, you need to zoom to this segment in the chart tab before viewing the report. Annotations are visible, but the chart cannot be annotated when in the Report Tab.

Click Receiver Notes to open a window where you can add text:

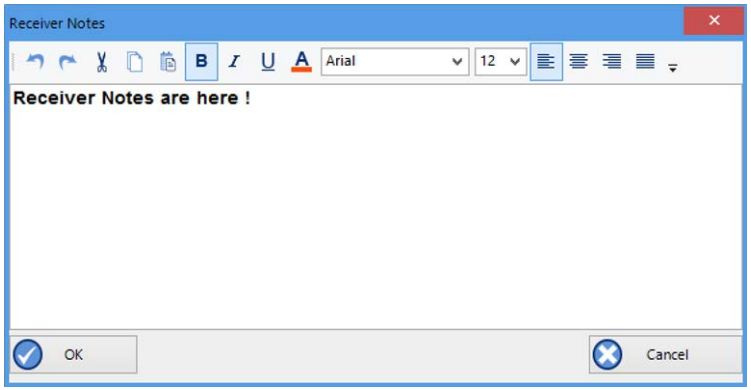


Figure 105: Receiver Notes Entry Dialogue

This text is stored in the file, and displayed in the report's Receiver Notes section every time the file is opened. Use the dialogue toolbar's controls to format the text.

Click Show Certificate to display a window with the logger's factory calibration certificate (if available). See Calibration Certificates on page 89

The Events Info section lists all events that have taken place during the trip. You will see if a logger has been previously downloaded , when an inspection mark was placed, when readings were paused or when the clock was manually changed on a logger with a display.

If a probe was changed during the time shown in the chart, a Probe Change event will be shown in this list, if either the removed or the added probe was a Smart Probe.

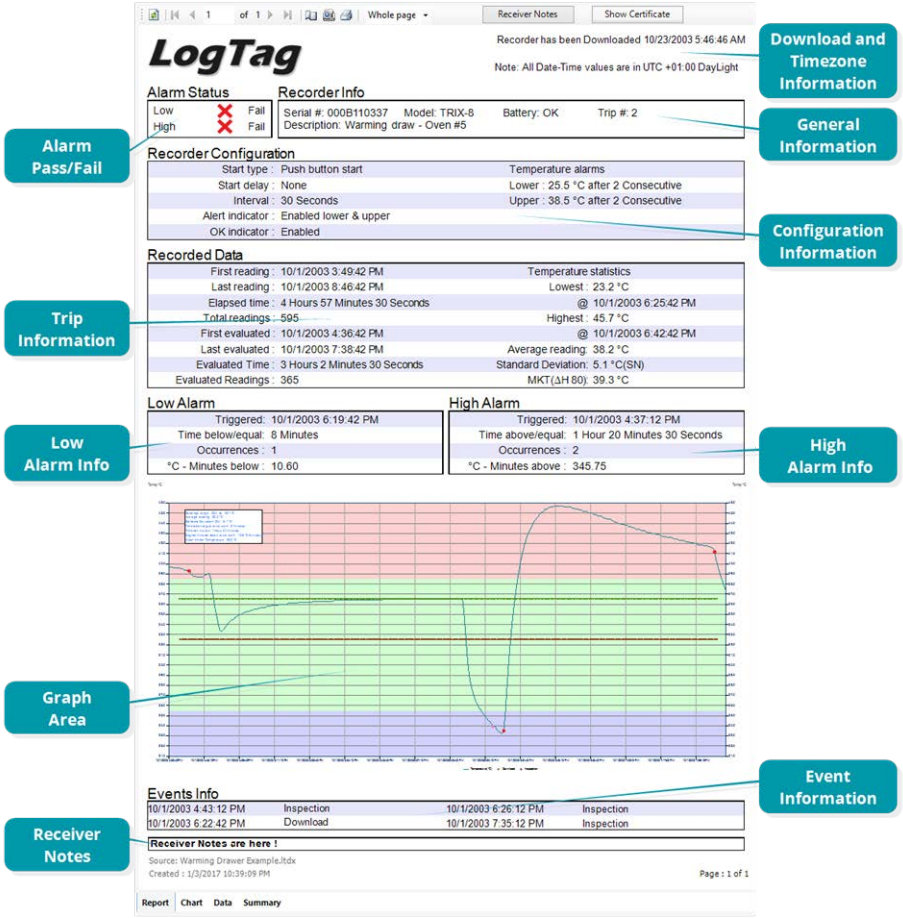


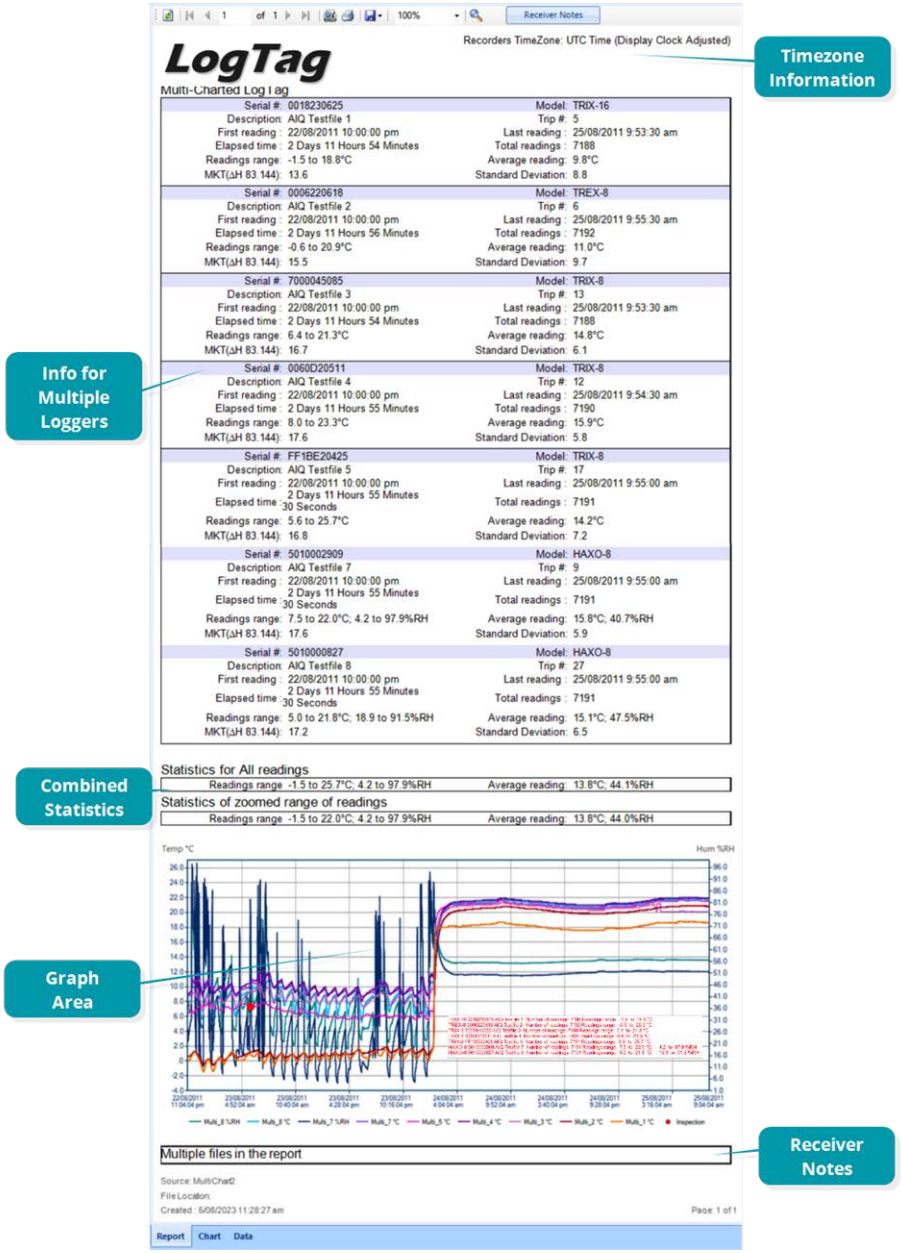
Figure 104: Report Tab

You will also see an entry for each time a digital signature was applied to the file, together with information which signature was applied by which user.

For each block of paused readings in USB loggers only the first and last reading are listed.

Multi Chart Reports

A multi chart can also be viewed in the report tab, where you can see a brief summary for each logger, a and a smaller version of the chart. Chart annotations added here will also show in the chart that is displayed at the bottom of the Report Display on page 124, which is much smaller that the one in the chart tab. If you want the text to remain legible in the Report tab, you may need to choose a larger font and increase the size of the surrounding frame to suit. The report also shows a summary for the combined data of all loggers that make up the multi chart, separately for all readings and the zoomed readings.



Data Display

When you click the data tab, the readings are displayed in a spreadsheet-like list in chronological order, including an index, date & time and elapsed time.

The data tab only displays those readings shown on the chart. If the chart is zoomed in, the data tab only shows those zoomed readings. You cannot use the scroll bar or arrow keys to display readings before or after the currently zoomed readings; to expand the number of readings switch to the chart and zoom out.

For temperature and humidity loggers such as HASO-8, HAXO-8 or UHADO-16 the humidity values will be displayed in their own column, so will dew point values if this feature is enabled.

Index	Date	Time	Elapsed	Humidity %RH	Temperature °C	Dew Point °C	Events	Comment
64	21/08/2019	07:45:26	01:03:00	68.6	25.8	19.6		
65	21/08/2019	07:46:26	01:04:00	69.3	25.8	19.8		
66	21/08/2019	07:47:26	01:05:00	69.0	25.8	19.7		

On the list you can also identify any special marks attached to the reading, such as download marks (identified through rose background), inspection marks (identified through red background), paused marks (identified through blue background) and min/max reset marks (identified through green background). The text color 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 wheel.

You can sort the list by clicking one of the column headers. This can be useful, for example, when you want to look at all events and the times they occurred.

You can add a comment for each reading. This comment will be stored against the reading when you save the file. In the row for which you wish to add a comment, click in the Comment column and type your text.

The list grid can be copied to the Windows clipboard and pasted into other windows applications such as Excel. Press **CTRL-C** to copy the entire currently displayed list. Copied data always include the header row, even if it is not highlighted, and are always sorted by index. You can also click **Copy** from the **Edit** menu, or right-click in a row and click **Copy All**. You can also copy only the highlighted rows if you

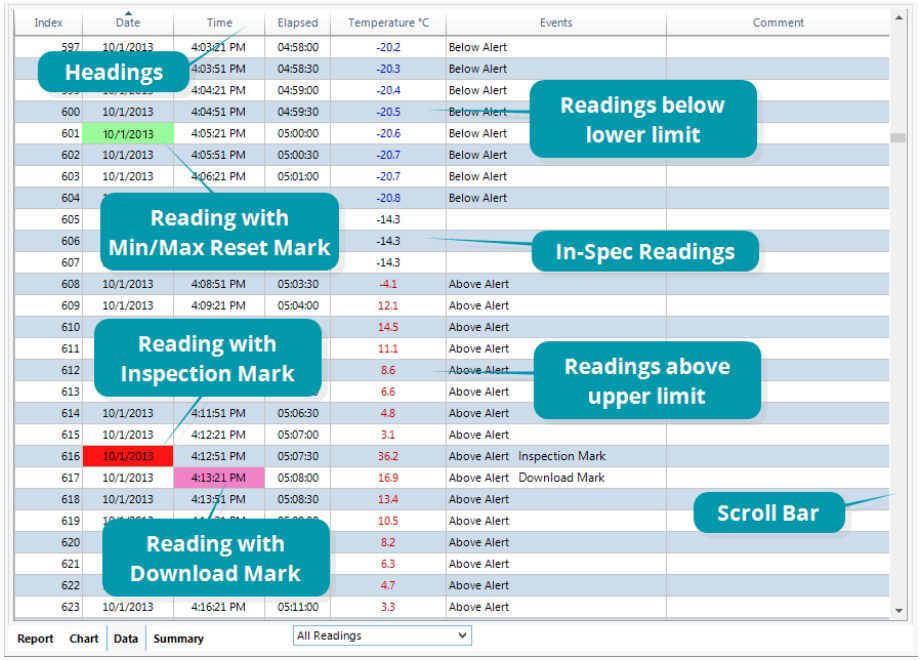


Figure 106: Data tab

right-click anywhere in the highlighted section and click **Copy Selected**. You can select as many rows as you wish using the mouse. Point to the first row you want to select. Press and hold the mouse button, drag the pointer to the last row you wish to select, and release the button.

Multi Chart Data Tab

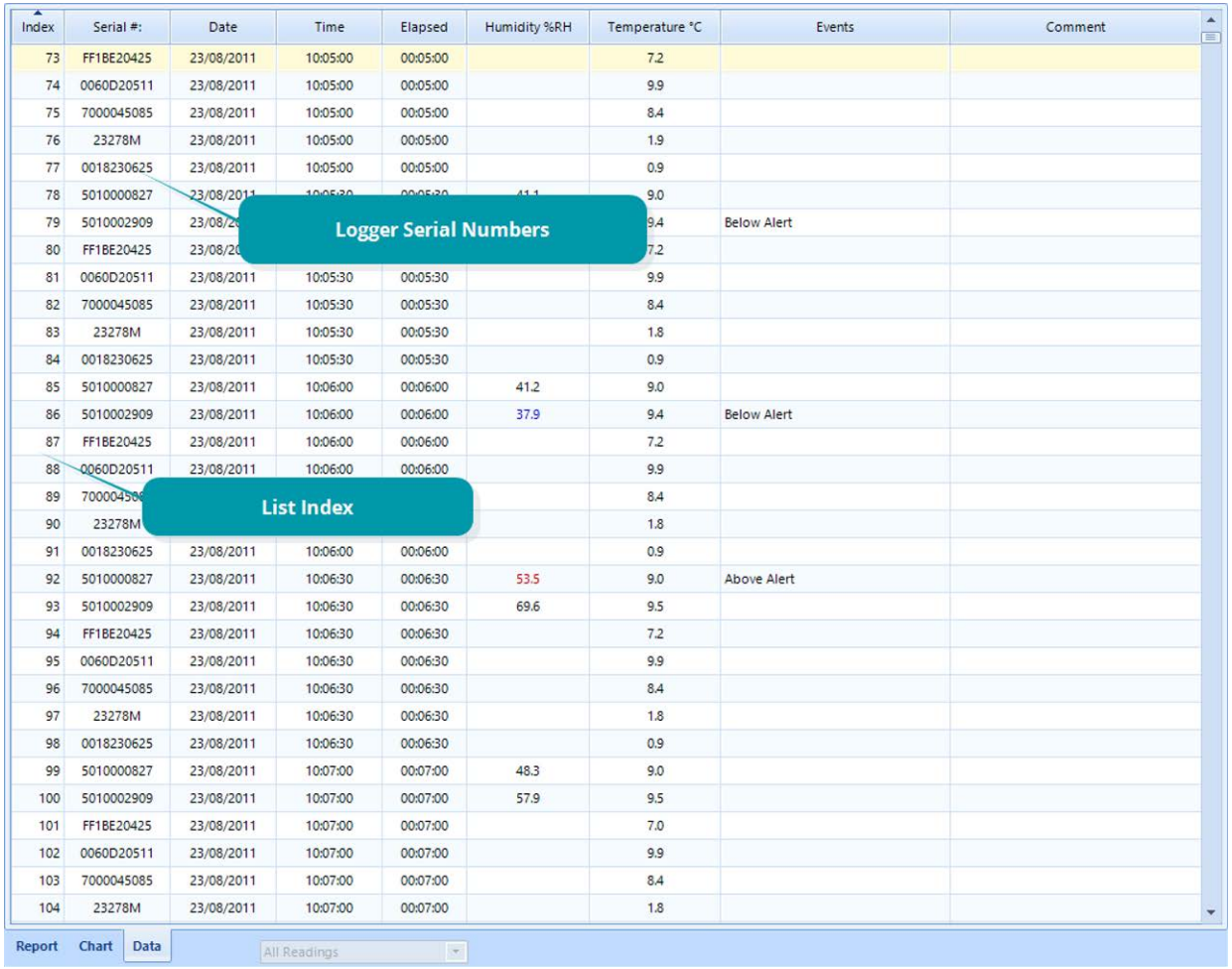
Data listings are also available when viewing a multi chart. Here, the data listings for the individual loggers are combined into a single list, with each row representing one reading from a single logger.

Marks, text and background colors are shown in the same way as for single file lists.

Readings are initially sorted and indexed chronologically, but can be sorted by clicking one of the column headers. This can be useful, for example, when you want to look at all readings from a specific logger. If you wish to return to the original chronological sort order, simply click the Index column header.

You can add a comment for each reading. This comment will be stored against the reading when you save the file. In the row for which you wish to add a comment, click in the Comment column and type your text. Copy and Paste functions work identical to the single file data tab.

If you combine more than 10 charts into a multi chart, the data tab is not available. Dew point readings are not shown in the multi chart data tab.



Index	Serial #:	Date	Time	Elapsed	Humidity %RH	Temperature °C	Events	Comment
73	FF1BE20425	23/08/2011	10:05:00	00:05:00		7.2		
74	0060D20511	23/08/2011	10:05:00	00:05:00		9.9		
75	7000045085	23/08/2011	10:05:00	00:05:00		8.4		
76	23278M	23/08/2011	10:05:00	00:05:00		1.9		
77	0018230625	23/08/2011	10:05:00	00:05:00		0.9		
78	5010000827	23/08/2011				9.0		
79	5010002909	23/08/2				9.4	Below Alert	
80	FF1BE20425	23/08/2				7.2		
81	0060D20511	23/08/2011	10:05:30	00:05:30		9.9		
82	7000045085	23/08/2011	10:05:30	00:05:30		8.4		
83	23278M	23/08/2011	10:05:30	00:05:30		1.8		
84	0018230625	23/08/2011	10:05:30	00:05:30		0.9		
85	5010000827	23/08/2011	10:06:00	00:06:00	41.2	9.0		
86	5010002909	23/08/2011	10:06:00	00:06:00	37.9	9.4	Below Alert	
87	FF1BE20425	23/08/2011	10:06:00	00:06:00		7.2		
88	0060D20511	23/08/2011	10:06:00	00:06:00		9.9		
89	70000456					8.4		
90	23278M					1.8		
91	0018230625	23/08/2011	10:06:00	00:06:00		0.9		
92	5010000827	23/08/2011	10:06:30	00:06:30	53.5	9.0	Above Alert	
93	5010002909	23/08/2011	10:06:30	00:06:30	69.6	9.5		
94	FF1BE20425	23/08/2011	10:06:30	00:06:30		7.2		
95	0060D20511	23/08/2011	10:06:30	00:06:30		9.9		
96	7000045085	23/08/2011	10:06:30	00:06:30		8.4		
97	23278M	23/08/2011	10:06:30	00:06:30		1.8		
98	0018230625	23/08/2011	10:06:30	00:06:30		0.9		
99	5010000827	23/08/2011	10:07:00	00:07:00	48.3	9.0		
100	5010002909	23/08/2011	10:07:00	00:07:00	57.9	9.5		
101	FF1BE20425	23/08/2011	10:07:00	00:07:00		7.0		
102	0060D20511	23/08/2011	10:07:00	00:07:00		9.9		
103	7000045085	23/08/2011	10:07:00	00:07:00		8.4		
104	23278M	23/08/2011	10:07:00	00:07:00		1.8		

Figure 107: Multi chart data tab

Summary Display

The summary tab offers a brief statistics overview of some of the important trip data. You can customize the statistical data you wish to include in this tab in the **Options** dialogue for the Summary Statistics on page 152.

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.

If there are readings beyond the limits of the sensor within the time interval displayed, the statistics for this interval will show "**".

The zoom controls available for the chart tab are inactive in the summary tab.

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.

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

Displaying statistics

The statistics displayed on the Summary tab can be configured in the Options dialog. Refer to the topic on Summary Statistics on page 152. By default, all statistics are displayed on the Summary tab.

For temperature and humidity loggers two additional statistics are automatically shown when the dew point feature is enabled:

- Dew point offset range

  The dew point offset is the difference between the temperature and the calculated dew point. The closer this offset gets to 0, the closer the temperature is to the dew point. The dewpoint offset range is a measure of how close the dew point got to the actual temperature during the trip.
- Average dew point offset

  The average dew point offset for the recorded data.

Statistics can also be displayed on the chart, in a Chart Statistics Annotation. Refer to the topic on Chart Statistics on page 154 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 "**".

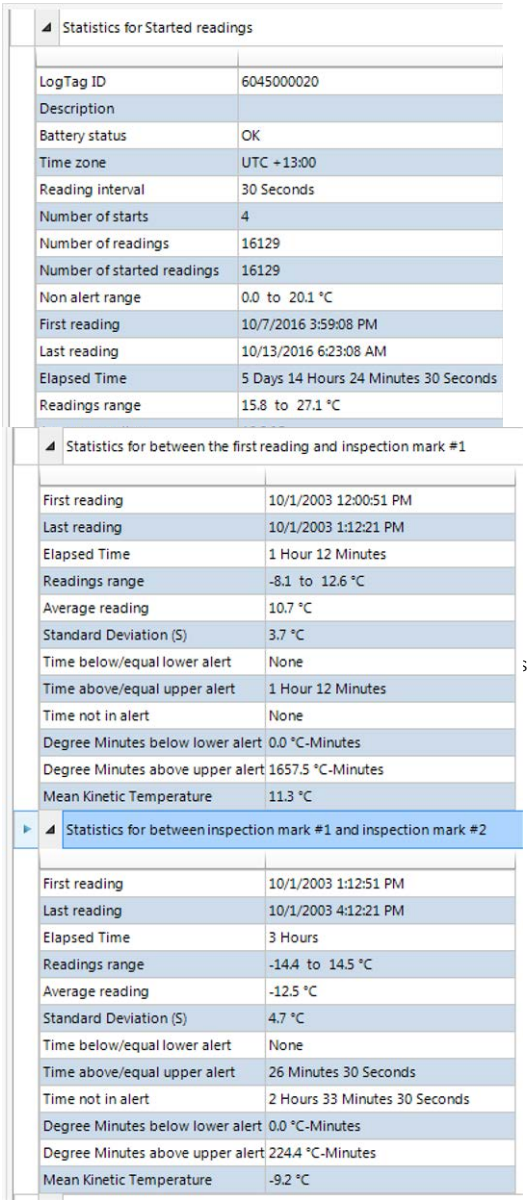


Figure 110: Statistics tab when inspection marks are included

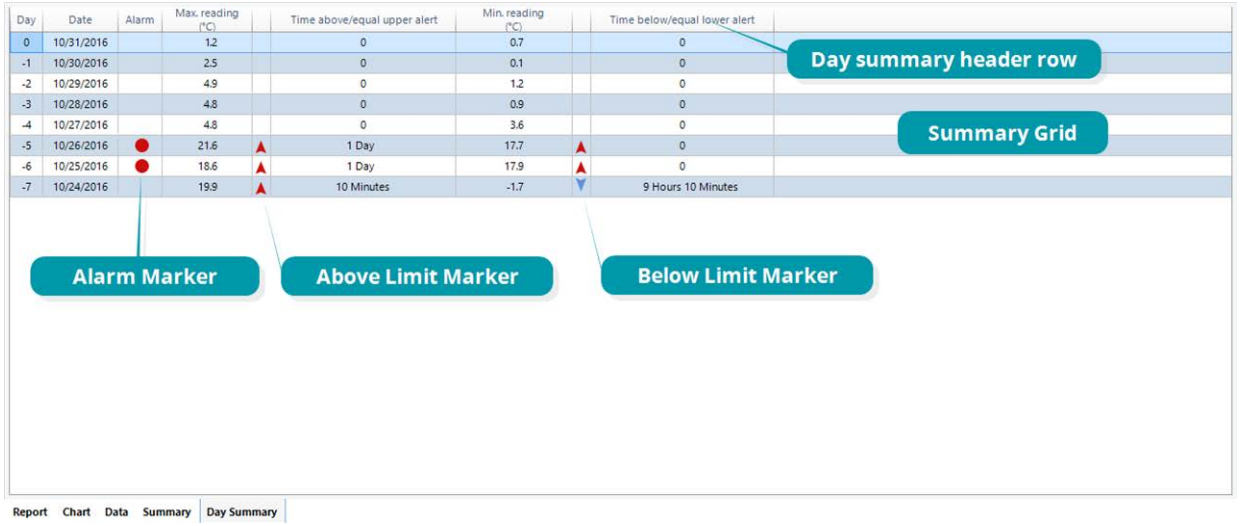
Day Summary Display

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

LogTag® logger products with display

For these logger models 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.

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	Date	Alarm	Max. reading (°C)	Time above/equal upper alert	Min. reading (°C)	Time below/equal lower alert
0	10/31/2016		1.2	0	0.7	0
-1	10/30/2016		2.5	0	0.1	0
-2	10/29/2016		4.9	0	1.2	0
-3	10/28/2016		4.8	0	0.9	0
-4	10/27/2016		4.8	0	3.6	0
-5	10/26/2016	●	21.6	1 Day	17.7	0
-6	10/25/2016	●	18.6	1 Day	17.9	0
-7	10/24/2016		19.9	10 Minutes	-1.7	9 Hours 10 Minutes

Figure 111: Day summary for loggers with display and statistics memory

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 from the File menu; the Page Setup window will be displayed.

You can set page margins, paper size and orientation. You can check what the print will look like by clicking **Print Preview** from the **File** menu, as described on page 42.

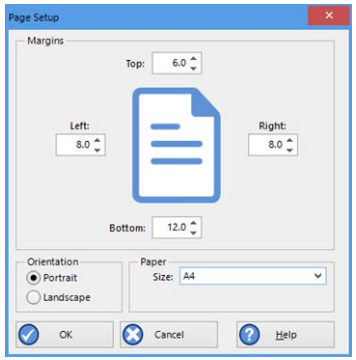


Figure 112: Page Setup Window

Printing a single document

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

Choose a printer and, if required, adjust its properties.

Choose the range of pages to be printed:

- All - All pages will be printed
- Selection - Prints the range of readings you selected, for example by highlighting rows in the data tab.
- Current page - Prints only the current page.
- Pages - Prints only the pages you specify in the text entry.

Please note that LogTag Analyzer will try to print charts and reports on a single page where possible.

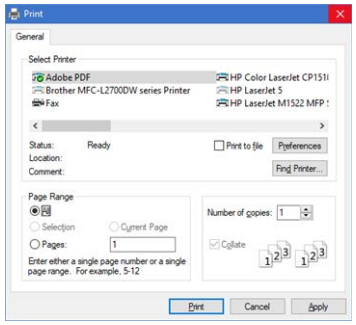


Figure 113: Printer dialogue

Printing multiple documents

You can print all currently open documents at once.

Click **Print All** from the **File** menu; the printer dialogue will be displayed. After you have made your selection click print, and each document's currently active tab will be printed with the respective zoom settings.

Printing multiple documents on high-resolution monitors can make your computer unresponsive for long times. We recommend to print no more than three documents at the same time.

Automatically calculated statistics

When displayed recorded data, the software will automatically calculate and display some statistics calculated from those data. These statistics are shown on the summary tab and are also calculated for each sequence of data points between the inspection marks.

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

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.

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 Statistic section and selecting the number of decimal places from the Decimal Places entry. Please note this setting is shared amongst all statistics calculations.

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

Figure 114: Formula for average reading

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

Degree Minutes

Some products and materials change their characteristics or degrade, if they are exposed to temperatures outside the ideal conditions for extended periods. 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 period of time. LogTag Analyzer will automatically display the results of two separate Degree Minutes calculations. The result of the first is based on the readings recorded below the "ideal conditions", the second on the readings above the "ideal conditions". The "ideal conditions" used in the calculation of the Degree Minutes formula are represented by the non-alert range based on the upper and lower alert values entered during configuration of the LogTag®.

Mathematically the formula for calculating the degree minutes above alert can be expressed as illustrated.

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.

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

Figure 115: Formula for degree minutes

$deg\ min$	Total Degree Minutes spent above/below the alert threshold.
ti	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.

Mean Kinetic Temperature

Some products and materials have accelerated rates of degradation at higher temperatures. For example, perishable food items and pharmaceutical products can degrade and many forms of bacteria grow exponentially as the environmental temperature increases. Mean kinetic temperature is a calculation that accommodates the non-linear thermal effect, which 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 readings were recorded.

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

For example, if there were 5 data points of which to calculate the mean kinetic temperature, 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 **Options** from the **Edit** Menu, then navigate to the Summary Statistic section where you can enter the desired value in the Use the following value text field.

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

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

Figure 116: Formula for mean kinetic temperature

mkt	is the mean kinetic temperature, in degrees Celsius
ΔH	is the activation energy.
R	is 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

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.

Mathematically standard deviation can be expressed as illustrated.

LogTag Analyzer allows the calculation of sample or population based standard deviation. Which of those is used for the calculation can be set by clicking **Options** from the **Edit** Menu, then navigating to the Summary Statistic section and selecting sample based or population based.

Here you can also adjust the number of decimal places used to display the result, but please note this setting is shared amongst all statistics calculations.

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

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

Figure 117: Sample based standard deviation

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

Figure 118: Population based standard deviation

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

Sharing recorded data with others

You can share data downloaded from a LogTag® device with other users in a number of different ways.

- If the person you wish to share the data with has access to the same software version of LogTag Analyzer as you, you can send the latest *.ltdx file via email, or upload it to an FTP server.

  You can find more details about sending files automatically or upon request in the sections about Automatic emailing and uploading to FTP sites on the next page and Sending a file by email directly from LogTag Analyzer below
- If they have an earlier copy of LogTag Analyzer prior to version 3, it may be easier for them if you send a legacy file, such as the *.ltd format. You can use the Save As function, then send the file manually via the Send Mail function.
- If the other user does not have access to a version of LogTag Analyzer, you can send the data in various export formats, such as spreadsheet files, PDF files and various other text format files. You can find the relevant information in the sections about Saving a file for use in spreadsheets on page 140, saving Exports and Reports on page 179
- If you have access to LogTag® Online you can upload the data to your account, and add the other person to your team. See Integrating LogTag Analyzer with LogTag Online on page 143for more information.

Sending a file by email directly from LogTag Analyzer

You can email files to someone else directly from inside LogTag Analyzer.

When you click the Send Mail icon from the toolbar, a new email message will be created in your default email program, with the currently active file already attached to the message. Type the recipient's email address, add a 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.

Note, the recipient of the file will need to have LogTag Analyzer software installed to open and view the file you sent. LogTag Analyzer software is free and can be downloaded from https://logtagrecorders.com/software/lta3/download/.

If you want to send data in file formats other than the LogTag Analyzer format, specify the desired file formats in the Exports and Reports section in the Options Window (Exports and Reports on page 179). The data files will automatically be attached to your emails in the desired formats.

Figure 119: Send Mail Toolbar Icon

To send a multi chart, it must first be saved to disk (Saving a Multi Chart File on page 99).

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 below for further details.

Automatic emailing and uploading to FTP sites

Every time data are downloaded from a LogTag®, LogTag Analyzer can automatically email the resulting data files to pre-selected recipients or upload them to an FTP site.

Email uses SMTP (Simple Mail Transfer Protocol), which defines how electronic mail is distributed across networks.

FTP (File Transfer Protocol) describes a mechanism by which files are transferred between different computers and networks.

LogTag Analyzer supports different authentication methods for each protocol, which you can select when you configure the settings for each service. Here, you also set whether the process should be automatic, on request, or both.

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.

If you activate manual uploading/emailing, but not automatic uploading/emailing, you need to click the Upload button on the toolbar to upload or send the file in the currently active window.

Figure 120: Active and inactive Upload Toolbar Icon

If the button is inactive, neither email nor FTP options are enabled.

When uploading or emailing files this will be shown in the status bar Upload Status on page 44.

Tip: The manual email function described here is different from the "send mail" button on the toolbar. The Send mail button opens a draft message in your standard email program and attaches the data file. You then need to complete the recipients' email addresses 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 Upload button on the toolbar is clicked. You can, however, not change the recipient without changing the SMTP settings.

Note: The automatic functions 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. If you always want to upload a file, we suggest you add the file creation time variable (%TIME) to the file name, that way a new file will always be generated .

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 without warning. It is up to you to make sure files are created with unique file names.

Saving a file for use in spreadsheets

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

CSV File export

You can use the File - Save as command from the menu, and select the *.csv option. CSV files can be read by most spreadsheet programs and text editors. CSV files are the most flexible export files, as they can be customized in Exports and Reports to suit your particular export needs.

The *.CSV file contains a section at the top with a summary of the recorded data, followed by the list of readings. You can also decide to include index, date, time, elapsed time, events and comments when you customize the export. You can also choose the day summary for loggers containing such a summary.

Please note that files created by LogTag Analyzer may not always be true CSV files (Comma Separated Values), 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.

You can also automatically export the data into a CSV file when a logger is downloaded. Please Exports and Reports on page 179 for further details.

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

XLS file export

You can use the File - Save as command from the menu, and select the *.xls option. This creates a file that can be opened directly with MS Excel. It contains two tabs, one with a listing of the readings, including index, date, time, elapsed time, events and comments, the second with the contents of the summary tab. Files from loggers with a day summary will contain a third tab showing that summary.

XLS files cannot be customized or exported automatically.

Using the Windows Clipboard

Select the Data tab and press CTRL-C or click Edit - Copy from the menu. Open an empty worksheet in your spreadsheet program and select CTRL-V or click Edit - Paste from the application's menu. The data will be pasted in the cells and you can save the file in the format of your spreadsheet program.

PDF files

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

PDF files can be generated automatically, or by selecting **Save as** from the **File** menu. Select a file name and location for your PDF file. Automatic generation of PDF files is enabled in the section about Exports and Reports on page 179. Here you can also define the composition of the PDF file.

Click the Customize PDF button; the PDF Export Settings dialogue is displayed, allowing you to select which content of the PDF file will be created.

Note: The report page is always included in the PDF.

If a chart is zoomed, the PDF file will also contain a zoomed setting.

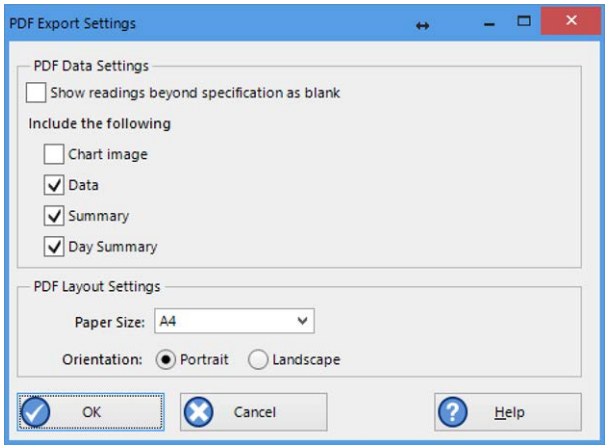


Figure 121: PDF Export Settings

Saving a file as text

Occasionally you may wish to export a LogTag® data file so you can import it into other software as text. You can either do this manually using **Save as** from the **File** menu, or automatically when you download a logger.

You can choose between different text formats:

- You can save the file as a *.txt file.
  This file is a tab delimited file that can be opened in any text editor on a PC.
- You can save the file as a *.txtm file.
  This file is a tab delimited file that can be opened in any text editor on a Mac.
- You can save the file as a *.html file.
  This file is a mark-up text file that can be opened in any browser.

You can define the contents of these files by clicking **Options** from the **Edit** menu and selecting the Exports and Reports tab.

LogTag® Data files (*.ltd)

The legacy file type *.ltd is the main file format of LogTag Analyzer software before version 3 was introduced.

You can open these files with LogTag Analyzer version 3 without loss of information. Annotations, chart titles and receiver notes will all be converted and visible when saved using the new *.ltdx format.

You can also save data in the *.ltd format using LogTag Analyzer version 3, so they can be accessed by LogTag Analyzer version 2 or earlier. However, none of the additional settings such as annotations, zoom and notes are saved.

You can decide which file format you want to be the default format in File and Folder Settings on page 171.

Integrating LogTag Analyzer with LogTag Online

LogTag® Online is a web based storage, analysis and sharing portal for data recorded by LogTag's range of data logging products. You can upload complete trips or live temperature data recorded from loggers, associate the data with locations and share them with members of a collaboration team.

What LogTag® Online can do is described in detail on the Help Center web page at https://logtagonline.com/support.

The following section shows the integration of LogTag Analyzer with LogTag® Drive, one of the features of LogTag® Online:

- Signing in on the next page and out of your LogTag® Online account
- Automatically uploading files to LogTag® Online on page 145 Drive from Analyzer
- Uploading data to LogTag® Online locations
- Opening files directly from LogTag® Drive using Analyzer
- Working with multiple teams on the next page

You can automate some of these steps in the LogTag® Online settings.

Note: To maintain compliance with the FDA CFR 21 Part 11 guidelines, you cannot connect to LogTag® Online while being connected to User Server and vice versa. These options are mutually exclusive.

Signing in

To upload data to LogTag® Online you must be able to access an active LogTag® Online account and connect LogTag Analyzer to your LogTag® Online account by entering the sign in credentials for that account.

You can create a new LogTag® Online account by clicking Create an Account in the LogTag Online menu, which will open a browser window. Complete the details and follow the on-screen instructions.

Initially, a red dot shows next to the LogTag Online menu, indicating that you are not signed in. Click Sign In from that menu, and a window opens where you can enter your details:

Provide the email and password for your LogTag® Online account and click OK.

Once you are connected, the dot next to the LogTag Online menu changes to green, indicating that you are now signed in.

In the settings for LogTag® Online you can choose to complete the sign in process automatically next time you start LogTag Analyzer. You can also choose to sign in manually every time you start LogTag Analyzer.

Figure 122: Sign in window

Working with multiple teams

LogTag® Online allows you to be part of multiple teams, but you can only upload or view files for one team at a time. If you are part of multiple teams, you need to select which of these teams you wish to be the currently active team.

Click Current team from the LogTag Online menu and click the name of the team you wish to be active.

Now, when you upload files to LogTag® Online they will be uploaded to this team, and only this team's data files are available for opening.

If you are a member of only a single team, this will automatically be selected.

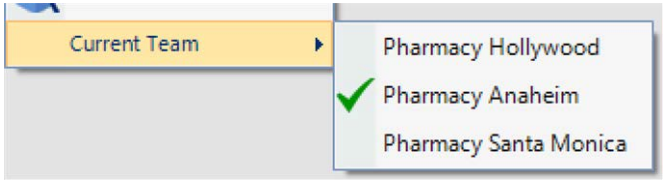


Figure 123: Team selection for your account

Automatically uploading files to LogTag® Online

If you have a LogTag® Online account you can upload data from your loggers directly to LogTag® Online, using LogTag Analyzer. This is useful if you wish to share data online with others who do not have access to a PC with LogTag Analyzer.

This feature is enabled in the LogTag® Online section of the Option settings. If enabled, the data for each LogTag® product you download to your PC is uploaded automatically to your team's account, provided you are signed in (The LogTag menu shows a green dot). Loggers you upload are automatically registered as a device in your team's account.

The logger's data are always stored locally in the folder defined in File and Folder Settings on page 171.

Data is, however, only uploaded if a new file is generated when the logger is downloaded. If no new file is generated, for example when downloading a logger that has stopped, for a second time, no data is uploaded.

Note that you can only upload the data at the time it is downloaded from the logger. At the moment, it is not possible to upload files manually.

If your logger is attached to a location

If your logger is attached to a location, the logger's data are added to the location data each time you download it via LogTag Analyzer.

You can attach all logger models to a location[2], including USB loggers.

If your logger is not attached to a location

If your logger is not attached to a location, a data file will be uploaded to LogTag® Drive in addition to being stored locally on your PC. This can be viewed in LogTag® Online in the same way as a file uploaded via one of the wireless interfaces (LTI-WIFI or LTI-WM-WIFI). Other team members can then download the file and view it in LogTag Analyzer.

[2] Attaching a logger to a location is done in LogTag® Online or via the WiFi wizard. For more information about locations please see the LogTag® Online help.

If LogTag® Online is not available

If LogTag® Online is not available at the time you download the logger, for example when the network is down or you are not logged in, LogTag Analyzer will keep trying to upload the file at regular intervals, if this is set up in Options - LogTag® Online.

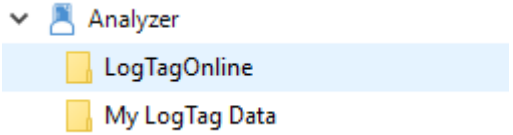
You will receive regular reminders to complete the sign-in process.

Figure 124: Sign-in reminder

Opening files directly from LogTag® Drive

When you are signed in to your LogTag® Online account from LogTag Analyzer, you can open data files stored in LogTag® Drive directly. Click Open from the File menu, or click the Open toolbar icon.

The folder list contains an Analyzer entry (similar to your Dropbox or Onedrive entries), showing the currently selected local storage folder as well as an entry LogTagOnline.



Click LogTagOnline to show a list of files currently stored in your LogTag® Online account. These files represent shortcuts to the actual file content stored in LogTag® Drive. Once you have selected a file for opening, it will be copied to your local storage folder, then opened in LogTag Analyzer in the same way you would open a locally stored file.

Any file you open will be copied to your local storage folder, regardless of the settings made in Automation. This means the file will be available even after you have signed out from your LogTag® Online account. The shortcut in the Select recent File menu will reference the local file.

Chapter 4

Customizing the Software

This chapter explains in detail how to customize the software to your needs.

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Summary Statistics 152
Chart Statistics 154
Charts 155
Automation 160
File and Folder Settings 171
Exports and Reports 179
Date and Time Format 182
Communication Ports 185
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LogTag® Online 190
Importing and Exporting Option Settings 191

Many of LogTag Analyzer's features can be customized to suit your specific requirements. This is done in the Options dialogue, which you can open by clicking the Options icon in the toolbar or by clicking **Options** from the **Edit** menu.

Figure 126: Toolbar Icon

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 OK. For example, if the language selection or the date format are changed, all windows that are open will be updated without the need to restart the software.

Some of the display settings, such as decimal point and date/time formats, are controlled 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.

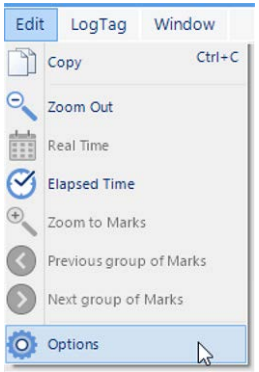


Figure 125: Edit Options Menu

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.

Show temperatures in...

Here you set the unit used for temperature values displayed in the software's dialogues, lists, charts and reports. The options are:

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

For loggers with a display and USB PDF loggers the temperature unit used on the display or in the PDF is set during configuration. It is independent of the temperature unit chosen here.

Note that if your Windows Region is set to Japan, you will not be able to select Fahrenheit as your temperature unit.

Default time interval to display

Here you set the default time zoom level. This is zoom is applied when a file is opened or a logger is downloaded. You can set this to:

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

The section about Inspection and download mark zoom on page 109 explains in more detail how this feature works.

Language

This setting determines which language the software uses. Supported languages are:

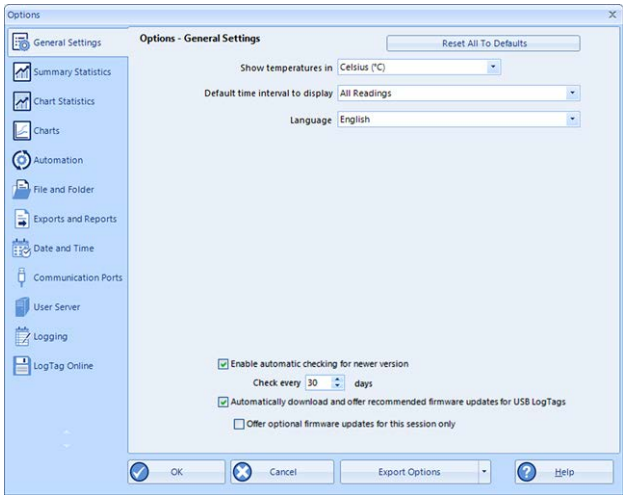


Figure 127: General settings

- English US
- Chinese (Simplified)
- French
- German
- Italian
- Japanese
- Portuguese
- Russian
- Spanish
- Turkish

Enable automatic checking for a newer version

The LogTag Analyzer software can periodically check to determine if a newer version is available for download from the LogTag North America Inc website.

To enable this feature select Enable automatic checking for newer version and set the number of days between checks by entering or selecting a number in "Check every XX days". To disable the feature, clear the box.

If you enable the automatic check, and a new version is available, a window with an overview of the update will be displayed. Please see Upgrading LogTag Analyzer on page 24

Enable USB Logger Update Check

If you enable this feature, the LogTag Analyzer software will check the LogTag North America Inc website for available updates that can be applied to USB loggers, at the same time it checks for a newer version of the software. If updates are available, the required files are downloaded immediately and offered during the configuration process of any USB loggers that are eligible for an update. You still have the option of declining the update at the time the configuration process takes place. Typically, these updates are mandatory or recommended, particularly if they improve the performance of the unit or add more features.

If you disable this feature, upgrade files are not downloaded or applied.

Optional Updates

Sometimes these updates are entirely optional, because they may impact how -if at all- the product will work with earlier version of LogTag Analyzer. If you enable the check for optional updates, these will be offered during configuration just as if they were a mandatory or recommended update, but the feature will automatically be disabled once you restart LogTag Analyzer the next time.

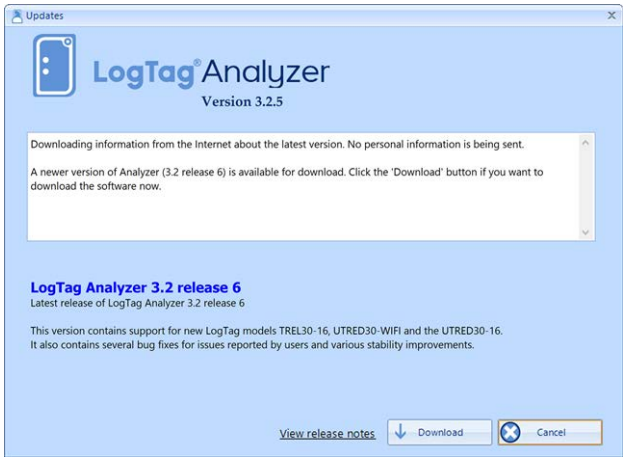


Figure 128: A software update is available

Note: Optional updates will always be downloaded when you check the internet for updates, regardless of this setting. Enabling this feature will only affect if this is offered during configuration or not.

If you know there is an optional update, and you have enabled this feature, but no update is offered, please do a manual update check via Help - Check internet for update, then enable this feature again in the options, then configure your logger again. This will ensure the required file is available.

Summary Statistics

This option allows you to specify which statistics are displayed in the Summary tab.

Automatically calculate and display following data

Select all options you wish to be shown, and clear all options you wish to hide.

Table 19: Calculated Statistics

What is enabled	What LogTag Analyzer shows
Elapsed time	The time between the first reading and the last reading of the recorded data.
Reading range	The lowest and highest reading of the recorded data.
Average reading	The average reading of the recorded data. Please see Average Reading
Degree Minutes below lower alert	The below degree minutes reading of the recorded data. Please see Degree Minutes on page 135 for details on how this is calculated.
Degree Minutes above upper alert	The above degree minutes reading of the recorded data. Please see Degree Minutes on page 135 for details on how this is calculated.
Mean Kinetic Temperature	The Mean Kinetic Temperature of the recorded data. Please see Mean Kinetic Temperature on page 136 for details on how this is calculated.
Time below/equal lower alert	The total time of all readings below or equal to the primary lower alarm threshold.
Time above/equal upper alert	The total time of all readings above or equal to the primary upper alarm threshold.
Time not in alert	The total time of all readings not in alarm.

For the calculated statistics data you can specify additional parameters. These parameters are shared with the Chart Statistics.

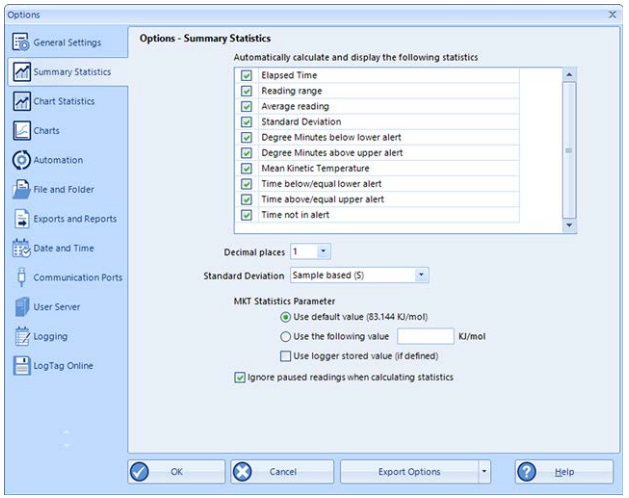


Figure 129: Statistics Options dialogue

Decimal Places

Select the number of decimal places displayed for Mean Kinetic Temperature (on page 136), Average Reading (on page 134), Standard Deviation (on page 137) and Degree Minutes (on page 135).

Standard Deviation

Select the basis for the method used to calculate the Standard Deviation. The default is **Sample Based (S)**

Mean Kinetic Temperature

You can select the value for the activation energy or use the default value of **83.144 KJ/mol**.

Use logger stored value (if defined)

When enabled, Analyzer will use any custom activation energy value that was stored in the logger during configuration in its MKT calculations.

Ignore paused readings when calculating statistics

If you enable this, any readings marked as paused will not contribute to the overall statistics calculations. This is the default setting. If disabled, all values will be included.

Chart Statistics

This window allows you to specify which statistics are displayed on the chart tab.

Display the following statistics in Chart Statistics annotations

Select all options you wish to be shown, and clear all options you wish to hide.

Insert chart statistics annotation when a new document is created

Select this if you wish to include the statistics you selected automatically when a new chart is generated. Initially the box will be placed in the upper left corner of the chart, but you can drag it to a different location if desired.

Clear this box if you want to do this manually for each chart.

Panel Transparency Setting

Set the level of transparency for the chart statistics box. The lower this value, the more transparent the box will be, so you can see the chart behind the box, and vice versa.

Annotation font defaults

This group of settings determines the default look for the font used in annotations. You can set the font, size, style and color. you can later change these parameters in the annotation panel.

Humidity statistics

Here you can set if you wish to insert only the statistics for temperature, only the statistics for humidity, or both when you download or open HAXO-8, UHADO-16 and HASO-8 logger data. The default is both statistics.

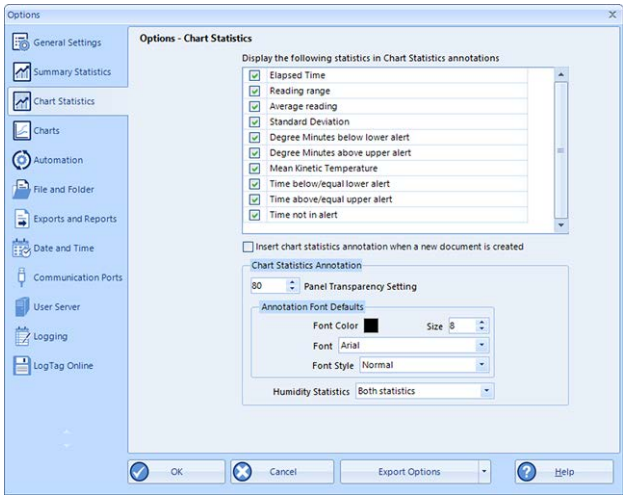


Figure 130: Chart Statistics Options dialogue

Charts

In the Chart Options window you can influence how charts are being displayed in the chart tab.

Restore defaults

Clicking this will re-set all controls and values on this window to the default settings.

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 172.

Chart defaults

The various 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, relevant controls below the list will become active.

You can click on the color selection box to change the color.

Some items cannot have their color set, for example the axes. In this case the color selection box will not appear.

Markers:

Aside from turning markers on and off you can select color, style and size.

Shaded areas

You can set the chart background so different colors 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 recognized easily on the listed or charted data.

Select the shading for each area independently, and select a color.

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.

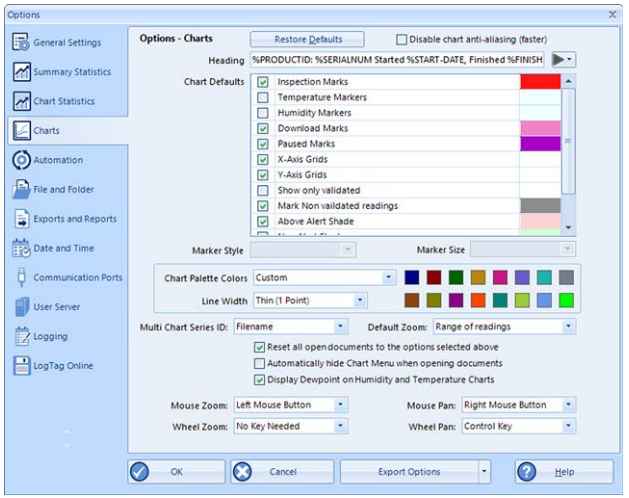


Figure 131: Chart options

Gridlines

Enabling the grid lines displays vertical (x-axis) or horizontal (y-axis) lines which help you identify readings relative to each other. By default both grids are enabled.

Non-validated readings

You can choose to include or exclude non-validated data from the chart display by clearing or selecting the "Show only validated" check box. If non-validated data is to be displayed, it can either appear just like validated data, or you can define a different color and marker style to be used. Select "Mark non-validated readings" to display non-validated data in the selected color and style.

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 North America Inc 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.

Chart Palette Colors

Select the colors for the chart lines. In single charts the first color is used for temperature, the second for humidity.

In multi charts the colors are used in the order the charts are opened. The same colors are also used when the multi chart is switched to display average/min/max.

When you choose custom you can set your own colors.

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.

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 logger.
- 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 Controls). When using the context menu in the chart tab you can also temporarily override the manual settings with new ones.

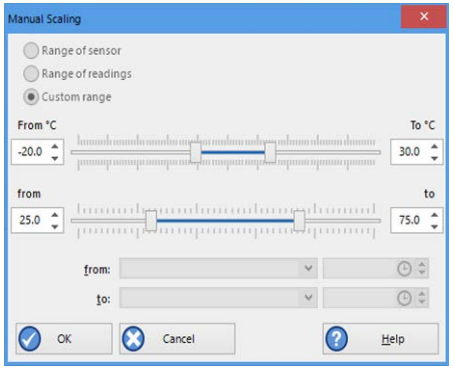


Figure 132: Custom range selection window

Multi Chart Series ID

Here, you select which property of the file is listed in the legend for a multi chart next to the color code for the chart. You can choose one of the following combinations of properties:

- Filename
- Model and Serial Number
- Model and Description
- Serial Number and Description
- Model, Serial Number and Trip number
- Model, Description and Trip number or
- Serial Number, Description and Trip number

Auto-hide Chart Menu

If you wish to see more of a chart when it is first opened, you can select this feature. The Chart Control Panel will then be minimized when a chart tab is first opened. If selected, you need to click the toggle button in the lower right corner of the screen to view the chart panel.

Disable chart anti-aliasing

Selecting this option will enable charts to draw faster on the screen, however they will not look as smooth and have more ragged edges.

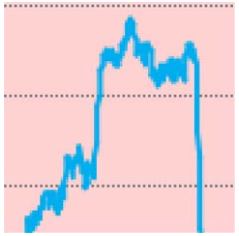


Figure 133: Anti-Aliasing turned on

Figure 134: Anti Aliasing turned off

Reset all open documents

When selected the options as entered will be applied to all open documents when the clicking on OK.

Dew Point Display

Starting with version 3.1 release 9, you can enable a line on charts for humidity loggers representing the due point. This feature is explained in more detail in the section Dew Point on page 117.

Please note that due to the extra calculations performed when showing dew point your chart may take a little longer to open.

Zoom and Pan Controls

These settings control how you pan and zoom using the mouse's wheel and buttons. You cannot use the same control for different actions, i.e. you cannot use mouse zoom and mouse pan with the same button.

Mouse Zoom

By default you zoom in by dragging a rectangle on the chart while holding down the left mouse button. You can change this to the right or middle button, or disable the function.

Mouse Pan

By default you pan by holding down the right mouse button and dragging the chart. You can change this to the left or middle button, or disable the function.

Wheel Zoom

By default you can use the mouse wheel to zoom in and out without holding a key on the keyboard. You can change this so you need to hold the CTRL key or the SHIFT key while rotating the wheel, or you can disable the function.

Wheel Pan.

By default you can use the mouse wheel to pan left and right (when the chart is already zoomed in) by holding the CTRL key while rotating the wheel.

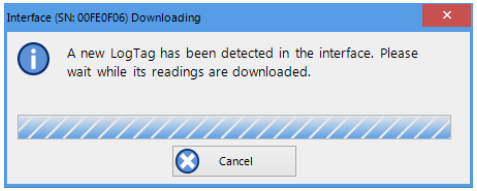
in and out without holding a key on the keyboard. You can change this so you need to hold the SHIFT key while rotating the wheel, requiring no key, or you can disable the function.

Automation

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

Enable automatic download of readings from LogTag® devices

When enabled, LogTag Analyzer will automatically retrieve the recorded data from any LogTag® product as soon as it is connected to the computer, either via an interface cradle or via USB. While the software is retrieving the recordings you will see this window:



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

This function can be temporarily disabled by holding down the CTRL key on the keyboard while placing the logger in the interface.

You can also easily enable or disable this function by clicking the button in the top right of the toolbar. It changes color and shows whether auto download is currently on or off.

Reconfigure with same settings after automatic download

When this is selected, a LogTag® will be automatically re-configured with the same settings that were used for the previous trip, once the data have been downloaded. You can also disable the re-configuration warning that appears if the logger is still taking readings by selecting Disable Warning (this field only appears once you have selected the automatic re-configuration option).

This option can only be selected if Enable automatic download of readings from LogTag® is also enabled.

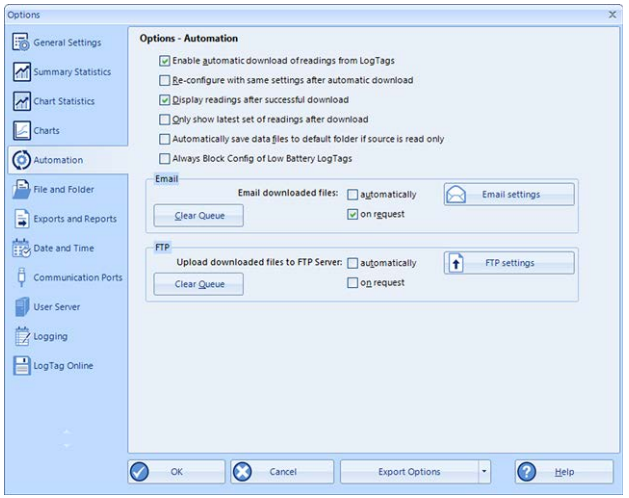


Figure 135: Automation Options dialogue

Display readings after successful download

If selected the software displays the downloaded data immediately after the download has finished, either after an automatic download or when downloading using the Wizard.

Only show the latest set of readings after download

When selected only the most recently downloaded data set is display on the screen. If multiple windows are being displayed, they will be automatically closed and only the most recently downloaded readings will be shown.

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

If selected, LogTag Analyzer creates a permanent copy of any *.ltdx file opened from a read-only source. This copy will be stored in the folder specified in File and Folder Settings on page 171. 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 logger'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.

Always block low battery LogTags from Configuration

If selected, you will not be able to configure a logger once it has a low battery. Although we allow you to configure several logger models even with a low battery to maximize their use, you should enable this option, particularly if your loggers are used in applications with long transit times.

Automatic emailing and uploading to FTP sites

Every time data are downloaded from a LogTag®, LogTag Analyzer can automatically email the resulting data files to pre-selected recipients or upload them to an FTP site.

For each method you can select whether you wish to make the process automatic, on request, or allow both:

- automatically

  Every time a logger is downloaded, the files are automatically emailed to the specified receivers, or uploaded to the specified FTP server
- on request

  You need to click he Upload button on the toolbar to upload or send the file in the currently active window.

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 any settings entered in the Settings windows will remain stored.

Click Email settings or FTP settings to set up the connection data. Usually this information will be provided by your network administrator, who may also provide you with a file containing the required settings. Your network administrator will detail instructions how to import these settings into LogTag Analyzer.

Occasionally, a file is unable to be transmitted due to network errors. You can click Clear Queue to stop LogTag Analyzer from retrying to transmit the data.

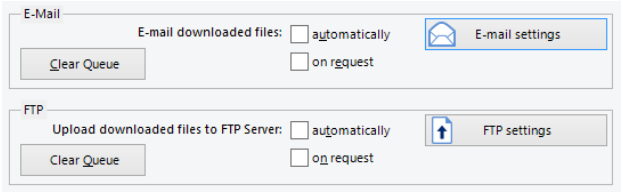


Figure 136: Selection of FTP and SMTP activity

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 organizations consider this as spam and may blacklist your account.

It is therefore of the utmost importance that you as the sender obtain permission from the recipients to send these files. LogTag North America Inc 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 following information:

- The name of the SMTP server which you wish to use to send the emails
- 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.

Table 20: SMTP Server settings

Field	What to enter
SMTP Server	Enter the name of the SMTP server you were given by your network administrator
SSL/TLS	SSL stands for Secure Sockets Layer, TLS for Transport Layer Security. You may be required to tick this box if your SMTP server requires a secure connection. Most SMTP servers now use TLS; your network administrator will provide you with the required information.
Port Number	Enter the port number for connecting to your SMTP server here.The default port for providing SMTP connections is 25. Most SMTP servers no longer accept unencrypted connections on this port to increase security and stop hacking attacks, and you will need to use an SSL connection. Discuss with your network administrator what details are required. 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.
No authentication	When selected, no authentication will be used.
Use Gmail authorization	LogTag Analyzer supports Gmail's OAuth authorization method for sending email via their SMTP server. If you use this method, please see the separate section about Connecting to Gmail on page 202 for a detailed explanation.

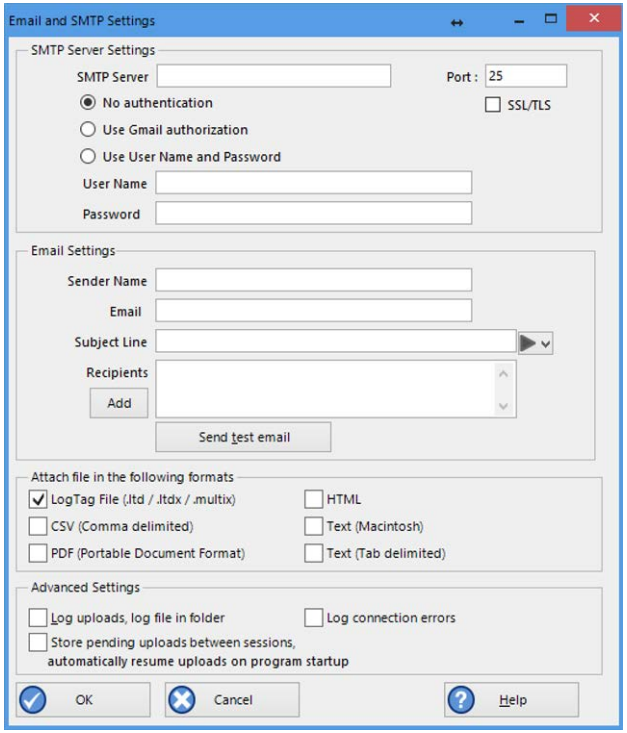
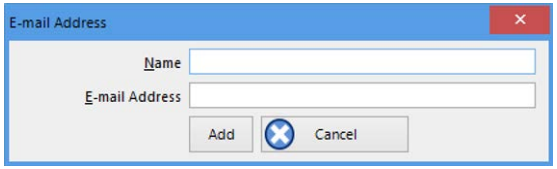


Figure 137: SMTP settings for automatic emailing

Field	What to enter
Use User name and password	Even without SSL or TLS most 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.
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.

Table 21: Email settings

Field	What to enter
Sender 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 recipients can reply to by pressing the reply button of their email program. This can be your email address, or someone else's address.
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.
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.

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

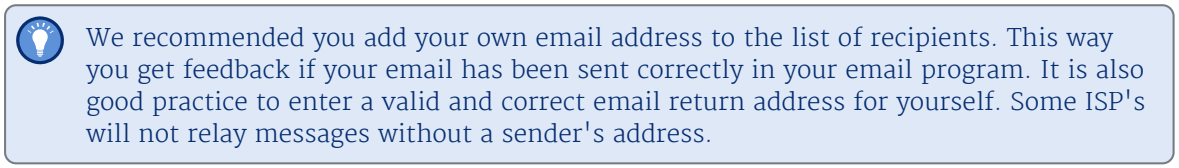
Every time you make changes to these settings you should perform a test by clicking the Send Test email button. LogTag Analyzer will

- 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 the following error message:

Some common errors are:

- The SMTP server requires authentication, and the data provided were not correct. Please enter the correct authentication data.
- 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 number or a misspelled server name.
- One or more of the addresses in the recipient list have an incorrect mail format (i.e. are not in the format a@b.com). 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.

Table 22: Additional settings

Field	What to enter
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. When first using LogTag Analyzer, the LogTag File entry will be automatically selected. You can, however, use any combination of files to transmit, including none.
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" and are stored in the location specified in Logging.
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.

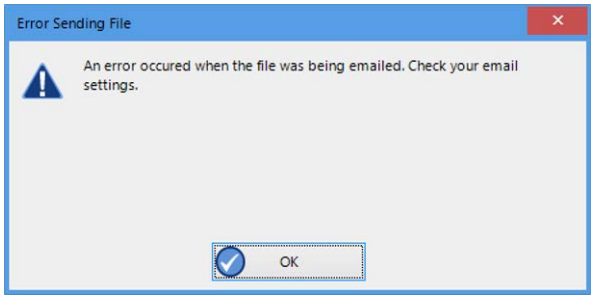


Figure 138: Error message

Field	What to enter
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 Queue button in the Automation window 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.

FTP settings

For the most basic FTP servers you only need to enter following information to upload data:

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

Sometimes the FTP server requires additional configuration data. Many of these settings will be allocated to you by your network administrator.

Table 23: FTP Server settings

Field	What to enter
FTP Server	Enter the name of the FTP site. Omit ftp:// when entering the name.
User Name	Enter the user name that allows access to the FTP server
Password	Enter the corresponding password
Port Number	The default port for providing FTP connections is 21, but some network administrators change the port number on their FTP servers to increase security and stop hacking attacks. 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, TLS or SFTP. You may need to provide additional settings for SFTP. These settings are explained in FTP settings above.
Remote folder	Enter the folder in which the data files should be uploaded. This needs to include the ftp user's home folder name.
Create Folder	Select this if the remote folder is not yet present on the FTP site and you wish to create it.

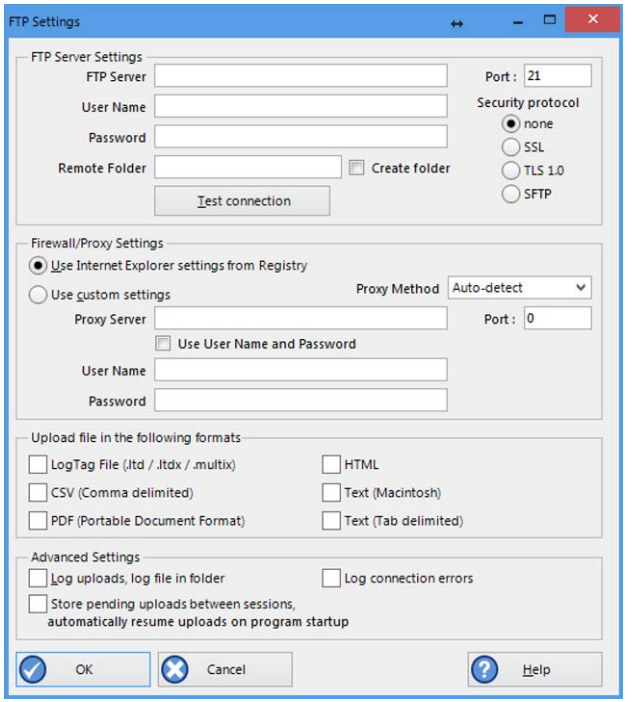


Figure 139: Basic FTP settings screen

Your network infrastructure may require you to specify a proxy server. Unless you were given settings by your network or IT administrator leave this at its default value.

Table 24: Firewall/Proxy settings

Field	What to enter
Firewall/Proxy Settings	Use the settings from the registry or choose your own settings.

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 a connection failure message.

Some common errors are:

- The remote folder could not be created or accessed. Select a different folder name, add the required permissions to the desired folder or change to a folder with required permissions.
- 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 misspelled name.
- User name or password are incorrect.

After you have provided the connection setting, select which files you wish to upload.

Only those files will be attached that exist at the time the upload is being initiated. To make sure the desired files are available for attaching, select each format to be automatically exported in Edit - Options - Exports and Reports

Table 25: File format settings

Field	What to enter
Attach file in the following formats	Select all files you wish to attach when the email is sent. .

Some of the optional settings in the last section will assist in troubleshooting.

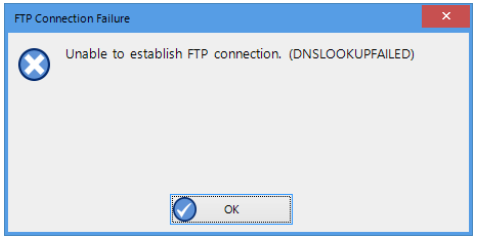


Figure 140: Error during communication with the FTP server

Table 26: Additional settings

Field	What to enter
Log uploads	If enabled, the message exchange between the FTP server and LogTag Analyzer is recorded into a file. These files are automatically named "FTP Activity Log_YYYY_MM.html" and are stored in the location specified in Logging. A new file is generated each month.
Log Connection errors	If enabled, connection errors are also logged. This is recommended if you frequently experience upload errors and you wish to discuss this issue with your network administrator.
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 Queue button in the Automation window 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.

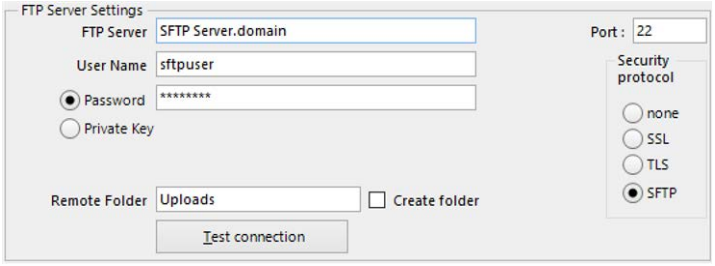
Once all entries for the FTP server settings have been made, click Close to save the settings.

Settings when connecting via SFTP

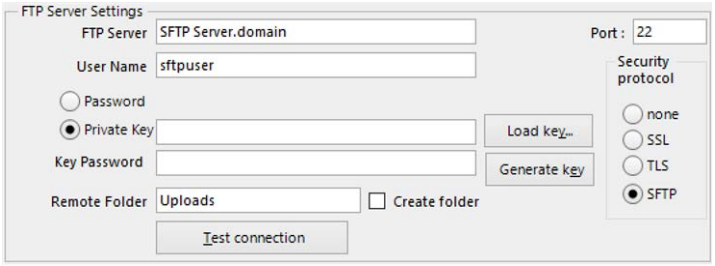
SFTP (SSH File Transfer Protocol) creates an FTP link using a secure data stream. In addition to authentication via Username and Password, LogTag Analyzer offers authentication via a Public/Private Key Pair.

If you wish to know more about asymmetric cryptography please refer to one of the many books or articles available on the topic.

When selecting **Password**, you provide the same details as you would for a standard FTP connection, except that the default port is now 22.



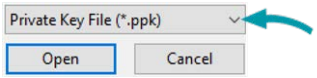
When selecting **Private Key**, the entries change to allow you to specify the key pair for the authentication.



The key pair is provided via one of three methods:

1. They key pair is generated on the SFTP server, and the public key is added to the list of authorized keys that the server allows by the server administrator.

   You will need to obtain and import the private key into LogTag Analyzer. To do this, click Load Key... and browse to the private key file you have received. LogTag Analyzer accepts OpenSSH and PuTTYGen keys. If the key was sent to you in OpenSSH format the file name may not have a file extension, and may not be displayed in the file explorer window that opens after you click Load key... . In this case, click the down arrow next to Private Key File and select **All files**.

   The key may be protected by a password. You can enter this password in the Key Password field.

   Note: If the key is protected by a password, you must enter this in the password field before you load the key, or you will receive an error message.

   You should now be able to test your connection.

2. The key pair is generated by LogTag Analyzer and the private key is instantly added to LogTag Analyzer.

   Generate the key pair by clicking Generate keys. If you wish to protect the private key with a password enter it before generating the key.

   A file explorer window opens and you are asked to save the public key to a file. Browse to a suitable location, enter the name for the key and click Save.

   Forward this file to the administrator of the SFTP server, so you can be included in the list of authorized users. LogTag Analyzer generates a 2014-bit RSA key (stronger keys can be generated via method 3).

   We recommend you create a backup copy of the private key and store it in a safe location. To do this, click anywhere in the private key field and press **CTRL-A**, then **CTRL-C** to copy the key to the clipboard. Press the Windows button (⊞) on your keyboard, type **notepad** and press Enter. Press **CTRL-V** to insert the contents of the clipboard. Save the file to a private location on your PC. Enter **"yourkeyname.ppk"** (including the quotation marks) as the file name to save it as a Private PuTTY Key.

   Testing your connection cannot be done until the server administrator has advised you that the key has been added to the list of authorized users.

3. A third-party program is used to generate they key pair, such as PuTTYgen or SSH-keygen. This would require you to generate the key pair, save send the public key to the server administrator and import the private key into LogTag Analyzer with the method described above.

Please discuss any further issues with your network administrator.

File and Folder Settings

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

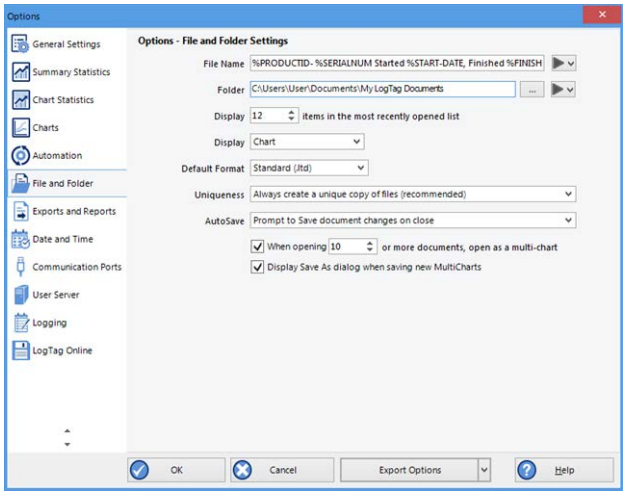


Figure 141: File and folder settings Option dialogue

File Name

Whenever information is downloaded from LogTag® products it is always automatically saved on your PC.

The file name entry helps you to give meaningful names to the files, so you can identify them easier if you have to open them at a later date, or share them with others.

You can mix normal text and pre-defined place holder elements in this definition field. When a new file is created, the normal text appears as entered, and the place holder elements are replaced with the corresponding information from the logger 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 place holder text representing this element at the cursor location; alternatively you can enter this text directly.

You may use one or more of the available elements in any order. If you type additional text into the definition field, you must not add it inside an element's place holder text. If you manually enter placeholder text, the letters must be in upper case as shown in the following table (for example, "%ID" not "%id") and include the % marker.

Table 27: Description of available file name elements and their place holder text

Element	Placeholder Text	File name shows...
Date File Created	%DATE	The date when the LogTag® information was originally retrieved.
Date LogTag Finished	%FINISH-DATE	The date of the last reading recorded after being started. If the LogTag® was not started then this information will be blank.
Date LogTag Started	%START-DATE	The date the LogTag® was started to record information. If the LogTag® was not actually started and only pre-start information was recorded then this information will be blank.
Date of first reading	%FIRST-DATE	The date of when the LogTag® began recording information, even if it was under pre-start conditions.
Date of last reading	%LAST-DATE	The date of the last reading recorded, even if there are only pre-start recordings.

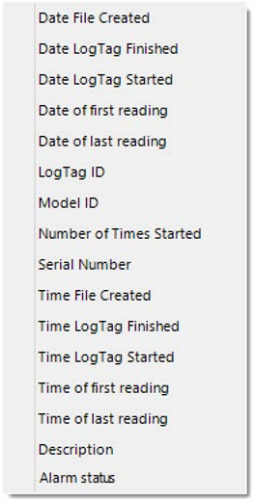


Figure 142: Available file name elements

Element	Placeholder Text	File name shows...
Date/Time LogTag Finished	%START	The date and time of the first recorded reading. If the LogTag® was not started then this information will be blank.
Date/Time LogTag Finished	%FINISH	The date and time of the last recorded reading. If the LogTag® was not started then this information will be blank.
LogTag ID	%ID	The unique LogTag® identification value.
Model ID	%PRODUCTID	The product identifier (part number) for the LogTag® used to record the data.
Number of Times Started	%START-COUNT	The number of times the LogTag® has been started since manufacture.
Serial Number	%SERIALNUM	The unique serial number of the LogTag®.
Time File Created	%TIME	The time when the LogTag® information was originally retrieved.
Time LogTag Finished	%FINISH-TIME	The time of the last reading recorded after being started. If the LogTag® was not started then this information will be blank.
Time LogTag Started	%START-TIME	The time the LogTag® was started to record information. If the LogTag® was not actually started and only pre-start information was recorded then this information will be blank.
Time of first reading	%FIRST-TIME	The time of when the LogTag® began recording information, even if it was under pre-start conditions.
Time of last reading	%LAST-TIME	The time of the last reading recorded, even if there are only pre-start recordings.
Description	%USERID	The user defined identifier for the set of information recorded by the LogTag®.
Alarm status	%ALARM-STATUS	The alarm condition of the logger when the file was generated. "OK" if the logger was not in alarm, "ALM" if the an alarm was triggered during the trip.

You may use the \ character to specify that a file name definition includes a sub folder name. This is useful if you want to group/sort files automatically together and it cannot be done using the folder name controls (for example if you want sort the files by User Id).

Characters not supported by the operating system such as : * ? < > | are not permitted. If you do include one of these elements they will be replaced with the _ character.

Any date or time element will use the formatting settings defined in the Date and Time options.

Folder Name

Here you define the directory where files are automatically stored after data have been downloaded from your logger. This can be a local folder on your hard drive 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 mix normal text and pre-defined place holder elements in this definition field. When a new file is stored, the normal text appears as entered, and the place holder elements are replaced with the corresponding information from the logger's 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 place holder 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 28: Available elements and their placeholder text for the storage folder

Element	Placeholder text	Path name shows...
Current full year	%YYYY	The year in which the file was created, using a four digit number.
Current short year	%YY	The year in which the file was created, using a two digit number.
Month Name	%MMMM	The month in which the file was created, using its full name
Abbreviated month name	%MMM	The month in which the file was created, using a three letter abbreviation (such as **Jan**)
Month	&MM	The month in which the file was created, using a two digit number with a leading zero where required.

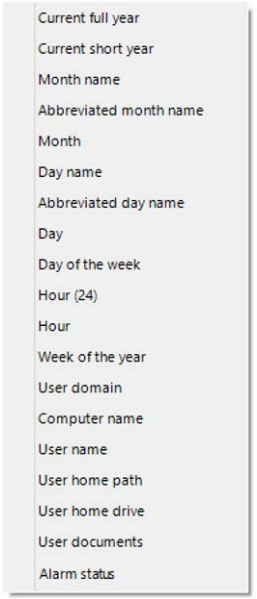


Figure 143: List of available variables

Element	Placeholder text	Path name shows...
Day name	%DDDD	The day on which the file was created, using its full name
Abbreviated day name	%DDD	The day on which the file was created, using a three letter abbreviation (such as **Wed**)
Day	%DD	The day of the month on which the file was created, using a two digit number with a leading zero where required.
Day of the week	%D	The day of the week on which the file was created, using a single digit number from 1-7. (The first day of the week is obtained from the regional settings in your OS)
Hour (24)	%HH	The hour of the day using a two digit number between 1 and 24
Hour	%H	The hour of the day using a two digit number between 1 and 12
Week of the year		The week 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.
Computer name	%COMPUTERNAME	The name of the computer as entered in the system description.
User name	%USERNAME	The user' user name as required for logon.
User home path	%HOMEPATH	The path (excluding the drive letter) of the user's home directory.
User home drive	%HOMEDRIVE	The drive letter on which the User 's documents directory is stored.
User documents	%DOCUMENTS	The path (excluding the drive letter) of the user's documents directory.
Public Documents folder	%PUBLIC_DOCUMENTS	The path name including the drive letter to where the public documents are stored. This is typically C:\Users\Public\Public Documents\
Alarm status	%ALARM-STATUS	The alarm condition of the logger when the file was generated. "OK" if the logger was not in alarm, "ALM" if the an alarm was triggered during the trip.

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 logger and you will then need to select a different directory.

Note: Some Network Attached Storage Devices (NAS Drives) use versions of SMB/CIFS (Server Message Block) file servers which do not correctly report back whether a file exists or not. Consequently, LogTag Analyzer will overwrite an already existing file with the same name *without warning*, regardless of the settings made in the Automation options. We recommend you do your own testing before using this storage method.

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. 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 which view tab will initially show when a file is first opened.

- 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.

Default File Format

Select if downloaded data are stored in the *.ltdx format, or as the legacy *.ltd format.

- The *.ltdx format includes
  - … chart control panel settings
  - … zoom settings
  - … annotations

- … receiver notes
- … file event information

This file format cannot be opened by LogTag Analyzer versions earlier than 3.0.

- The legacy *.ltd format can be read by earlier version of LogTag Analyzer, but does not store any of the additional settings above.

You can open a file in *.ltdx format and store it in *.ltd format, but you will lose the extra information.

We recommend you select the *.ltdx format, and only save the *.ltd format if you need to send the data to someone without the latest version of LogTag Analyzer.

Uniqueness

With this setting you decide what the software should do when a LogTag® is downloaded, and the file name settings File Name on page 172) 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 logger 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" (Continuous operation on page 79).
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 logger 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 here. 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 logger again. In that case the uniqueness settings would determine if a file would be generated again, and what name it would be given.

Auto-Save on Exit

This setting determines what happens when you make changes to a chart, such as changing zoom settings or annotating, and you exit the software or close the file.

- Save document changes on close

  Any changes you make to the zoom settings, annotations, chart settings or receiver notes are automatically saved. This is the recommended setting.
- Prompt to save document changes on close

  If you make changes to the file, you will be asked whether or not you wish to save the changes.
- Do not save document changes on close

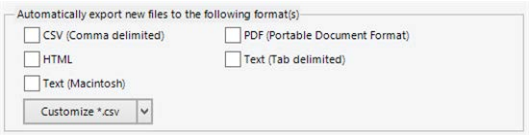
  When you choose this setting you will need to save any changes yourself.

Exports and Reports

In addition to the native *.ltdx 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 a spreadsheet program or email a PDF file to someone who does not have LogTag Analyzer installed on their computer.

Automatic file creation

To automatically create an additional file of a different type, place a check mark in the tick box next to the file type in the list. You can select more than one additional file type.



The additional files will be automatically saved when downloading a LogTag®, using the file name and folder location defined in File and Folder Settings on page 171.

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.

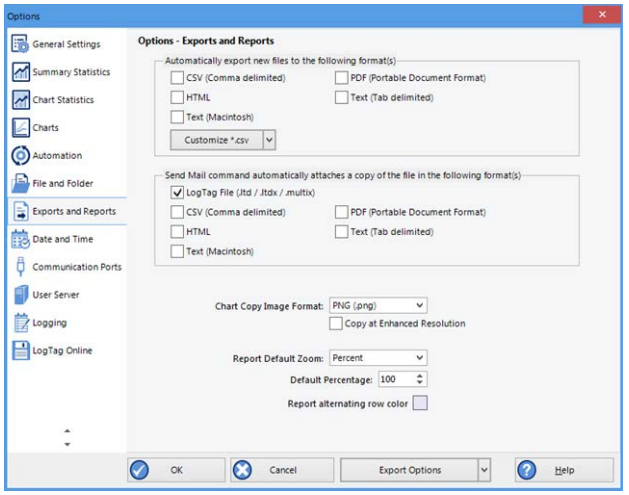


Figure 144: Export Options

You can select which extra information will be included separately for each of the different export formats. Click the down arrow in Customize *.csv and select the export format you wish to adjust.

In this window adjust the options to suit and click OK to save your selection. Click Cancel if you wish to discard any changes you have made.

You can include or exclude:

- pre-start logged data;
- column headings;
- the trip summary;
- readings beyond specifications;
- the day summary for loggers that store this type of data; and
- reading time, elapsed time, or both.

The options for the PDF files are more extensive than for other files, please see PDF files on page 141

For CSV files you can select several additional options:

- a custom list separator

  CSV files normally use a comma as a separator between individual values of a row. LogTag Analyzer allows you to define which character is used. The default setting for this option is Use list separator from the Regional Settings, which uses the character defined in 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.

  Select Use custom list separator and enter your chosen character to use this instead of the default character.

- A custom date and time format

  You can select Export Dates and Times in ISO8061 format (this is the default setting for a new installation). For each recorded reading two fields are generated: a date field in the format YYYY-MM-DD and a time field in the format HH:mm:ss (24 hour clock). Other dates and times in the header of the CSV file also use this format.

  Alternatively, you can select Specify Custom Format and use your own date/time format. Selecting the elements of the date and time format works the same as in Date and Time Format on page 182, so is not further explained here. If you choose not to specify a time format, 24 hour format will be provided. If you mix date and time fields (for example HH:mm YYYY ss) the string will appear in the date field, and the time field will be empty.

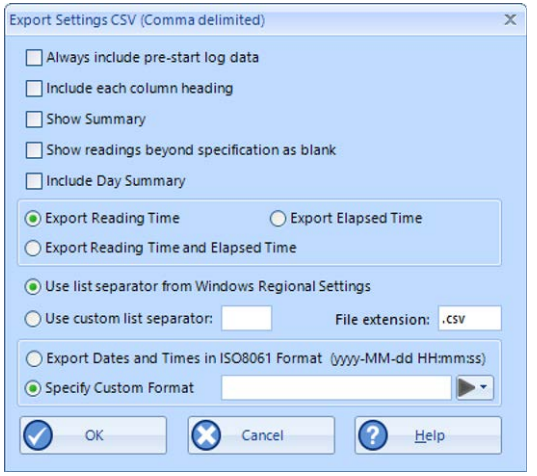


Figure 145: Customizing Export Options

When you open a CSV file with Microsoft Excel you may not see these date and time formats as entered. Excel formats any strings resembling date and time using its own date/time format, which is typically based on the regional settings of your operating system.

- a file extension
  CSV is the standard extension, but you can choose your own extension here.

Attaching files to emails

Here you select the file formats for the email attachment created through the Send Mail command when Sending a file by email direct from Analyzer.

Note: If you select an item in the list of Send Mail file formats, the format is ***not*** automatically selected for export. If you wish to automatically upload files to an FTP site or email them using the automatic emailing function you need to select them in this section for automatic export, and also enable them in the FTP settings as described on page 166 and the SMTP and email settings as described on page 163.

Copying Charts

You can copy the contents of a chart to the Windows clipboard by pressing CTRL-C while the chart tab is active.

Here you can select which format the data should have, and which resolution.

Report appearance

The remaining fields on this page influence the appearance of the report tab. You can decide the default zoom level (Full page, Page Width and Custom), as well as a custom percentage. You can also define the alternating row color.

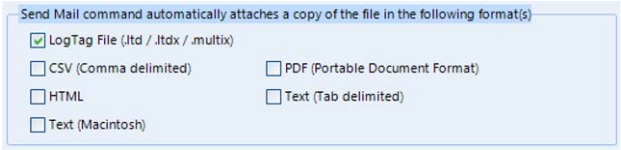


Figure 146: List of file formats for attaching via Sendmail.

Date and Time Format

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

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 Mean Kinetic Temperature on page 136. The letters must be in the correct case (for example, "MM" in the date string, not "mm" as you would use for time value). You can use the characters '.', '/', ',' or '-' to separate elements, but you cannot add text.

Table 29: 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.

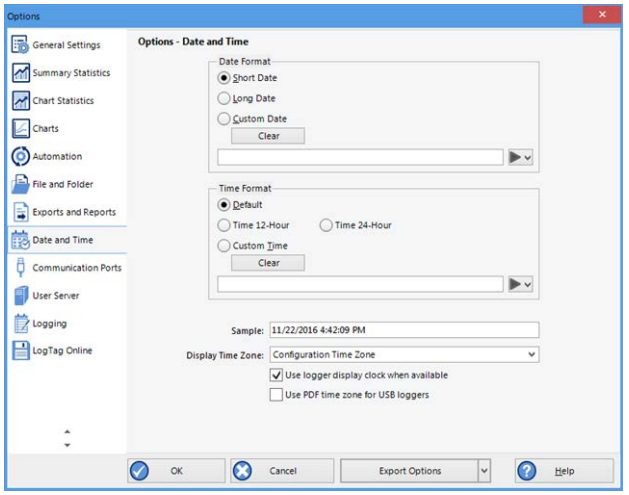


Figure 147: Date and time options

Table 30: 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.

Please note that due to some regional limitations of the Windows OS, not every region supports each of the settings above.

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

Time zones

Each LogTag® stores a time zone along with the real time. This allows recipients to view data from a logger in their own local time, even if it originated from a different time zone. Most loggers store the time zone of the computer used for configuration, but for some the time zone can be specifically defined during configuration, for example in USB PDF loggers, where it is often desirable to set the time zone of the recipient.

The Display Time Zone field allows you to select which time zone LogTag Analyzer will use. It can be accessed by clicking Options from the Edit menu and selecting the Date and Time tab.

Time zone	What is displayed
Local PC Time Zone	All times are displayed in the time zone of the computer used for viewing the data. This is the most commonly used option, as it displays the dates and times on screen in your local time zone. Note, that this is not the same as the download time zone, if you were sent a file from a logger downloaded in a different time zone.
Download Time Zone	All reading times are displayed relative in the time zone of the computer used for downloading the data.
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 of the logger would see it.
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 loggers from different senders in different time zones.
Use logger display clock when available	If selected, all times are displayed relative to the clock that is showing on the display of the logger, if it is equipped with a display that has a clock. You would typically select this option, if you want the logger's display clock to show the same time values as the Report generated by LogTag Analyzer.
Use PDF time zone for USB loggers	If selected, reading times are displayed in the time zone set in the USB PDF logger.

Regardless of the option you select, the recorded data inside the LogTag® are not affected.

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 logger it needs to check each enabled port to see if an interface with a logger 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.

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.

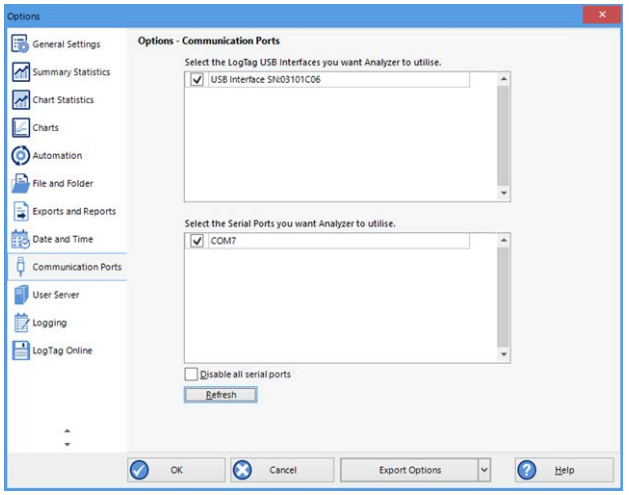


Figure 148: All COM ports disabled, USB enabled

User Server

To enter or change these settings LogTag Analyzer must be started with local administrator privileges. Close LogTag Analyzer, right click its shortcut and click Run as administrator. Make the changes after you have provided Administrator credentials, then close LogTag Analyzer and start as usual. You cannot connect to User Server while logged into LogTag® Online.

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 or network, you will not need to changes these settings. Connection to the LogTag® User Server software is typically only used in multi-user environments 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.

The settings required in these fields will be provided by your network administrator. You will also need to select I agree to be able to store these settings. 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 (How users log on on page 199) to continue using LogTag Analyzer.

Caution: 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. You will not be able to use LogTag Analyzer if you cannot establish a connection to the User Server software.

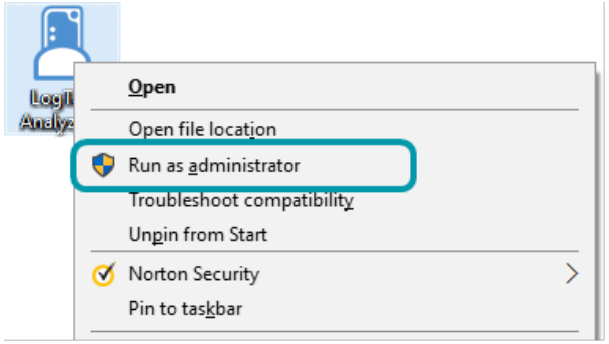


Figure 149: Running LogTag Analyzer as administrator

For more information please refer to the Digital Signatures Suite web page, which can be accessed via the LogTag® website.

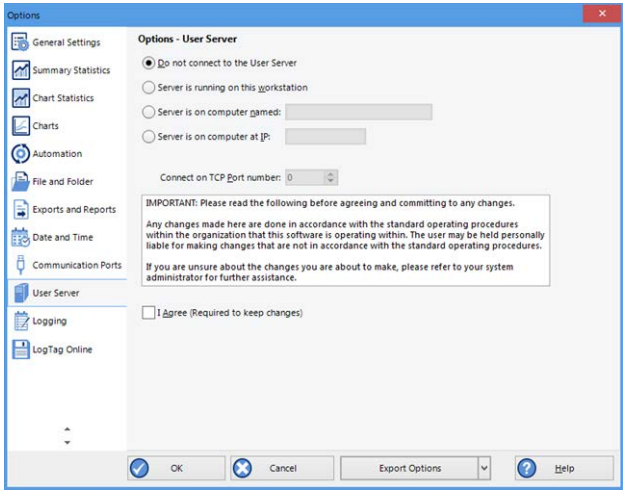


Figure 150: User Server options

Activity Logs

It can sometimes be useful to keep a record of the configuration and download logs of a LogTag® logger. LogTag Analyzer can store a number of different logs in text files. Settings for what is stored and where are made in the Logging window.

When the Log configuration data option is ticked, the selected parameters are written into a text file, which is named "Analyzer_config_log_YYYY_TTT.txt". When the Log download data option is ticked, a second file is generated, named "Analyzer_download_log_YYYY_TTT.txt"

YYYY is the current year, and TTT is a string, the composition of which is dependent on the frequency of the log generated. You can opt to generate a new file every day, every week or every month. We recommend to choose this depending on the frequency and quantity of loggers configured and downloaded, the default is every week.

Clicking ... will allow you to select a Log folder of your choice where the log files will be stored. This folder is also used for the FTP and SMTP logs. For each logger configured or downloaded a new line is started in the corresponding text file; individual entries in each line are separated by the character specified in the Field separator text field, and you can choose to also enclose each value in quotation marks by selecting Add Quotes.

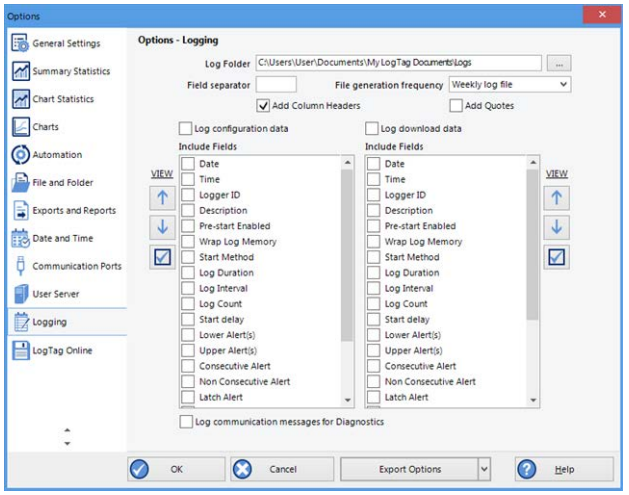


Figure 151: Configuration logging options

You can view the files by either browsing to the log folder and opening the file with a text viewer, or you can click VIEW and open the log for viewing in LogTag Analyzer's internal browser.

Different parameters are available for configuration and download logging.

You can change the order of the entries in each line by highlighting the entry and clicking or . Clicking the check box enables all parameters to be included in the log file. For diagnostics purposes you can select Log Communication Messages. This generates an encrypted log file which you can send to LogTag North America Inc for analysis. The feature will be disabled when you next re-start LogTag Analyzer.

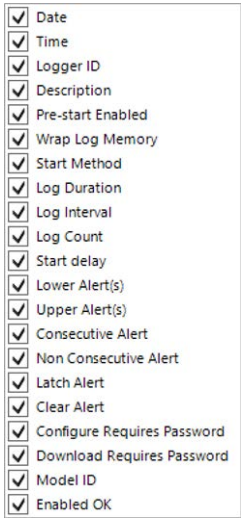


Figure 152: Parameters available for Configuration logging

Figure 153: Parameters available for Download logging

LogTag® Online

Here, you can control some aspects of the LogTag® Online connection.

Automatically sign in to LogTag® Online when Analyzer is started

This setting allows you to use your previously entered credentials to automatically sign into LogTag® Online when you start LogTag Analyzer the next time.

If you are a member of multiple teams you will be signed into the team that was active when you last closed LogTag Analyzer.

Automatically register LogTag®loggers after successful configuration

If this setting is enabled, each logger you configure will be automatically registered to the LogTag® Online account you are currently signed in with. If no user is signed in during configuration, you will be prompted to complete the sign-in process. If you press Cancel in this sign-in window, the logger will still be configured. Registration of the logger then depends on whether you store and resume pending uploads below or not.

Upload files to LogTag LogTag® when user is signed in

Enable this to automatically upload a copy of every file generated when downloading a logger.

Uploading files to LogTag® Online can only be done automatically when a file is generated. You will not be able to upload files already stored locally, i.e. when re-downloading a stopped logger for which a file already exists.

Store pending uploads between sessions, automatically resume uploads on program start up.

Enable this to resume any uploads that were interrupted, or to start uploading when you next sign in. This includes both downloaded files and logger registrations.

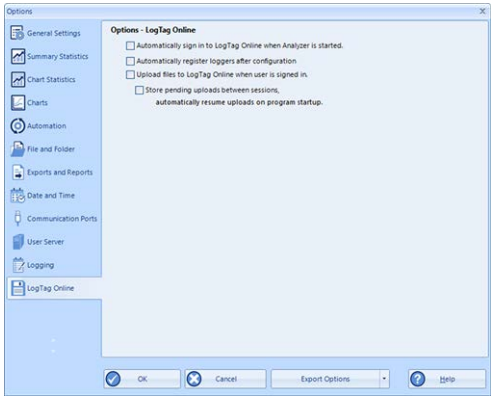


Figure 154: LogTag Online Option Settings

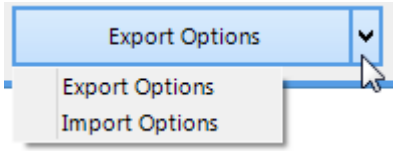
Importing and Exporting Option Settings

LogTag Analyzer's option settings can be exported and then imported 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 from the Edit - Options dialogue.

Exporting the Options Settings

With LogTag Analyzer open, select Edit - Options and click on Export Options. If the button displays Import Options, click the down arrow, then click Export Options.



A window will open, where you can select the option settings that will be exported.

Select all applicable check boxes, or choose Select All to export all settings. Only settings with the check box enabled will be exported.

You need to enable at least on option, or you will receive an error.

Click OK and in the file explorer window that opens browse to a directory and enter the file name of the export file. The *.asxml file extension will be added automatically.

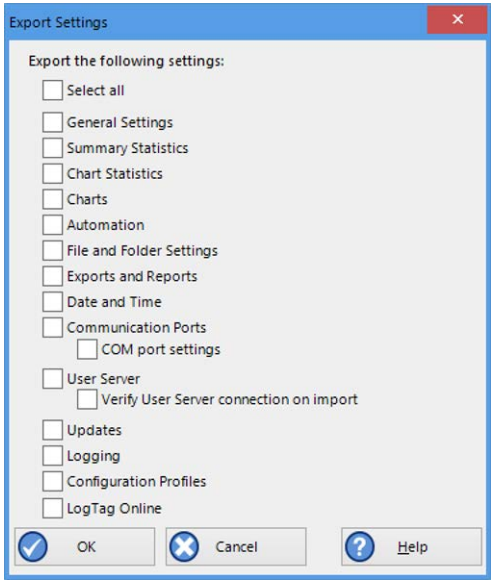


Figure 155: Selecting the options settings to be exported

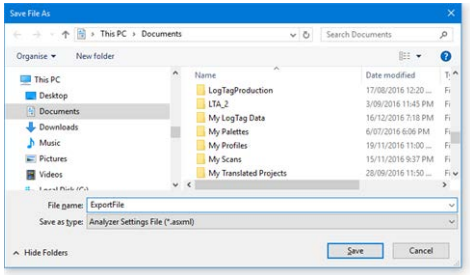


Figure 156: Selecting the export file name and location

Once you click Save, the export file will be written to the folder specified, and you will receive a confirmation message of the successful export.

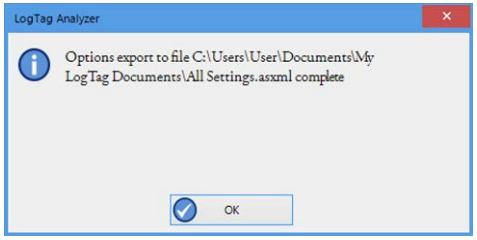


Figure 157: Successfully exported settings file

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.

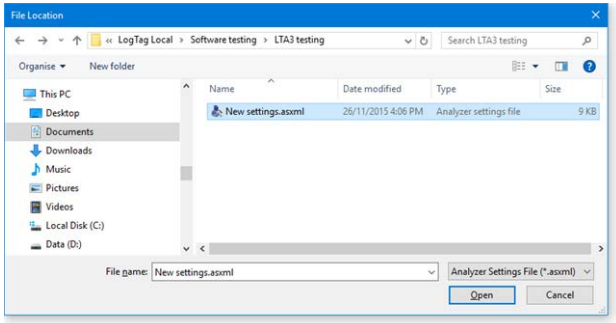


Figure 158: Import options dialogue

  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.

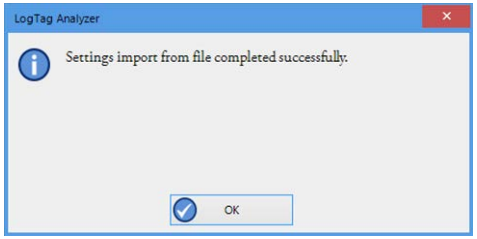
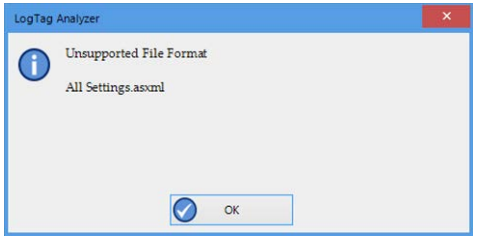
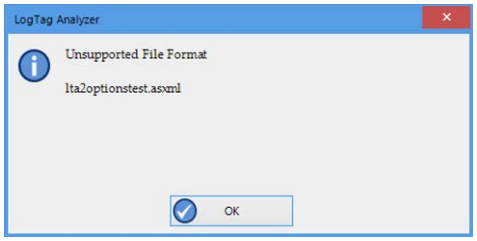


Figure 159: Import successful

If there are any problems with the import file, for example a file format incompatibility, an error message will be displayed showing the import failed.



You cannot import a settings file generated with LogTag Analyzer version 2. You will receive the following error message:



Chapter 5
Appendix

Code Pages 196
Connecting to LogTag® User Server 199
Connecting to Gmail 202
Office365 email support 205
Getting more help 206

Code Pages

A computer determines which character to display based on a table of values, which is specific to a written 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, for example punctuation and brackets. These are listed in the ASCII table as shown.

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 160: ASCII Table of printable characters

An additional 128 characters are available, which are specific to each code page. The following examples show 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 162: 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 161: 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 logger. 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 logger. This is possible because all Windows code pages get installed as part of the operating system, 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.

Some code pages make more than these extra 128 characters available, but this requires more storage in the logger'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 the previous page 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 or TRED30).

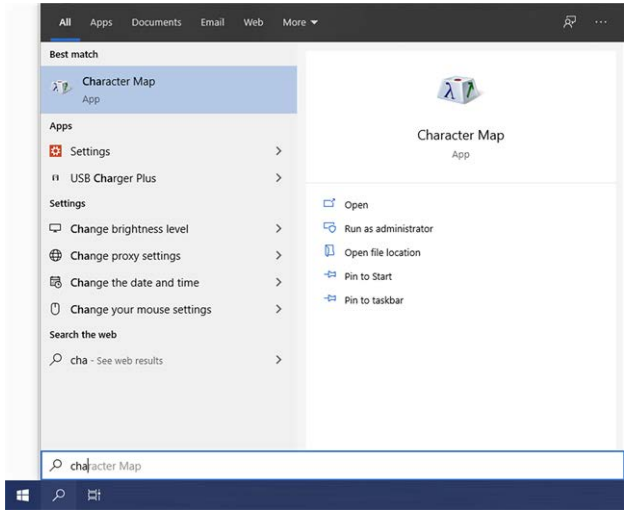


Figure 163: Accessing charmap.exe on Windows 10

These samples 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 165: Code page 932, Japanese language

檗 6A97	蘗 8617	檻 6ABB	櫃 6AC3	櫂 6AC2	檸 6AB8	檳 6AB3	檬 6AAC	欅 6ADE	櫑 6AD1	櫟 6ADF	櫟 6AAA	櫚 6ADA	櫪 6AEA	櫻 6AFB	欅 6B05
蘗 8616	櫺 6AFA	欒 6B12	欖 6B16	鬱 9B31	欟 6B1F	欸 6B38	欷 6B37	盜 76DC	欹 6B39	飲 98EE	歇 6B47	歃 6B43	歉 6B49	歐 6B50	歙 6B59
歔 6B54	歛 6B5B	歟 6B5F	歡 6B61	歸 6B78	歹 6B79	歿 6B7F	殀 6B80	殄 6B84	殃 6B83	殍 6B8D	殘 6B98	殕 6B95	殞 6B9E	殤 6BA4	殪 6BAA
殫 6BAB	殯 6BAF	殲 6BB2	殱 6BB1	殳 6BB3	殷 6BB7	殼 6BBC	毆 6BC6	毋 6BCB	毓 6BD3	毟 6BDF	毬 6BEC	毫 6BEB	毳 6BF3	毯 6BEF	
麾 9EBE	氈 6C08	氓 6C13	气 6C14	氛 6C1B	氤 6C24	氣 6C23	汞 6C5E	汕 6C55	汢 6C62	汪 6C6A	沂 6C82	沍 6C8D	沚 6C9A	沁 6C81	沛 6C9B
汾 6C7E	汨 6C68	汳 6C73	沒 6C92	沐 6C90	泄 6CC4	泱 6CF1	泓 6CD3	沽 6CBD	泗 6CD7	泅 6CC5	泝 6CDD	沮 6CAE	沱 6CB1	沾 6CBE	沺 6CBA
泛 6CDB	泯 6CEF	泙 6CD9	泪 6CEA	洟 6D1F	衍 884D	洶 6D36	洫 6D2B	洽 6D3D	洸 6D38	洙 6D19	洵 6D35	洇 6D33	洒 6D12	洌 6D0C	浣 6D63
涓 6D93	涕 6D64	涘 6D5A	浹 6D79	浙 6D59	涎 6D8E	涕 6D95	濤 6FE4	涅 6D85	淹 6DF9	渕 6E15	淵 6E0A	涵 6DB5	淇 6DC7	淦 6DE6	涸 6DB8
淆 6DC6	淬 6DEC	淞 6DDE	淌 6DCC	淨 6DE8	淒 6DD2	淅 6DC5	淺 6DFA	淙 6DD9	淤 6DE4	淦 6DD5	淪 6DEA	淮 6DEE	渭 6E2D	湮 6E6E	渒 6E2E
渙 6E19	湲 6E72	湟 6E5F	渾 6E3E	渣 6E23	湫 6E6B	渫 6E2B	湶 6E76	湍 6E4D	渟 6E1F	湃 6E43	渺 6E3A	湎 6E4E	渤 6E24	滿 6EFF	渝 6E1D
游 6E38	溂 6E82	溪 6EAA	溘 6E98	滉 6EC9	溷 6EB7	滓 6ED3	溽 6EBD	溯 6EAF	滄 6EC4	溲 6EB2	滔 6ED4	滕 6ED5	溏 6E8F	溥 6EA5	滂 6EC2
溟 6E9F	潁 6F41	漑 6F11	灌 704C	滬 6EEC	滸 6EF8	滾 6EFE	漿 6F3F	滲 6EF2	漱 6F31	滯 6EEF	漲 6F32	滌 6ECC			

Figure 164: 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.

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 software to the LogTag® User Server software please see User Server on page 186

How users log on

If LogTag Analyzer is connected to the User Server, the logon screen as shown one on the right

is displayed when LogTag Analyzer is started. You can also click the Logon icon

in the toolbar or click **Logon** from the User Server menu. For users to successfully log on to the software for the first time, they must enter the username and password assigned to them by the User Server administrator.

Note: To maintain compliance with the FDA CFR 21 Part 11 guidelines, you cannot connect to LogTag® Online while being connected to User Server and vice versa. These options are mutually exclusive.

The password can be changed after the user has logged on (See How users change their password on page 201). You cannot change the Username.

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.

Once logged on, you will be able to use all functions to which the User Server administrator has given you access.

If your logon failed, you will see the Logon Failed message.

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.

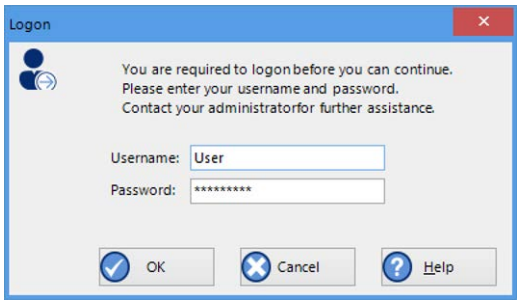


Figure 166: Logon request when connected to User Server

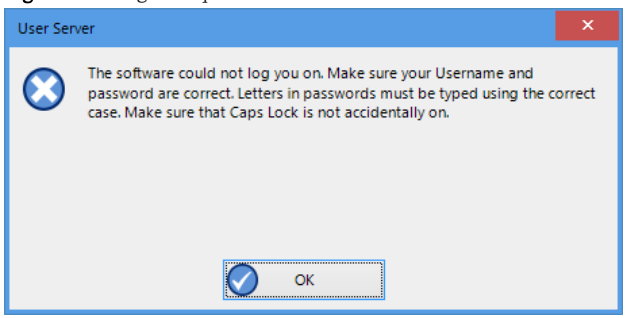


Figure 167: Unable to log on to User Server software

To log off, click the Logoff icon on the toolbar

, or click **Logoff** from the User Server menu. When you exit LogTag Analyzer you will automatically be logged off.

How users change their password

The User Server administrator may permit you to change your logon password. To do so click **Change Password** from the **User Server** menu. You will need to supply your current logon password, then enter the new password and a confirmation.

The User Server administrator may enforce certain password rules. For example, they may require a minimum number of characters (digits, letters or symbols) or a minimum number of digits to be included in the password, or both. Please contact your User Server administrator if you have problems with the password change process.

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 User Server administrator will be able to change it. However, administrators will not be able to see and therefore inform users what their current password is.

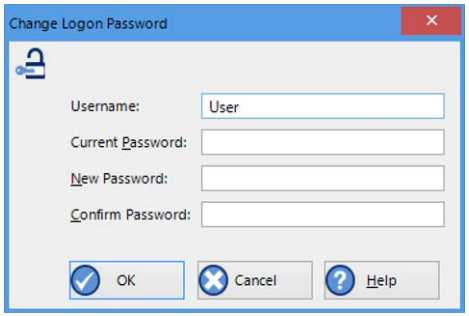


Figure 168: Changing a User Server password

Connecting to Gmail

LogTag Analyzer has the ability to connect to Gmail's SMTP server using your Gmail account. Analyzer now supports the OAuth2 authorization method, which makes it more secure to connect but requires a few simple steps extra when you initially set up automated email sending.

If you already connect to Gmail with an earlier version of Analyzer you will have enabled the option Allow less secure apps in your Google account settings. You can continue sending emails this way without changing any of the settings in Analyzer, however, we strongly recommend to use the more secure OAuth2 authorization method, as described below.

To use this method, select Email settings from the **Automation tab** in **Options**. You will see the Email and SMTP settings dialogue. Click **Use Gmail authorization** – the SMTP Server, Port and SSL/TLS fields will now be set up automatically.

Do not enter anything else in the SMTP Server Settings section of the dialogue. Complete the remaining entries in the Email Settings, Attach file... and Advanced Settings sections.

Once complete, click Send test email. Have your Gmail logon and password details ready.

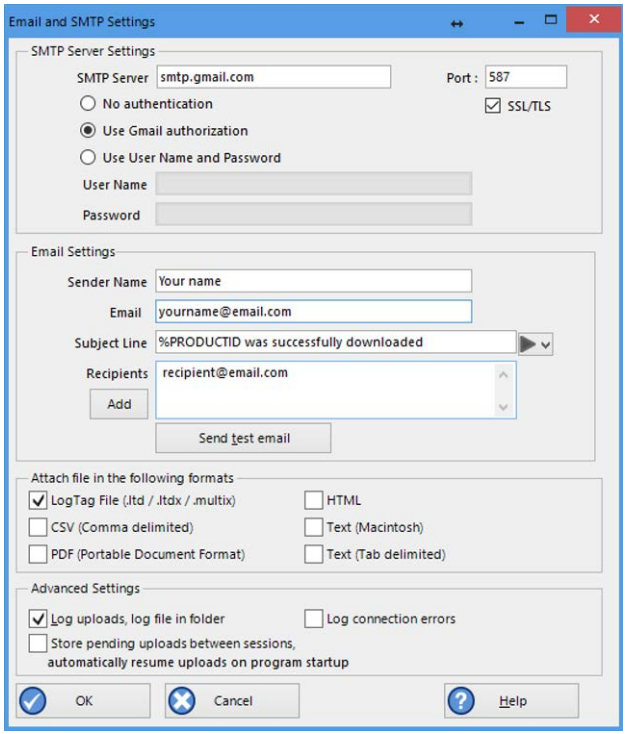


Figure 169: Gmail settings selected

Your default browser will now open. You will be asked to select which Gmail account you wish to connect to. Enter the details of your Gmail account address.

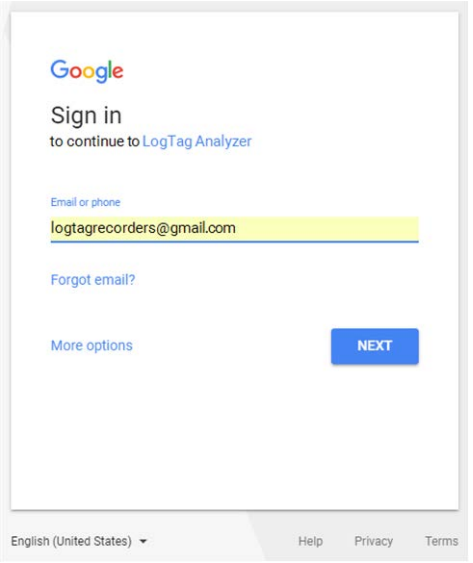


Figure 170: Enter your Gmail account details

Click Next and enter the account password.

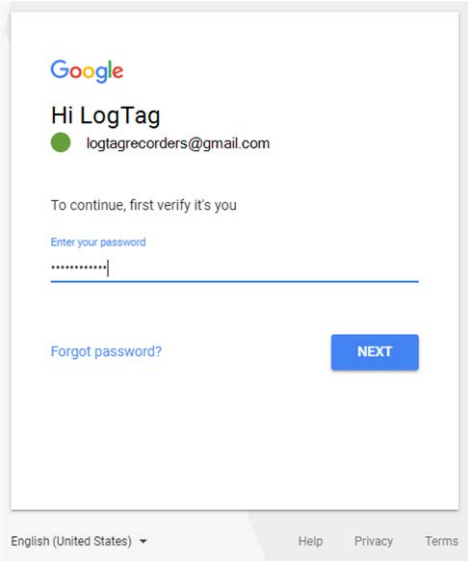


Figure 171: Confirming the account password

Click Next and confirm that you agree to giving LogTag Analyzer permission to send email from your Gmail account.

Click Allow and your browser will show a message that it has successfully communicated with LogTag Analyzer and set up the appropriate permissions.

You can now close the browser window.

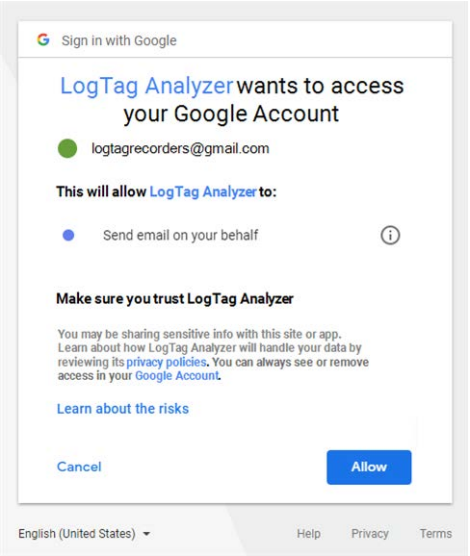


Figure 172: Giving LogTag Analyzer permission to send email on your behalf

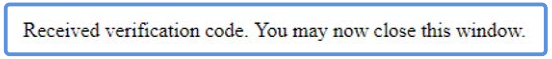


Figure 173: Success message

At the same time LogTag Analyzer will inform you that the connection to the Gmail SMTP server was successful.

When you now use the automated email function, the Gmail email will appear as the sender.

For security reasons this process needs to be completed within one minute. If you exceed the allowed time LogTag Analyzer will display a time-out message.

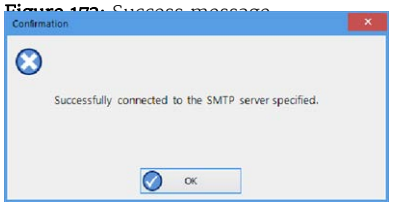


Figure 174: Successfully connected to the Gmail SMTP server

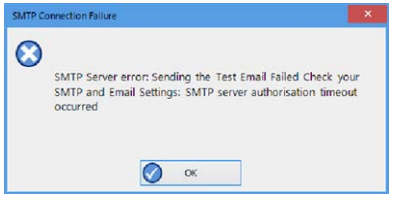


Figure 175: Time-out from SMTP server

Unless you have other applications that need to connect to your Google account, you can now switch the setting Allow less secure apps to **Off**. You can check which other applications access your Google account in the section Apps with access to your account in the account settings.

Office365 email support

LogTag Analyzer can now connect to Office365's SMTP server using your Office365 account.
To use this method, select Email settings in Edit - Options - Automation.
Complete SMTP Server, Port and SSL/TLS fields as follows:
Server Name: smtp.office365.com
Port Number: 587
Encryption Method: Enable SSL/TLS
Click Use User Name and Password and type your Office365 account email into the User Name field and your Office365 account password into the Password field.

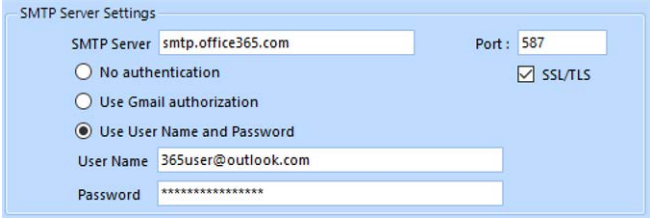


Figure 176: Settings for Outlook 365

If you use two factor authentication for your Microsoft account you will need to perform extra steps, or sending emails will fail:

1. You will need to generate an app password that specifically allows connection to applications that are unable to accept two factor authentication passwords.
   This is done on the Security basics page for your Microsoft account, in the More security options section. Create a new app password (or use the existing one). Please refer to the Microsoft documentation on this subject if you need further assistance generating this password.
2. Once generated, enter this password in the Password field.

You can now complete the remaining entries in this window, then test the SMTP settings by clicking Send Test Email.

Getting more help

If you run into a problem with your logger, you can click **Request help...** from the Help Menu to contact the support team at LogTag North America Inc. When you select this command, LogTag Analyzer will collect information from your system, that assists in diagnosing issues.

LogTag Analyzer generates some or all of the following files:

- diagnostics.txt.gz

  This file includes information about your operating system version, installed languages, temporary folders, LogTag Analyzer version numbers and other system related information in a compressed format
- UserProfile.profile.gz

  This file contains the settings for LogTag Analyzer in a compressed format and can help identify issues with path names and sharing settings
- AnalyzerErrorLog.dat

  This file contains LogTag Analyzer's error log
- XXDownloadFilenameXX.ltm

  LogTag Analyzer generates a special download file for any USB logger and any logger 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 North America Inc, but not with LogTag Analyzer software

  While the software is collecting this information, a message is displayed. It is important you do not remove any loggers during this process.

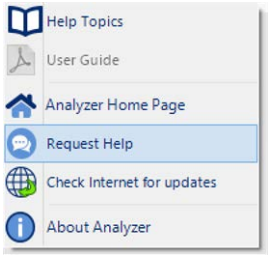
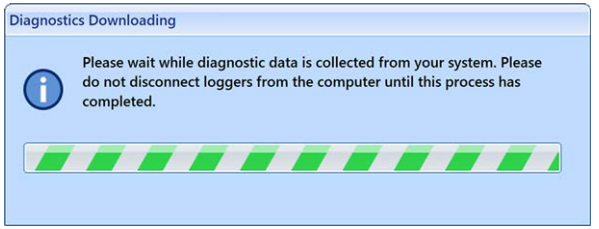


Figure 177: Requesting Help via the Help Menu



LogTag Analyzer will then open a message window, allowing you to enter of your details.

Field	What to enter
From	Your email address, so we can contact you about the problem
cc	Email addresses of anyone you wish to share this information with.
Message body	Include as much detailed information in your email as possible about the problem, such as what you were doing at the time, or what application the LogTag® product is used in.
Add file	You can add files that help to describe your problem, such as a screenshot or a specific LogTag® file that causes the issue. You can easily generate a screen shot with Windows' own snipping tool and save it to a file before attaching it.

Once you have entered all details, click Send to submit the message to LogTag North America Inc.

Note: When you click **Request help...** from the Help Menu again, any existing files in the Diagnostics folder will automatically be deleted. If you wish to keep a copy of the files and the report LogTag® we suggest you put your own email address into the cc field of the message.

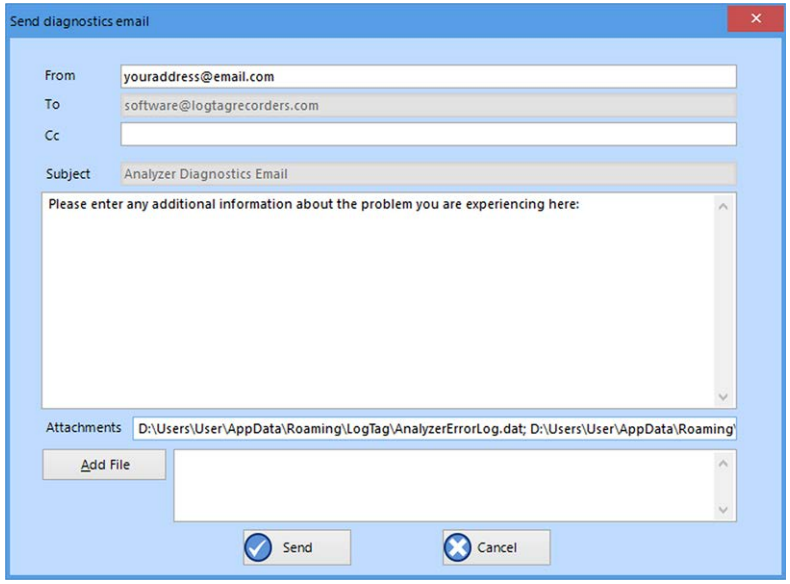


Figure 178: Diagnostics email message

Unsupported Loggers

Occasionally, you may come across a logger that the software doesn't support.

In most cases, such a logger simply is newer than the software understands. In this case, you will be notified that a software update is available. You should update the software to the latest version, which in most cases will resolve the issue. Click Download to start the process and follow the on-screen instructions. A detailed description of the update process can be found in Upgrading LogTag Analyzer on page 24.

In rare circumstances the logger or file contains information that cannot be decoded, even with the latest software. This can happen if a logger was operated beyond its safe battery life, and some of its memory contents are no longer correct. For such a logger you can send a diagnostics email to LogTag North America Inc with the memory contents of the logger attached. This process is described in detail in Getting more help on page 206.

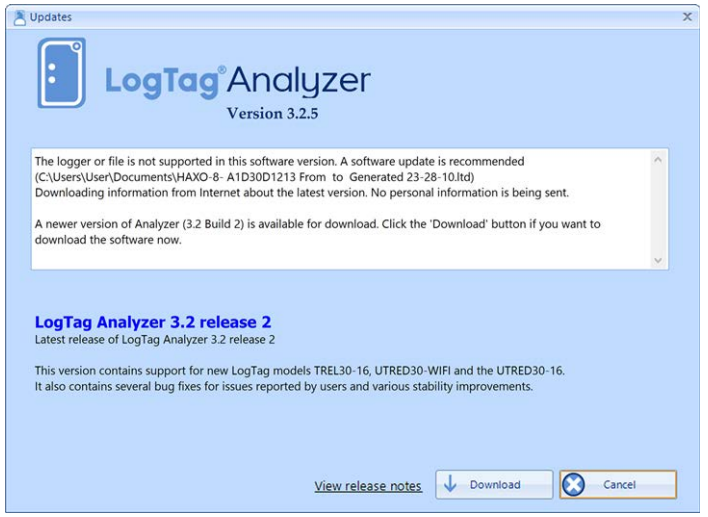


Figure 179: Software update is available for an unrecognized file or logger.

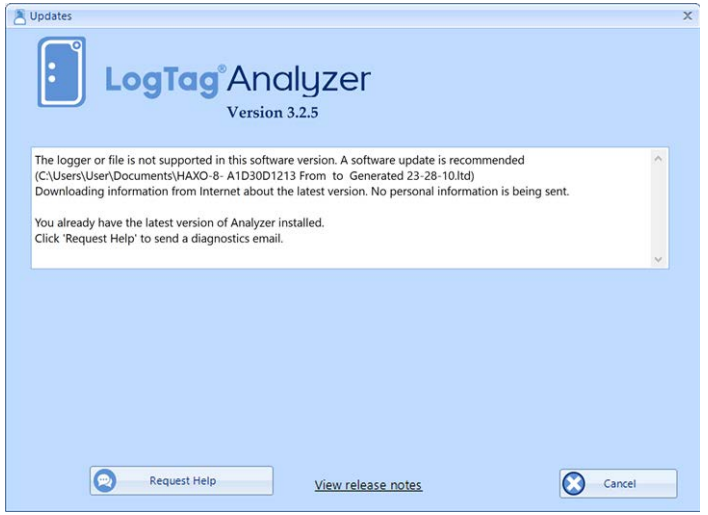


Figure 180: Latest software is already installed - a diagnostics email is required

Damaged Calibration

If you see this error message the logger has suffered a problem with its calibration data.

If the problem only affects the calibration area of the memory there is a good chance your logger (and possibly the logged data) can be recovered using the LogTag® Calibration Restore tool.

Click Yes to collect diagnostics information specific to this problem. Once you have sent the diagnostics email you will receive further instructions from LogTag North America Inc about how to proceed.

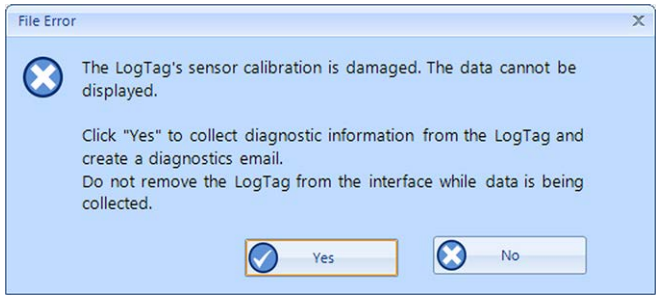
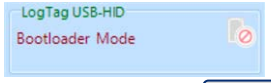


Figure 181: Logger containing invalid calibration details

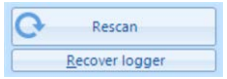
Recovering from a failed firmware update

On the rare occasion that a USB logger firmware update fails, you will not be able to configure or download the logger until it is recovered. You can recognize a failed firmware upgrade from a permanently lit red LED, or the word **boot** if the logger has a display.

When you try to configure such a logger, the progress pane shows the following:



An extra button Recover logger is available below the Rescan button:



Click the button, and the recovery window is displayed on screen.

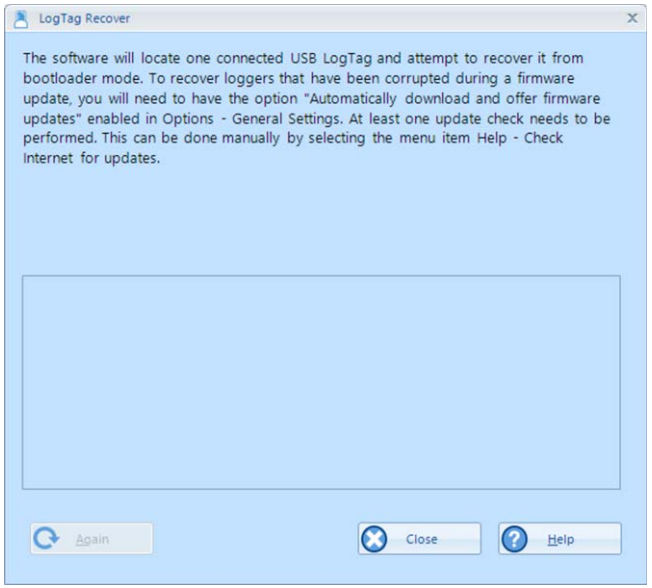


Figure 182: Discovering loggers requiring a recovery process

To be able to successfully recover a logger with a partial firmware upgrade applied, you must have firmware for this model stored locally on the PC. Typically, this is not an issue of you want to recover from a failed upgrade on the same PC, however, if you are trying to recover a unit that was upgraded on a different PC you will need to make sure you check the internet for a software update, and if one is available, install it (this will also install any available firmware updates).

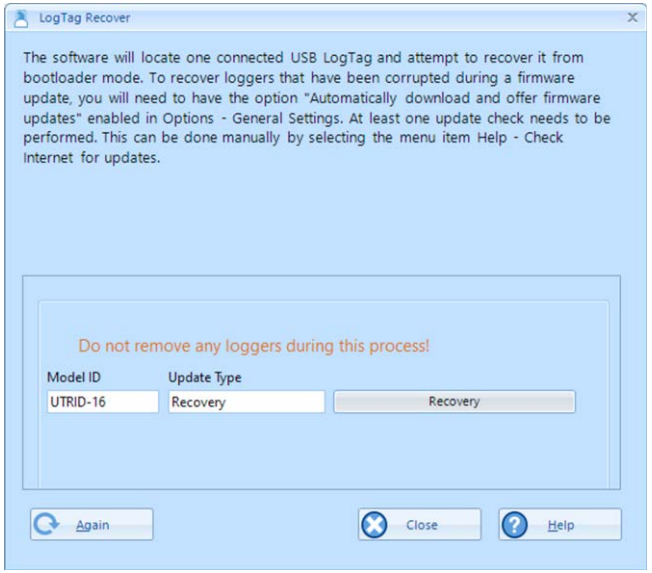


Figure 183: Recovery on progress

Only one logger can be recovered at any one time. The software will select and repair the first logger that is reported by its discovery process. If you need to repair multiple loggers, please recover them one by one.

The recovery process will proceed automatically once a logger is discovered. It will take up to two minutes until you see the following success message:

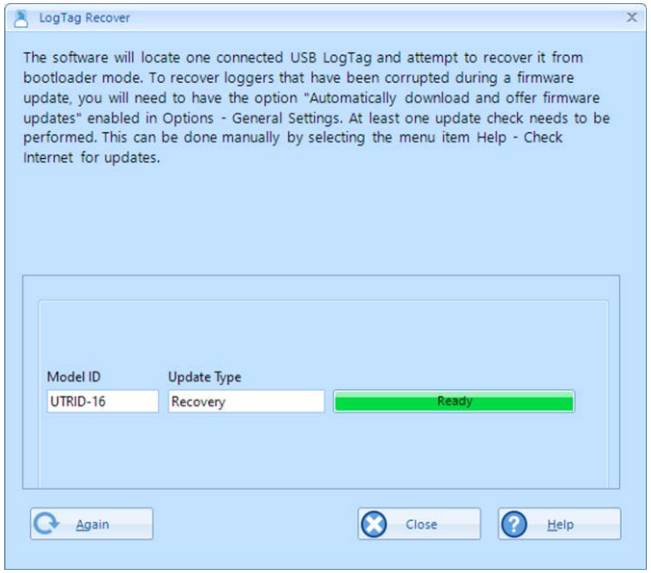


Figure 184: Logger recovery successful

Click Close to complete the process, or add another logger for recovery and click Again.

The logger will be hibernated after the process is complete; you will need to configure and start the logger if you want to use it for recording data.

If the process fails, you will see an error such as this:

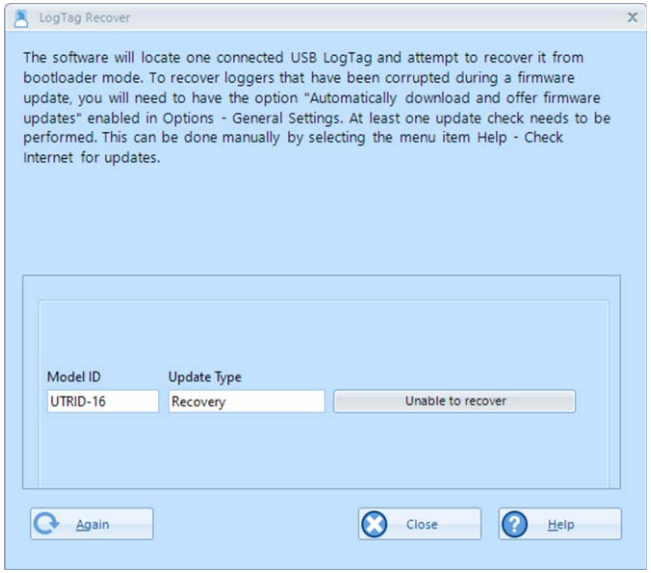


Figure 185: Logger recovery failed

Try the recovery process once more by clicking Again. If the process fails again, please contact support for assistance.

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