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Introduction to the Darca Secure Manual

This help guide contains information to enable you to get the most out of the Eltek Gen II Telemetry System (SC250) and Darca Secure 3.0.24.X

Contents

Installation

1. Insert CD in CDROM drive.
2. From the **Start Menu**, choose **Run…**
3. Type **x:\setup** (where x is CDROM drive) and press return.
4. Follow the on-screen instructions. Note: The installation program will create a folder called 'Darca' within the folder you specify.
5. To run Darca Secure, select the Darca Secure icon from the **All programs | Eltek** menu.

Installation of Darca Secure v3.0.24.x should be done on a stand alone computer, using a single windows account. Windows 2000, XP and now Vista are supported.

It is important that Darca Secure is installed using the windows account that it is intended to be used with. It is also necessary to have Administrator privileges during the Installation phase. These may be removed later.

Once Darca Secure has been installed, providing it has been installed for the first time it will have a default username and password which are:

> Username: Installer
> Password: inst-0300-1500

Note that both of these are case sensitive.

Background

Darca stands for <u>D</u>ownloading <u>a</u>nd <u>R</u>emote <u>C</u>ontrol <u>A</u>pplication. Darca Secure is designed to communicate with Eltek SC250 Data Loggers. It performs three main functions:

1) Downloading Squirrel data
2) Exporting Squirrel data into spreadsheets or Graphing data
3) Remote configuration of Squirrel settings and channel setup

This may be achieved either through a direct RS232 cable, or via modems connected to the public telephone system (or a private exchange).

Darca Secure stores Data in a DAT file format which is encrypted and is unique to Darca Secure v3.0. Note that Darca Plus files are not compatible; also note that this software should only be used with a SC250 Squirrel Data logger.

The Data in the DAT file is encrypted, using a key that is only known to Eltek. In addition to this, a key is placed in the audit trail at the point of download, and is updated on any changes that are made to the comments section of the file. The program does not modify the actual Data. This makes the file tamperproof, as any attempt to change the file would make the key match fail, and the file would be unable to be opened.

Darca Secure is a 32-bit Windows program for setting up, downloading, and translating data from SC250 Squirrels. It has many features designed to speed up and assist in all aspects of Squirrel management. Darca Secure also has audit trail and user management features that follow guidelines for electronic signatures set out in 21 CFR Part 11.

Darca Secure is based on Darca Plus, but has a number of additional features designed for Pharmaceutical purposes.

Traditional Features

- Modern interface makes the advanced features of the Squirrel easily accessible and configurable.
- Multithreaded communications routine improves responsiveness.
- Multiple channels can be edited simultaneously.
- Downloading times have been substantially reduced on all new Squirrels.
- Squirrels can be contacted directly or via modem.
- Phone list makes accessing a number of Squirrels straightforward.
- Setups can be saved to disk and uploaded to Squirrels.
- Squirrel settings can be quickly changed off-line, and then uploaded efficiently at a later date.
- Channels can be renamed for easier identification when metering.
- Alarms can be set up and metered - even on Squirrels without alarms.
- Data can be graphed using powerful graphing tools.

Previous Darca Secure 2.0 Features

The Initial version of Darca Secure was based on Darca Plus 2.0 and had the following additional features:

- Basic User Management:
  - o 1 administrator, and
  - o any number of general users.
- Data encryption.
- System Audit trail.
- User Verification.
- MKT calculation.
- Please note that automation and multi-runs is not part of Darca Secure.

Additional Darca Secure 3.0 Features

User Management

- Multiple Darca user groups with different levels of functionality which include:
  - o Darca Administrator (setup user details, audit types)
  - o Squirrel Administrator (squirrel maintenance)
  - o Supervisor (Data Approval)
  - o Data Manager (Allows manipulation of data. E.g. downloading, exporting etc)
  - o Data Viewer (Viewing data)
  - o Tester (open test files)
- Additional user details, including name, phone number and e-mail address can be added.
- Printable List of user details available to the Darca Administrator.
- Password expiry.
- Audit and e-mail invalid login attempts.

Audit Management

- Audit entry search facility.
- Configurable Manual Audit entry types.
- Manual entry types can be created by an administrator.
- Audit trail split into monthly sections.

Data Viewing

- Channels can be assigned to a specified group. Each Graph window contains a drop down box that can select either:
  - o All selected channels.
  - o Channels specified in the group.
- Each group can have a separate default range on the graph. (from v3.0.18.0)
- Extended data summary:
  - o Alarm Log - High, Low alarms and squirrel conditions such as Low battery, and no power.
  - o File status - Indicates actions applied to the file.
  - o Channel Setup - Transmitter information now displayed in channel setup.
- Offline graph has legend checkboxes to quickly turn on/off channels.
- Online graph has quick access to specific channels from the meter bar window.

Alarm Management

- Logged data:
  - o Alarm events and alarm status can be shown in the logged data.
  - o A list of alarm events can be produced.
- Metered data:
  - o Meter alarm events shown in meter window.
  - o Awaiting alarms, alarms, and historic alarms indicated in meter window by colour coded background.
  - o Comments can be added to the system audit trail to clear the historic alarms.
  - o Audit trail can be searched for meter alarm events and report produced.

Squirrel Settings

- Gen II Transmitter setup included.
- Channel groups and names can be used.

Online Help

The majority of the documentation for Darca Secure is kept online in the Help system. For more information on any item within the program, click Help, or press the F1 key.

Squirrel Basics

The Squirrel must be in OUTPUT mode (i.e. the Squirrel UI turned off) to allow Darca Secure to communicate with it.

The SC250 Squirrel is based on the RX250AL data logger, and works with GenII transmitters. Darca Secure should only be used with a SC250 data logger.

It is important to note that settings on the logger can be changed on the logger itself. If protection against these changes is required, then you can either lock the Squirrel keys via Darca Secure or store the Squirrel in a secure unit.

Darca Secure Basics

Darca Secure presents a login screen when it is initially launched. A valid username and password are required to login, from this point on, Darca runs using this identity. It is possible to login as another user by selecting File | Logout and Change User.

The main panel on Darca shows different things depending on the connection mode.

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The Main Window

The top of the Main Window carries a menu bar through which all of the program's functions can be accessed. The Status Bar at the bottom displays information about the status of communication between Darca and the Squirrel. Between the Menu Bar and the Status Bar is the Control Panel. The buttons that appear on here depend upon the current connection status. When Darca is first started, the Control Panel shows the buttons listed below:

Export Data - Converts a Squirrel Data file (.DAT) into a text file suitable for importing into spreadsheet programs such as Excel.

View Graph – Displays a graph of a DAT file. It is also possible to view summary data which can show data and statistics on a grid.

Preferences - Makes changes to the way Darca operates.

Contact Wizard - Goes through two steps of establishing contact with the Squirrel, allowing configuration of the way the Squirrel will be contacted.

The Contact Wizard

The Contact Wizard provides an easy way to select the method that Darca will use to contact the Squirrel. In the first stage of the Wizard, the type of connection must be chosen from Manual or Gen II Setup /Transmitter Setup.

A Direct connection will simply contact the Squirrel via the LC68 cable, whereas a Modem connection requires a phone number with which to dial the modem. Step 2 of the Contact Wizard also asks whether the Squirrel is RS232 Networked (should only be selected if daisy chained Squirrels used), and allows configuration of the Communications settings through the 'Configure Communications' button.

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The Contact Window

The Contact Window appears once a Squirrel has been contacted. From here the settings in the Squirrel can be changed online, logging can be started and stopped, the run can be download from the Squirrel and the Squirrel's memory can be cleared. The Meter Channels window can also be opened. The following buttons appear on the Contact Window:

Download Run – Displays the Download dialog box.

Meter Channels - Displays the current input of all the selected channels in diagrammatic or graph form.

Squirrel Settings - Configures various aspects of the Squirrel using Darca.

Channel Setup – Configures the channels on the Squirrel.

The Status Bar

The Status Bar at the bottom of the window contains four areas that indicate the status of the connection between the Squirrel and Darca:

| Connected - Match | Communications: Idle | Squirrel asleep | Retries: 0,0 |
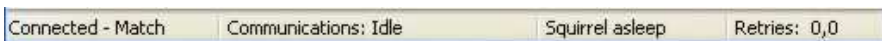
- The left-hand box simply shows whether or not a connection has been established.
- The next box shows the current state of the communications through the selected serial port.
- The third box is the state of the Squirrel. This can either be asleep or awake. Darca must wake the Squirrel before communications can start.
- The right hand box shows 'Retries' followed by two numbers. The first number is the number of times Darca has failed to wake up the Squirrel. The second number is the number of times Darca has not had a response from a transmitted command.

Menus

The menus provide access to all of the functions and options of Darca. Some of the menu items are just alternative ways of getting to the same functions that the buttons provide. Note some menus and options may only appear if you are logged on with specific user privileges or appear depending on the current connection mode.

User Management

The user management section of the program enables the facility to have many users within the system. Only a Darca Administrator has privileges to add, remove or modify user account details although users can change their own password at any time and are initially forced to change it on first logging in.

User Groups

There are six main types of user in Darca Secure v3.0. These are:

- Darca Administrator (allowing configuration of user details, manual audit types etc.)
- Squirrel Administrator (Squirrel maintenance - allowing system setup, such as squirrel setup, channel setup, calibration entry etc).
- Supervisor (allowing for approval/rejection of data comments).
- Data Manager (allowing data comments to be added (for approval by supervisor), and downloading of data).
- Data Viewer (user allowed to view data).
- Tester (allows viewing of files created on other systems for test purposes. Display of Graph and Data will have indication that this is not a genuine file from the current system).

A Darca Secure user can be a member of more than one user group.

Initial User

When running Darca for the very first time after Installation the username and password will be:
Username: Installer
Password: inst-0300-1500

You will need to enter these details to login for the first time, but the user will be instructed to change their password and actual name.

Adding, modifying and removing Darca Secure Users

A user must be a member of the group type "Darca Administrator" to have permission to add, modify or remove user accounts.

To add, modify or remove a user account the Darca administrator should select **File | User Management….**. They will then be instructed to verify their username and password.

A list of all the current users will appear by default:

Note; it is also possible to display this list which also includes removed users.

Adding Users

To Add a user to the system click on the '**+**' button' on the Users window. You will then be presented with the User Management window which has three tabs visible.

The first tab in the User Management window contains User Details. Currently there are several fields that are stored related to the users details.

These are:

User Name: an alias for the user that is kept for the lifetime of the user.

Users Full name: This is the current full name of the user (maximum of 128 chars).

Job Title: A description of the Job the user undertakes.

Number: A contact phone number for the user.

E-mail: An e-mail address for the user. Note that for administrators this e-mail is used to send invalid logins, also it maybe used for issuing new passwords to users if SMTP is setup.

Groups: A list of groups the user is a member of. See 'User Groups' section for a description of the permissions each group has. Note a Darca administrator cannot remove the Darca Administrator group type from their own group. Another Administrator must do this. This is to prevent all Darca Administrators from being removed from the system.

User Expiry Date: An expiry date of the user can be set. If the "User never expires" box is ticked then the user will not expire. Note: Darca Administrator accounts cannot have an expiry date set, to prevent administrators being inadvertently being disabled.

It is necessary for at least a Username and Full Name to be given and at least one User group to be added, all the other details are optional.

The second tab is the issue password tab. If you wish to issue a new password for a user there are two methods available:
1) By E-mail. This is only available if the user has an e-mail address and SMTP mail is available and setup. Just click **(Re)Issue Password automatically By E-mail**. A new password will be issued on Add or Set.
2) Manually issue the password. Enter the new password into the two edit boxes and click on **(Re)Issue Password Manually**. A new password will be issued on **Add** or **Set**.

Note that a user will be forced to change their password when first logging in. It is possible to change their password at any time (providing they are active). The user record keeps a hash of the previous 10 passwords which cannot be reused.

The third tab shows a summary of the user status, which shows the current status and cause, last login and access times. It is also possible to lock or remove a user from here (unless creating a user or the user is the current logged in user).

Editing Users

The same options can be edited as those that can be added except the username cannot be changed. If required a new user could be added to the system.

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Locking Users

User Locking provides a mechanism to temporarily prevent a user logging in. This could be used if a user is known to be away or is not required to be using the system. If a user has left the organisation then "Remove User" should be used instead.

It is possible to lock a user (prevent a user from logging in, but keep the account details visible) by highlighting the username and clicking on **lock**. When locked the user will no longer be able to log in. Note: It is not possible to lock ones self. This is a deliberate mechanism to prevent all users being locked.

Timed Lock Users

In addition to a standard user lock it is also possible to set up Darca Secure so that after a number of incorrect logins the user is temporarily locked for a set period.

Unlocking Users

If a user is locked or has a timed lock it is possible to unlock the user by highlighting the user and clicking on **unlock**. It may also be possible that a user account has expired causing the account to become inactive.

Removing Users

Users can be removed from the standard list. When they are removed they can no longer login, however their details are kept, and it is possible for their accounts to be reinstated.

Reinstating Users

If the current list been shown excludes removed users then clicking on **Show removed Users** will give a list showing any removed users in addition to any active or locked users. If a removed user is highlighted the button which usually shows Lock/Unlock will change to **Reinstate**. Clicking on this will reactivate the user.

Audit Trail

A system audit trail is updated for various user activities. An audit trail is shown as follows:

Computer Identifier	Date and Time (dd/MM/yy HH:nn:ss)	Event Type	Event	Username	Comment	Squirrel	DAT File
UCHG10970	23/10/06 10:54:15	DARCA_USER	Logout	mikebass	Logged Out		
UCHG10970	23/10/06 10:54:52	DARCA_USER	Login	unagau	Logged In		
UCHG10970	23/10/06 10:55:21	DARCA_ACCOUNT	User Password Changed	unagau	User unagau has changed their password		
UCHG10970	23/10/06 10:58:57	DARCA_USER	Verify User	unagau	Verified User		
UCHG10970	23/10/06 10:59:09	DARCA_USER	Verify User	unagau	Verified User		
UCHG10970	23/10/06 10:59:40	SQUIRREL_USER	Download Data	unagau	Downloaded Squirrel	SQUIRREL 8412 (K00642-8412)	C:\Darca Secure Data\Data\2006 10 23.dat
UCHG10970	23/10/06 10:59:40	SQUIRREL_ALARM	Alarm(s) found in file	unagau	Alarm event(s) found in data	SQUIRREL 8412 (K00642-8412)	C:\Darca Secure Data\Data\2006 10 23.dat

The audit trail currently shows the following information:
1) Computer Identifier – This gives the computer identifier of the PC that is running the program.
2) Date and Time – The Date and Time the event was added to the audit trail.
3) Event Type – This categorises the event into different types of Event. E.g. DARCA_ACCOUNT is related to things being changed on a Darca user account.
4) Event – This identifies the event that has happened.
5) Username – This shows the username for the person that either caused the event or who was logged in at the time of the event.
6) Comment – This gives details about the event that has happened.
7) Squirrel – This gives the squirrel serial number and name if the event is specific to a data logger.
8) DAT File – This shows the DAT file if the event is specific to a DAT file.

The audit trail is shown in monthly sections by default but it is possible to generate a more specific search with specified dates by using the Advanced Search feature.

Advanced Audit Trail Search

To search within the Audit Trail:
1) Click on Advanced Search.
2) Enter search Criteria.
3) Click on Search.

Manual Audit Entries

It is possible to add user defined comments to the audit trail. A Darca Administrator can add a manual Audit entry type which specifies the Event name and the groups of users that can perform the entry.

For example a Squirrel Administrator may wish to detail any changes made to the logger setup, so a new Manual Audit Entry Type can be created by a Darca Administrator to allow this to happen.

Adding an Audit Entry Type

A Darca Administrator can add a new Manual Audit type by:

1) Clicking on **File** | **Audit Management** | **View Audit Types / Edit Manual Entry Types…**

2) Click on the **Manual Audit Entries** tab. There may be some pre added entries available, but it is possible to add new entry types by clicking on the '**+**' button.

3) Enter an audit description. E.g. "Logger setup change". Note this description will be preceded with a "Manual Entry" prefix when used in the audit trail.

Creating a manual audit Entry

The User group allowed (in this case a Squirrel Administrator) may then add an audit entry by:

1) Clicking on **File** | **Audit Management** | **Add Audit Comment (Manual Entry).**

2) The Add Manual Entry to Audit Trail window will appear. Select one of the Audit Entry types you are allowed to use e.g. "Logger setup change" (if it has been created), and then add a comment to go with it. E.g. Log interval on K00635-7000 has been changed from 10 seconds to 5 seconds. Finally click **OK** and the entry will be added to the system audit trail.

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Setting up the SC250 Squirrel data logger

Although it is possible to modify the setup on the data logger from the keys on the Squirrel if they are not locked, settings can only be changed through Darca Secure if the user has Squirrel Administrator privileges. To do any of the Squirrel setting up required in this section you will need to be logged in with a user account that has this privilege.

Communications

It is important to have the correct COM Port set up in Darca to connect to the Squirrel. To change the COM port settings go to Settings | Communications…
Usually if there is one physical COM port on the PC then this maybe COM1 if on the motherboard or COM3 if on a separate card. If using a USB converter it may be a much higher number (usually this can be found through Windows Control Panel | System | Hardware | Device Manager | Ports).

Intervals

It is important to decide on a log interval which you want to use, and setup the system according to this. There are some limitations at high speeds when using many transmitters as this can cause reception of data to become unreliable. If you wish to log data every 15 minutes then it is recommended that transmissions occur 6 times as frequent, which is 1 minute and 30 seconds. In addition the sample interval is required to be at least twice as frequent as the log interval, usually it is recommended that this is set to one minute, unless logging more frequently than 2 minutes.

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Setting up transmitters

Each transmitter channel (a physical sensor on a transmitter) must be mapped to a Squirrel channel so that its data can be logged. Transmitter channels must also be configured with the correct range and transmit interval for your application. The preferred way to add transmitters is done with 3 stages:

1) Getting the current setup out of the Squirrel data logger.
2) Adding transmitter details to the setup.
3) Send the new setup back to the Squirrel.

To setup transmitter follow the following process:

- Ensure the Squirrel isn't logging and there is no data in the logger (download if necessary).
- Connect the logger to the PC.
- Click on the **Contact Wizard** button and then select **GenII Setup / Transmitter Setup** and click **Next >>**. Next select the first option; **Modify the transmitter setup based on the current Squirrel setup (Normal)** and then click on **Next >>.** The **Squirrel Configuration Status** window will appear indicating the progress of downloading the squirrel status. When complete the **Squirrel Channels to Transmitter channel Assignments** window will appear with any previously setup channels shown.
- To add transmitters click on the **Transmitter Setup** button. If there is a spare serial port available on your PC, connect a transmitter to it with the **LC-TX3** cable and select the port in the **Serial Port** drop-down list. If only one serial port is available, disconnect the logger and connect a transmitter in its place then click **OK / (Connect)**.
- The Transmitter details will now be shown. Select a transmitter Interval in the box provided (this is in the format of hh:mm:ss) and then click Set Tx Interval.
- For each of the channels on the transmitter select the range required from the dropdown box and the channel required on the logger and then click on **Set Channel** The channels will be added to the Squirrel channel list. Note: for some types of transmitter you may wish to set EU ranges, transmitter alarms, do calibration or set a sensor on time. Refer to the online help for further information on these.
- Configure the transmitter appropriately. Use **Next Transmitter** to repeat this process for all transmitters that require configuration.

- Once you're satisfied with the Squirrel to Transmitter channel assignments and the transmitter configuration, reconnect the logger and click **Send to Squirrel** to store your new settings.
- Close the **Squirrel Channel to Transmitter Channel Assignments** window and click **Disconnect** on the main console.

Configuring the squirrel

- Ensure the logger is connected to the PC.
- Ensure that a user with Squirrel Administrator privileges is logged in.
- Click on Contact Wizard then select **Manual** and then click on **Next >>** then select **Directly** and click on **Next >>**. Darca will then connect to the Squirrel. It may be necessary to wait for the red crosses to disappear on the user interface.
- Most settings can only be applied when the Squirrel isn't logging and does not contain any data.
- Channel setup can only be modified when the metering window is closed.
- It may be necessary to reopen the Squirrel Settings / Channel setup window if buttons are disabled when opening.

The settings on the squirrel are divided into two sections. Those applicable to channels (Channel Setup), and those general to the logger (Squirrel Settings):

Squirrel Settings

To modify the Squirrel setting click on **Squirrel Setting** while connected to the Squirrel.

The Squirrel Settings are shown among 5 different tabs:

Time and Date settings - Clicking AutoSet will update the time and date shown with the time and date on the PC. These settings will be applied when OK is pressed.

Intervals – The log interval and sample interval can be set. Note the log interval is how regular you want the squirrel to log data. The sample interval will be the frequency that alarms are checked for. This must be twice as frequent as the log interval.

Memory – The size of memory used can be changed, but it is recommended the whole of the memory available is used.

Advanced – In this section it is possible to change the squirrel name, lock the Squirrel buttons and give group descriptions.

SMS – In this section it is possible to add upto 10 numbers that a GSM modem can dial in the event of an alarm. It is also possible to set the frequency of a repeat text message if still in alarm.

Channel Setup

To modify or view the Channel Setup click on **Channel Setup** while connected to the Squirrel.

The Channel setup is displayed as a list:

Channel	Ident	Log?	Input	Range	Meter	Unit	Hi Alarm	Lo Alarm
1	Channel 001	Yes	Sensirion Temperature	-30.0 to 65.0	Off	°C		
2	Channel 002	Yes	Sensirion Humidity	0.0 to 100.0	Off	% RH	100.0	0.0
3	Channel 003	No						
4	Channel 004	No						
5	Channel 005	Yes	T type Thermocouple	-200.0 to 200.0	Off	°C		

  - Log Channel

  - Edit Channel (Alarm and group settings)

Ident   - The Channel Ident can be modified directly on the form

Setting Channel Alarms

To modify Alarm settings click on the Edit channel icon and then click on the Alarm & Relay tab.

The alarms tab of the Edit Channel window allows you to configure alarms for each channel of your Squirrel. In SC250 Squirrels the alarm type is: Eltek – Timed.

This type of alarm does not have a stop value, so alarms are stopped at the same threshold as they are started. This type of alarm may also have a delay time. This is the time the Squirrel will wait after it has crossed an alarm threshold before

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the alarm is activated. This delay must be a multiple of the sample period. Note that altering the sample period may alter all your alarm delays by the same multiple.

Each channel may have a High alarm and a Low alarm. The High alarm for a channel is triggered when the input to that channel reaches or exceeds the Start value. The alarm will then remain activated until the input falls below the value. Low alarms perform in a similar manner, but the alarm is triggered when the input falls below the Start value and cleared when the input climbs back above the value.

Setting Channel Groups

Each channel can also be associated with a group (Arrange Meters in Groups may need to be selected in Settings | Preferences | Metering to make it available). This channel group can be set in the Range Tab of the Edit Channel window.

Viewing Data

Darca Secure stores data in an encrypted DAT file. The Data may also be exported automatically to .CSV (or similar format) files.

Downloading Data

It is recommended that data is downloaded from the Squirrel at a regular interval (e.g. once a week), but this may depend on how quickly the memory in the Squirrel is likely to get used up.

Data Storage

Data is stored in an encrypted form in a file with an extension of type .dat. The DAT file primarily contains the details of the squirrel setting when logging and the values logged. In addition to the regular data (which is logged at the log interval) the SC250 data logger also logs alarm events. This means it logs when an alarm event occurs (on the sample interval). Note, cleared alarms are not specifically logged.

Opening Data

There are several ways to open previously downloaded data, the simplest is to click on File | View graph, this gives the user to open a dat file from the directory that previously had data downloaded to it. The data is initially presented in a graph, but this can also be presented in a tabular format by clicking on the summary button.

It is also possible to open the data via | View Data File List and select an option to view files in a specific status.

Graphed Data

Once the graph window has been opened, a graph of the selected data file will be displayed. The graph will be displayed according to the settings which were in place when the graph feature was last used. These settings can be modified in the various setup windows which can be accessed by clicking on the buttons on the graph toolbar.

The graph window consists of three main elements: -

• Graph Plot area: Area within which graph traces of the Squirrel's channels are produced.

• Graph Legend: A list of the Squirrel's channels currently being graphed, and their trace colour.

• Menu Items: Allow access to options for modifying graph presentation and channel setup, as well as file and print management.

Graph Menu Options

Appearance - The appearance gives lots of options on how the graph is to be displayed such as colour, gridlines, 3D graphing options and plot type to be configured. These settings are stored and are used whenever a new graph is opened.

Chans/Axes - Select channels to be displayed and channel display settings including: Colour, Axis, Plot Points.

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Cursor - Show a grid of values focused around the area of the cursor.

Thresholds - Graph thresholds allow the plotting of threshold limits alongside the channels' data on the graph.

Summary - Displays data in tabulated format.

Note - Add/Edit/Delete notes. Notes are stored in a separate .not file along with the title of the DAT file.

Print - Print the graph.

Reset view / Last View - switches between a default view of channels and the last used channels. This option is only available if you are not using the "Use Seperate Ranges for Groups" option in Graph appearance.

Group: - Select All channels or a group of channels to display. Note that only channels selected in the Channel Axis will be shown. It is possible to have different axis ranges for each group if "Use Seperate Ranges for Groups" is selected in Appearance settings.

The Graph Legend

The graph Legend indicates the following:

- The channel number, channel Ident, and Units used for a specific channel.

- Indicate the colour used for the channel in the graph.

- Shows if the channel is using the left or right axis by using a dot as an indicator.

- Thresholds are also shown in the Legend.

- Checkboxes allow for enabled channels to be quickly enabled and disabled for quick viewing of channels.

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The Graph

The graph shows the following:

- Plotted channels. Channels selected may depend on Channel Axis.

- Left and Right axis. Two axis can be shown on a single graph.

- Bottom axis can either show time and date or show elapsed time.

- A graph title can be shown. The data download time is also shown.

- Zoom In. The graph can be zoomed in to be clicking and dragging from top left to bottom right.

- Zoom Out. The graph can be zoomed out by clicking and dragging from bottom right to top left.

- Pan. The graph can be panned by right clicking and dragging.

Data Summary

The Data summary has a number of tabs, each displaying a different aspect about the data.
- Summary (summary of logger details)
- Channels (Channel configuration)
- Runs (Details of when the run started/stopped and log interval)
- Data (Tabulated data values)
- Statistics (Gives highs, lows and average, sum and standard deviation values)
- Pharmaceutical (MKT calculation for temperature channels)
- Alarm Events (Shows when alarms occurred)
- File Status (Shows when various things happen to file including: file download, file comments, comment approval, comment rejection, summary section printing, summary section copying, file archiving and test file generation)

Most of the above sections can be set to only show a specified group (groups must be setup before the download)

Summary – Summary, Channels, Runs

Summary – The Squirrel Serial Number, Firmware Version, Name, No of Runs, Used Channels (including extra Alarm and time channel), Trigger mode and log mode are shown.

Channels – The channel number and Ident, The sensor Input type, Sensor or EU range, Units, Hi Alarm, Lo Alarm, Alarm delay, Transmitter ID, Transmitter channel letter, And transmitter interval are shown.

Runs – The start and stop time are indicated, along with run text, number of logs (Interval logs, alarm event logs) and the log interval.

Summary - Data

The Summary window shows the data in a tabulated format.
There is a radio button to either **Display All Channels** or **Display Graph Channels**
The later one displays all channels shown in the legend of the graph when opening the summary window (regardless of their checked status). If a specific group was selected, then this maybe all or some of the channels in a specific group (depending on settings in the Channel/Axis).

By default only the regular data is shown in the data summary. This is data that has been logged at the log interval. In the event of an alarm additional data is also logged relating to the alarm. If the Show Alarms button is clicked the data is re-shown to include this additional data. When Alarm data is shown the background is highlighted to indicate periods when the Squirrel is in alarm. There are two colours:

Yellow – Indicates that there is an alarm event. A new alarm has occurred. Values will be shown on any channels that caused an alarm at this time (although other channels may be in alarm from a previous alarm event).

Orange – Indicated the squirrel is still in alarm during a regular logged interval.

An extra two channels are also shown. These two channels are usually hidden, but are used to indicate when alarm events occur. The first of the two is the Alarm Event channel. This contains a number of flags which indicates the types of alarm causes. The next is simply a time channel which is used to indicate the time between the current set of reading and the previous ones.

Summary - Statistics

Statistics are shown over the period of the graph (which can be adjusted by zooming or period set in Channel/Axis window) when the summary window is opened. Statistics can be shown for all channels or only the one shown on the graph. Max and Min values are calculated from the logged series of data including the alarm event values. Average, Sum and Standard deviation only use regular logged data (to prevent skewing).

Summary – Pharmaceutical MKT

MKT is calculated over the period of the graph. (which can be adjusted by zooming or period set in Channel/Axis window) when the summary window is opened. Constants can be modified for the calculation, which include Heat of Activation (dH), Universal Gas Constant (R), Number of points for Averaging, and Averaging over missing samples. Clicking on Reset Default MKT Values will reset them back to system defaults. Clicking on Calculate will generate MKT values for all Temperature channels (or those shown in the graph) in both Kevin and degrees C.

Summary – Alarm Events

The alarm events show when alarm events occur, it also indicates when alarms are cleared (on a log interval). The current alarm settings are shown at the top of the screen for quick reference. A list of all (or selected channels) is shown in columns. The first column describes the type of alarm events which may include power failure or low battery Alarms. Specific Channels in alarm are shown orange in periods when they are in alarm.

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Summary - File Status and DAT file comments

Darca secure allows for Data file comments to be added by a Data Manager user and approved or rejected by a Supervisor user. Only one set of comments can be made, unless they are rejected, in which case further comments can be made. The **Allow data comments / signing** option needs to be checked in Settings | Preferences | Advanced section for the appropriate buttons to appear.

The comments and approval can be set and seen in the DAT file Summary | File status section.

If the system you are using requires for DAT files to be checked and approved, then it is possible to have a **Actions Required!** button available on the main panel of Darca. If comments are required and you are a Data Manager user then a sub menu with the option **Data Comments Required…** will appear. Clicking on this will open the File list window which has **Files awaiting comments** selected followed by any files which do not contain any comments.

Select the file you wish to open then click on **Open** to open the file. The Graph Viewer will open showing the current data. To add comments click on **Summary** to open the summary window and then click on the **File Status** tab. An audit of major events that have occurred with the file will then appear. Click on **Add Comment** to make a comment. An Add Comment window will appear. Enter in the comments and click **Add Comment**. A verify user window will appear. Enter your username and password and click **OK**. The new comment will be added to the File Status Audit.

Due to the hash key validation check it is required that the DAT file closed before approval/rejection is undertaken. To approve or reject a DAT file you must be a member of the Supervisor user group. Simply click the **Actions Required!** button and select the **Data Approval(s) Required…** sub menu. The File list window will be opened which will have the **File awaiting approval** selected followed by any files which have comments and require approval.

Select the file you wish to open then click on **Open** to open the file. The Graph Viewer will open showing the current data. To Approve or reject the comments click on **Summary** to open the summary window and then click on the **File Status** tab. The File Audit will appear. Click on **Approve** or **Reject** to approve or reject the data comments. An Approve Data or Reject Data will appear. Enter in some additional comments (explaining why it has been rejected, if rejecting the comments), then click on Approve Data or Reject Data. A verify user window will appear. Enter your username and password and click **OK**. The new approval/rejection will be added to the File Status Audit.

If the comments are rejected, then further comments will need to be added by a Data Manager before the comments can be approved. If the data comments are approved then the file will be removed from any action lists that appear.

Here is list giving an example of the process undertaken:

After Event	Option Available on Actions Required button	File List type	Action Required Option available to Group type:	Notes
Data Download (Data Manager)	Data Comments Required...	Files Awaiting Comments	Data Manager	
Adding initial comment (Data Manager)	Data Approval(s) Required...	Files Awaiting Approval	Supervisor	Additional comments cannot be added
Reject comment (Supervisor)	Data Comments Required...	Files Awaiting Comments	Data Manager	
Adding another comment (Data Manager)	Data Approval(s) Required...	Files Awaiting Approval	Supervisor	Additional comments cannot be added
Approve comment (Supervisor)	None for the current file	Approved Files	No option available	Comments can no longer be added

Exported Data

It is possible to export data to a .csv file format. Export can be setup to occur when the download happens.
Note: Exported Data is not encrypted. Also Alarm events are not exported.

Alarms

The SC250 and Darca Secure system use Delay Alarms. These alarms occur when a Threshold is reached for a set period of time. A high and low threshold can be set on each channel and a delay can also be set for each channel which is applicable to both high and low alarms. In addition an alarm is created on a channel if no data is received for 3 (to 4 [if design modification is implemented]) log periods. Also an alarm is generated when on the Squirrel there is no power for 12 hours, or the battery is low.

The sample interval is significant because it is this interval that is used to check for alarms. The sample interval is always at least twice as regular as the log interval. Also the Delay alarms set must be multiples of this number. i.e. if the sample interval is 10 seconds a delay of 5 seconds cannot be set.

There are several methods possible in indicating when an alarm has occurred. These include:

1) Output from the squirrel which could be used for: Audible alarm, visible alarm or auto dialler (no channel details given).

2) Audible/visible alarm on the Transmitter (only available on some transmitter designs)

3) GSM SMS Text message when used with a GSM Modem. An alarm is sent on an alarm giving the channel ident, the type of alarm (Hi/Lo) and the value and units.

4) If the Meter window is open, then when a channel goes into alarm the background will change to red. Note Yellow indicates current values exceed limits (but not actually in alarm because the delay criteria is not met), and Magenta indicates there has been an alarm (but it hasn't been dealt with – comments need to be added before it's cleared). In addition it is possible to have a meter alarm reporting panel open which shows when alarms occurred. The alarm events may also be relayed by e-mail if SMTP is used.

Alarm Management

Darca Secure gives the user the ability to manage alarms. This is independent of logged data, but requires the meter window or online graph to be used. If metering was not online at the time the alarms will only be captured at the time of connecting.

It is possible to see the channel values and alarm statuses fairly instantly using the meter window (bearing in mind the transmission, sample and log intervals may give a slight lag on the actual values).

The following List shows the sequence of stages an alarm might go through:

Stage	Meter Window (background)	Action
No Alarm	White	None
Hi Limit exceeded	Yellow	None
Hi Limit exceeded for delay	Red	Resolve
No current Alarm, Historic Alarm	Magenta	Note Action
No Alarm	White	None

Alarms only function when the Squirrel is logging. When alarm thresholds have been exceeded but not for the specified alarm delay the background of the meter for that channel will appear yellow.

When the alarm threshold is exceeded for the specified time or if there are 3 consecutive logged "no data" readings then an alarm event will occur and the meter background will change to red. If a channel level goes back within the thresholds then the alarm will change to Magenta (to indicate an historic alarm).

When alarm status appear as Historic (Magenta), it is necessary to make comments for each of the alarms. This is done by clicking on the Meter window and then right clicking to get the menu Create Historic Alarm Comments.

Notes - Logged alarms versus metered alarms.

It is important to understand the way in which the metering and logged data functions work, as discrepancies in values may appear due to these differences:

- The SC250 logs alarm events, but does not log alarms being cleared. Darca Secure Logged Alarm Events interprets that an alarm is cleared on a logged reading even though the alarm may have been cleared earlier (on a previous sample interval).
- Metered alarm reports show times using the PC time/clock this maybe slightly different to the Squirrel clock.
- Because cleared alarms are not logged it may also be possible that a channel drops below a threshold on a sample (clearing the alarm), but rises back above the threshold on a following logged reading.

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Data Comments and Approval

Darca Secure allows comments to the data summary section which can then be approved or rejected by a member of the Supervisor group. Once approval has been made, the section is closed for new comments.

The sequence of events may be as follows:
1) Download data
2) Add Comment
3) Reject comment
4) Add new comment
5) Approve comment
6) Closed for new comments

Archiving Data

The Archive function allows for a specified audit trail (usually of a months period) along with any DAT files downloaded in that month to be copied to a separate directory. The DAT file's comments are also modified to indicate it has been archived. Archived files can still be opened, but it is intended that a 3rd party program moves the archived files from the archive directory to the long term storage media. In the event that archived data is required to be viewed the data can then be transferred back to the original archive location.

To archive a audit trail and associated data a Darca Administrator should click on **File** | **Data Management** | **Archive Data** | **Archive Audit Trail and Associated Data.** You will then be able to select an audit trail for archiving. This will archive the audit trail and associated data into the archive directory in a directory named after the audit file. The data will appear in a subdirectory called data and the audit trail will appear in a sub directory named audit.

To view any data that has temporarily been brought back into the archive directory the Darca Administrator will need to click on **File** | **Data Management** | **Archive Data** | **View Archived Data…**

To view an audit trail that has temporarily been brought back into the archive directory the Darca Administrator will need to click on **File** | **Data Management** | **Archive Data** | **View Audit Trail…**

Deleting Data

It is possible for a Darca Administrator to delete a specified DAT file. To do this click on **File** | **Data Management** | **Delete File…** Note that the data may not be recoverable after this action.

Data Recovery and Backup

It is important that data is backed up at regular intervals. By default all the files are stored in a common folder "C:\Darca Secure Data" but they could be modified. It is recommended that all folders shown in **Settings | Preferences | Folders** are backed up, but it is recommended that Darca Secure is not running while this takes place.

Importing Test Data

It is possible to import test data (provided by Eltek) which may be installed separately. To be able to Import Test Data a user must be of the Darca Administrator group. In addition Test files are highlighted as such by including an extra header in the heading and background, to prevent it being confused with current system data.