LabCollector

"Your Laboratory management solution"

User guide

Data Logger

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AGILEBIO
team solution

Summary

1- INTRODUCTION

Thank you for choosing one of AgileBio's solutions for the management of your lab. **Data Logger Add-on** for LabCollector LIMS for real time monitoring of equipment metrics like temperature, humidity, CO_2 and more.

Data Logger add-on allows lab staff to setup expected parameters for each equipment (expected values and tolerance), to define SMS (using our NET/GSM logger or SMS Gateway option) and email alerts.

Finally, each user of LabCollector's **Data Logger** can easily find information about equipment metrics thanks to graphical display and retrieve data for a defined period (quality control). Alerts history is saved to meet quality control standards.

Available metrics are temperature values (even extreme low or high), humidity, CO_2 and much more (using analogic transmitters).

2- INSTALLATION

You can get **Data Logger Add-on** simply by downloading it from www.labcollector.com. LabCollector software has to be installed first as it contains the framework. LabCollector support documents for installation are available on our website. **Data Logger Add-on** can be installed on any operating system (Windows, MacOS X and Linux). Installation is performed by AgileBio on cloud hosted instances.

As a general note, making a backup prior to installing or updating a new add-on is recommended.

A changelog is included in the download package. It is also available by navigating the browser URL on LabCollector at */lclogger/CHANGELOG.txt.

1/Manual mode:

Unzip and paste Data Logger add-on folder in the extra modules folder. For Windows, it would look like:

C:\Programs\AgileBio\LabCollector\www\lab\extra_modules\lclogger

Open LabCollector, the Data Logger add-on module is now activated. Click on the module to finish the installation.

2/Automatic mode from LabCollector interface:

You can also use LabCollector Menu
Admin > Setup > Upload/Add Addons > Upload Addon ZIP > Add Addon
Return to LabCollector homepage, the Data Logger add-on module is now activated. Click on the module to finish the installation.

The Data Logger add-on requires tasks configuration in order to recover metrics over time in an automated way. It supports various types of loggers. Each logger has a specific plugin that needs to be installed.

Data Logger add-on automatically installs CRON files in the UserFiles folder of LabCollector software. A manual installation is also possible (see below).

3- DATA LOGGER SETTING

When starting **Data Logger** usage, the first steps are to setup loggers and probes.
Setup menu is only accessible to super-administrator; administrator with no groups and master-administrator (see KB-10). Master-administrator can only see/create/edit loggers of the group(s) he manages or general loggers.

3-1. Loggers setting

Go on **Setup** tab on the home page to manage your logger.

Add a new hardware logger using *Add New Logger* link. In the main page section, you have to select your logger type in the list, depending of the plugin installed, and then fill in IP address and Port
-    GSMS-NET-HV: as defined on hardware setup.
-    OW-SERVER, port: 80 (by default)
-    RMONI-TCP, port: 6001 (by default)

For GSMS-NET-HV logger, network configuration requires more information. Details are recovered from logger setup software.

| Select Logger Type | GSMS-NET-HV ▾ |

| Name [_____] | IP Adress [_____] | Port [_____] | Location [_____] |

Readings Frequency [_____] (minutes)

Advanced Settings

| Logger ID [_____] | Response Ip [_____] | Response Port [_____] | Logger Mode ○ Listen ● Request |
| Units [ºC ▾] | Recovery [Yes ▾] | Recovery Port [_____] | |

Group Settings

Group [All Groups ▾]

[Save] [Cancel]

For OW-SERVER, depending of the type of data, you have to fill either IP or Mac address: for CRON data, IP address is needed; for POST data, Mac address is needed. If you want to receive alerts, enter the information of IP and Port

| Select Logger Type | OW-SERVER ▾ |

| Name [_____] | Data Type [CRON ▾] | MAC Adress [_____] | IP Adress [_____] | Port [____] | Location [_____] |

Readings Frequency [_____] (minutes)

Group Settings

Group [All Groups ▾]

[Save] [Cancel]

For OW-SERVER, you can also use the link *Import Loggers*. In the main page section, select your logger type in the list, and upload a CSV file with the format: Logger Name, Logger IP or MAC Address, Logger Port (if applicable), Logger Location

We offer a service allowing the integration of other type of logger to **Data Logger Add-on**. Please ask to sales@agilebio.com or sales.us@agilebio.com.

For all loggers, you can set up manually a reading frequency in minutes (see chapter 3-2) and restricted the logger to a group.

Once your logger installed, you can edit their setup using the [+] following the logger name. You can also archive your logger using the link *Archive Logger*.

Probe ID	Probe Name	Location >> Equipment	Expected	Tolerance	Units	Status	Alerts

agilebio logger (4 Probes) [-]

Name agilebio logger Data Type CRON ▾ MAC Adress 00:1E:C0:E9:C2:70 IP Adress 109.190.219.247 Port 60 Location Agilebio **Edit** **Cancel**

Readings Frequency 5 (minutes)

Group Settings

Group All Groups ▾

Archive Logger

4A001000002CF87E_4	Temperature and Humidity Sensor	No Specific Equipment	–	–	°C	Online	Yes
4A001000002CF87E_5	Temperature and Humidity Sensor	No Specific Equipment	–	–	%RH	Online	Yes
5C000003E6D37228_4	Programmable resolution thermometer	Analyser 1	–	–	°C	Online	Yes
BA0000053C4FBD28_4	Programmable resolution thermometer	ROOM A >> Freezer Group1 001	–	–	°C	Online	Yes

3-1-1.   By tasks

To configure LabCollector tasks, go to **ADMIN > Setup > Proxy, Tasks Scheduler and Email.**
Add a new task filling the form: task name, script file name and task frequency. Don't forget to use buttons: **Add This Task** and **Update Settings.**

Customs

	Task Name	Script**	Task Frequency	Task Time	Delete
Custom Tasks:	lclogger_monitor	lclogger_monitor.php	MINUTE/15	00:00	🗑
	lclogger_autoload_ow	lclogger_autoload_ow.php	MINUTE	00:00	🗑
	lclogger_goip_offline	lclogger_goip_offline.php	DAILY	10:00	🗑
	auto_database_backup	auto_database_backup.php	MINUTE	13:19	🗑

	Task Name	Script**	Task Frequency	Task Time	Add
Add New Custom Task				Minute ▾ 00 : 00	Add This Task

(**: The script must be in "UserFiles" folder)

Use information below to fill this form depending of your logger.

Logger	Task name	Script
GSMS-NET-HV	lclogger_autoload_gsms	lclogger_autoload_gsms.php
OW-SERVER	lclogger_autoload_ow	lclogger_autoload_ow.php
RMONI-TCP	lclogger_autoload_rm	lclogger_autoload_rm.php

For the task frequency, we recommend 5 minutes.

3-1-2.   By logger data sending's

The OW-SERVER can directly send information to LabCollector. To configure this process of data sending's, copy and paste the OW-Server MAC address in your internet browser, then go into **System configuration > Post Client** to specify the URL where the OW-Server can send data on a time basis.

Select options *Enable Client* and *POST Header*.

Choose the data type in the select list, and fill the URL giving access to the file lclogger_autoload_ow.php.

You can change the period to 300 seconds. Click on **Save** button.

You can also enable Proxy if needed by your server configuration. Ask the Proxy URL to your IT.

3-2.   Probes setting

For each logger, you can configure different type of probes (temperature, humidity, Gas, Pressure, Light…). They are displayed by loggers, types or locations (choose the right tab).

Loggers	Types	Locations

Search Types

⊞ ALL TYPES

Temperature
Units: °C

Humidity
Units: %RH

Gas
Units: %

Pressure
Units: MBAR

Light
Units: LUX

Relay
Units: -

Probes Options

⦿ Online Probes   ○ Offline Probes   ○ All Probes
❌ Locate & Disable Stand By Probes

Probe ID	Probe Name	Location >> Equipment	Expected	Tolerance	Units	Status	Alerts	
Logger 7 (60 Probes) [+]								
720010000025D47E_INP3	Octal 4-20 Milliamp Input 3	Room1 >> Cryo Storage 1	–	–	°C	Online	Yes	🟩
940000053C68A928_4	Programmable resolution thermometer	Room1 >> Sanyo 2	–	–	°C	Online	Yes	🟩
BA0000053C4FBD28_4	Programmable resolution thermometer	No Specific Equipment	–	–	°C	Online	Yes	🟩
BC0010000028EE7E_4	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	°C	Offline	Yes	⬜
BC0010000028EE7E_5	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	%RH	Offline	Yes	⬜
BC0010000028EE7E_7	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	mbar	Offline	Yes	⬜
BC0010000028EE7E_8	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	lux	Offline	Yes	⬜
BE0010000026637E_4	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	°C	Offline	Yes	⬜
BE0010000026637E_8	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	lux	Offline	Yes	⬜
C30010000028F17E_4	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	°C	Offline	Yes	⬜
C30010000028F17E_5	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	%RH	Offline	Yes	⬜
C30010000028F17E_7	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	mbar	Offline	Yes	⬜
C30010000028F17E_8	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	lux	Offline	Yes	⬜
CC00100000280D7E_4	Temperature and Humidity Sensor	No Specific Equipment	–	–	°C	Offline	Yes	⬜
CC00100000280D7E_5	Temperature and Humidity Sensor	No Specific Equipment	–	–	%RH	Offline	Yes	⬜
E40010000027EF7E_4	Temperature and Humidity Sensor	No Specific Equipment	–	–	°C	Offline	Yes	⬜
E40010000027EF7E_5	Temperature and Humidity Sensor	No Specific Equipment	–	–	%RH	Offline	Yes	⬜
F500100000228F7E_4	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	°C	Online	Yes	🟩
F500100000228F7E_5	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	%RH	Online	Yes	🟩
F500100000228F7E_7	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	mbar	Online	Yes	🟩
F500100000228F7E_8	Temperature, Humidity, Barometric Pressure and Lig	No Specific Equipment	–	–	lux	Online	Yes	🟩

To configure a probe, click on the probe ID. You can specify the probe name, the equipment (corresponding to equipment available in the storage browser or Equipment module of LabCollector), expected temperature, and tolerance.

Probe ID	Probe Name	Location >> Equipment	Expected	Tolerance	Units	Status	Alerts
agilebio logger (4 Probes) [+]							
4A001000002CF87E_4	Temperature and Humidity Sensor	No Specific Equipment			↻	Online ∨	Yes ∨ ✔
	Probe Offset						
4A001000002CF87E_5	Temperature and Humidity Sensor	No Specific Equipment	–	–	%RH	Online	Yes ■
5C000003E6D37228_4	Programmable resolution thermometer	Analyser 1	–	–	°C	Online	Yes ■
BA0000053C4FBD28_4	Programmable resolution thermometer	ROOM A >> Freezer Group1 001	–	–	°C	Online	Yes ■

You can also select the status of your probe: Online/Offline (and filter in *Probes Options* on the left panel) and if you need your probe triggers an alert.

A probe offset can also be configure to manually calibrate your probe (if decimal temperature, please use the dot and not the comma; and -x if the temperature of the probe is higher of the expected temperature)

You also have the possibility to reset probe data using ↻ icon.

Validate your configuration using ✔ .

In this probe list, you also have access to the status of the probe's reading:

■ Probe's readings are up to date

■ Probe in stand by (last reading over 24 hours ago)

■ The last value received was over 10 min.

■ Recorded values are outside the limits of tolerance set for the probe

To determine if a probe switches from green to orange, you can provide a logger reading frequency to a more accurate interval calculation (3 x reading frequency).

4- DATA LOGGER INTERFACE

4-1. Homepage

The homepage allows you to check the complete list of existing probes. Each probe will display its last reading.
Information can be viewed in 2 different forms:
- Probes view: probes are listed according to their corresponding logger
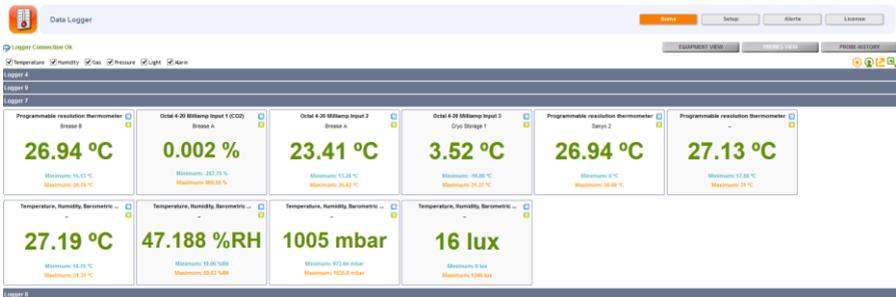
- Equipment view: probes are listed according to their corresponding equipment.

You can check independantly temperature, humidity, gas, pressure, light, condutivity generic amp, generic volt, electrical consumption and power levels.

The homepage view can be configured using the Configure favorites 👤 and the

View Favorites ⭐ icons.

Select the probes you want to appear in your homepage					Save
Search		Logger	Logger 7 ▾	Type	Temperature ▾	Equipment	Select Equipment ▾
☐	BA0000053C4FBD28_4	Logger 7	Programmable resolution thermometer	--	Temperature
☐	25000003E6D07328_4	Logger 7	Programmable resolution thermometer	Brease B	Temperature
☐	720010000025D47E_INP2	Logger 7	Octal 4-20 Milliamp Input 2	Brease A	Temperature
☐	720010000025D47E_INP3	Logger 7	Octal 4-20 Milliamp Input 3	Cryo Storage 1	Temperature
☐	940000053C68A928_4	Logger 7	Programmable resolution thermometer	Sanyo 2	Temperature
☐	F500100000228F7E_4	Logger 7	Temperature, Humidity, Barometric Pressure and Lig	--	Temperature

A full screen view is available and configurable .

Configure Full Screen
Active Probes: 34 Probes   **Favorite Probes: 2 Probes**

Probes per Page
5   *Full Screen will have 7 pages*

Pagination
○ Show all pages alternately
● Show only the selected page

Monitor System
● Single monitor
○ Several monitors in the same machine

Save

If you configure expected value and tolerance, probe's data information can take 4 colours:

- **Green**: Probes values are OK within the expected value plus the tolerance interval. Without an expected value and a tolerance interval the value is always green.
- **Red**: Value is outside the tolerance interval.
- **Orange**: The last value received was over 10 min or 3 x reading frequency.
- **Grey**: The last value received was over 24h, orange colour becames grey.

If you place your mouse cursor over the data, a popup will show the chart of the last readings.
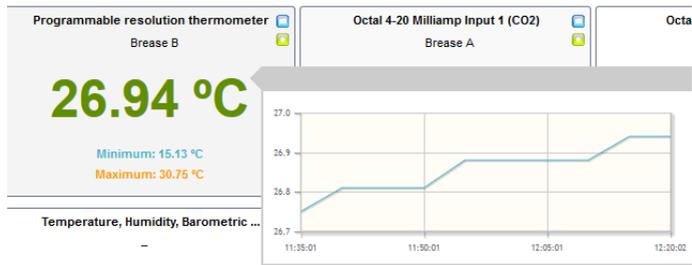
You can also check the logger connection following the link to see details, on the top of the Homepage near icon.

4-2. Detailed chart

Using icon, you can access to detail probe information. You can filter for time periods in order to see temperatures fluctuation on that time. You can add other probes data to the chart to compare temperature values between probes.

You can also print the graph , print the graph and the data , export probe data in CSV file and export graph and data in PDF file.

You can consult the live feed of a probe 🟩. The last 24 hours or the last week readings are also available (wait a few seconds to see data).
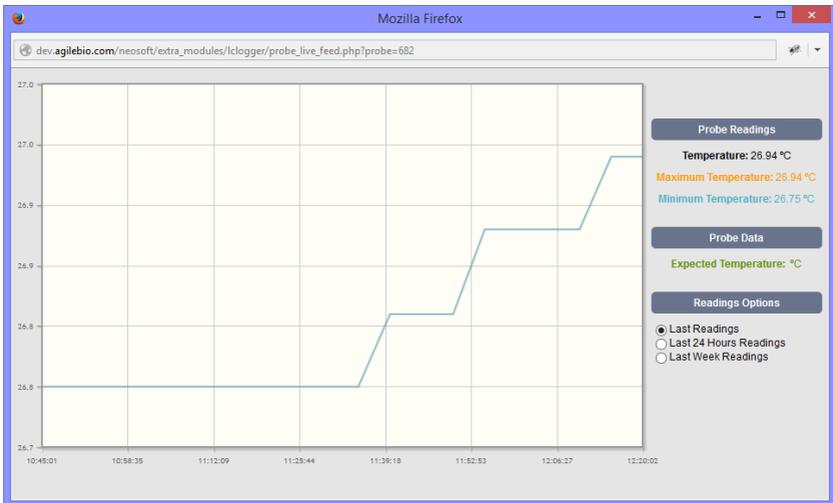
5- SMS GATEWAY SETTING

Go to **Alerts > SMS Server** then **Configure SMS Server.**

Ip	Port	Response Ip	Response Port

Configure SMS Server   Configure SMS Gateway Login

Complete the form with IP address of your SMS Gateway and the IP response address (IP address of the server where LabCollector is installed). The response port is 44444 by default.

Ip	Port	Response Ip	Response Port
78.192.91.17	44444	62.210.227.194	44444

CONFIRM

⚠️ **Don't forget to open the 44444 port of your server firewall. For Linux and Windows servers, you have to add UDP and TCP rules for the 44444 port.**

Now, **Configure SMS Gateway Login**. Enter ID and Password defined on SMS gateway interface. See SMS GOIP documentation.

To configure task alert, go to **ADMIN > Setup > Proxy, Tasks Scheduler and Email**
As for chapter 3-1-1, add a new task with these parameters:
- Task name = lclogger_monitor
- Script = lclogger_monitor.php
- Task frequency: we recommend 10 to 20 minutes (adjust in order to reduce false alerts)

Configuration of SMS sending
To add contact, use the button on the bottom right. Enter a name, a phone number (don't forget the country code with +) and choose the time range period.

	Name	Number	Contact Period	Secondary Contact		
👥	ALS	+675540566	Monday	No	✎	✖
👥	ALS sec	+675540566	Secondary Contact (No Contact Period)	No	✎	✖
👥	Marine	+00000000	Monday	Yes	✎	✖
👥	Pierre	+33682112597	Secondary Contact (No Contact Period)	No	✎	✖
👥	Tiago	+351963752094	Every Day	Yes	✎	✖
👥	Tiago Sec	+351963752094	Secondary Contact (No Contact Period)	No	✎	✖

Add Contact

Alerts can be sent according to defined periodic time ranges. This is useful to establish a policy of sending alerts in different days, time, etc. For the contact period, you have the choice between:

- Every day: You will automatically be contacted during a defined time period.

- Only working days: You will automatically be contacted during the working days during a defined time period.

- Only week-ends: You will automatically be contacted during the week-ends during a defined time period.

- Temporary period: You will automatically be contacted during a defined time period

- Specific days: You will automatically be contacted during defined specific days. Click on the day to remove it (red highlight).

- Specific Calendar days: You will automatically be contacted during defined specific days.

- Secondary contact (no contact period): if you want to add a secondary contact to a main contact, create first this contact as secondary contact here. Then once the main contact is created, edit it (✎) and choose the secondary contact you just created in the select list. You can change the number of reminders (3 by default) or cancel reminders.

You can also send a test SMS using 📱 icon on the top right.

6- ALERTS MANAGEMENT

In order to activate alerts on probes, you must set an expected measured value and a tolerance range on the logger setup, and select Alert (see Probes setting).

6-1. Email alerts configuration

To configure task alert, go to **ADMIN > Setup > Proxy, Tasks Scheduler and Email**
As for chapter 3-1-1, add a new task with these parameters:
- Task name = lclogger_monitor
- Script = lclogger_monitor.php
- Task frequency: we recommend 10 to 20 minutes (adjust in order to reduce false alerts).

Configure your email alerts as for SMS server (task alert):
- Go to **Alerts**
- **Add contact** button
- Enter a name, an Email address and choose the time range period.

All contact information (name, Email, contact period) is summarized in the alerts menu and can be edited by clicking on the pen icon ✎ .

You can also send a test email using ✉ icon on the top right.

6-2. Email alerts treatment

If measured values are faulty or out of range, the probe appear in red on the homepage and an email is send.
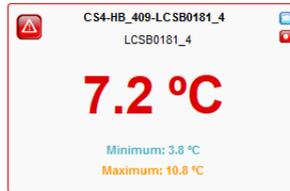
> The probe A12, ID 0012, located in Delivery Fridge, detected an incorrect temperature value
>   - Expected: -20 ºC;
>   - Tolerance: -2 ºC;
>   - Recorded: -16.81 ºC;
> Our best regards, LabCollector

To avoid false alarms on temperature probes (ex: open/close doors), the system works as follows:

- Monitor cycles every X minutes. As configured under task alert.
- First off range induces a silent flag
- Second round: if flag is maintained, then alert is sent

6-3.   Email alerts history

You have the possibility to check alert history for email sending using **EMAIL History** button. Choose a date range then apply it with . You can also filter by email and alert status, and export your research (green arrow).

Logger	Probe	Alert	Equipment	Sent On	Sent To (Name)	Sent To (Email)	Status	
52	620000053C601328_4		-	2015-07-07 19:15:04	Tiago	tvaz@agilebio.com	Not Confirmed	✓
52	E400100000027EF7E_5		-	2015-07-07 19:15:04	Tiago	tvaz@agilebio.com	Not Confirmed	✓
52	9E0000053CDD2528_4		-	2015-07-07 19:15:04	Tiago	tvaz@agilebio.com	User Confirmed	
52	170000053CBD5528_4		-	2015-07-07 19:15:03	Tiago	tvaz@agilebio.com	Not Confirmed	✓
52	1E901000027F77E_5		-	2015-07-07 19:15:03	Tiago	tvaz@agilebio.com	Not Confirmed	✓
52	540010000027FA7E_5		-	2015-07-07 19:15:03	Tiago	tvaz@agilebio.com	Not Confirmed	✓
52	E30000053CC56828_4		-	2015-07-07 19:15:03	Tiago	tvaz@agilebio.com	Not Confirmed	✓
52	CC00100000280D7E_4		-	2015-07-07 19:15:03	Tiago	tvaz@agilebio.com	Not Confirmed	✓

The Email statuses are: **Not Confirmed** (the email was sent but not confirmed), **User Confirmed** (the email was sent and confirmed) or **Resolved** (the value of the probe goes back within the expected temperature). These two last statuses have timestamp. Use the icon to manually confirm the alert reception.

Using the icon , you obtain a chart from one hour before to one hour after the alert, if the chart has enough points.

6-4.   SMS alerts treatment

If measured value of a probe is out of range, the probe appears in red on the homepage and a SMS is sent. **Reminders will be sent every hour.**
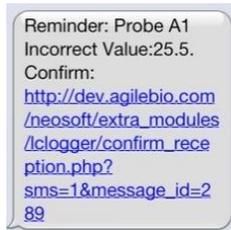
Reminder: Probe A1
Incorrect Value:25.5.
Confirm:
http://dev.agilebio.com
/neosoft/extra_modules
/lclogger/confirm_rece
ption.php?
sms=1&message_id=2
89

Follow the link to confirm message reception (access internet on a phone is needed).

The number or reminders sent is configurable in the SMS Server Setup. After all reminders are sent and there is no confirm reception, then it starts sending reminders to the secondary contact defined in the setup.

6-5.   SMS history

The same history as for Email is available for SMS using SMS History button on **ALERTS > SMS server** (see chapter 6-3).

7- UPGRADING AND UPDATING

To update or upgrade the **Data Logger Add-on** module, just download it from our website (www.labcollector.com). Then, unzip the folder and paste files in the following folder:

Ex on Windows setup:

```
Programs\AgileBio\LabCollector\www\lab*\extra_modules\lclogger
```

*The name of this folder is the laboratory nickname chosen during LabCollector installation.