

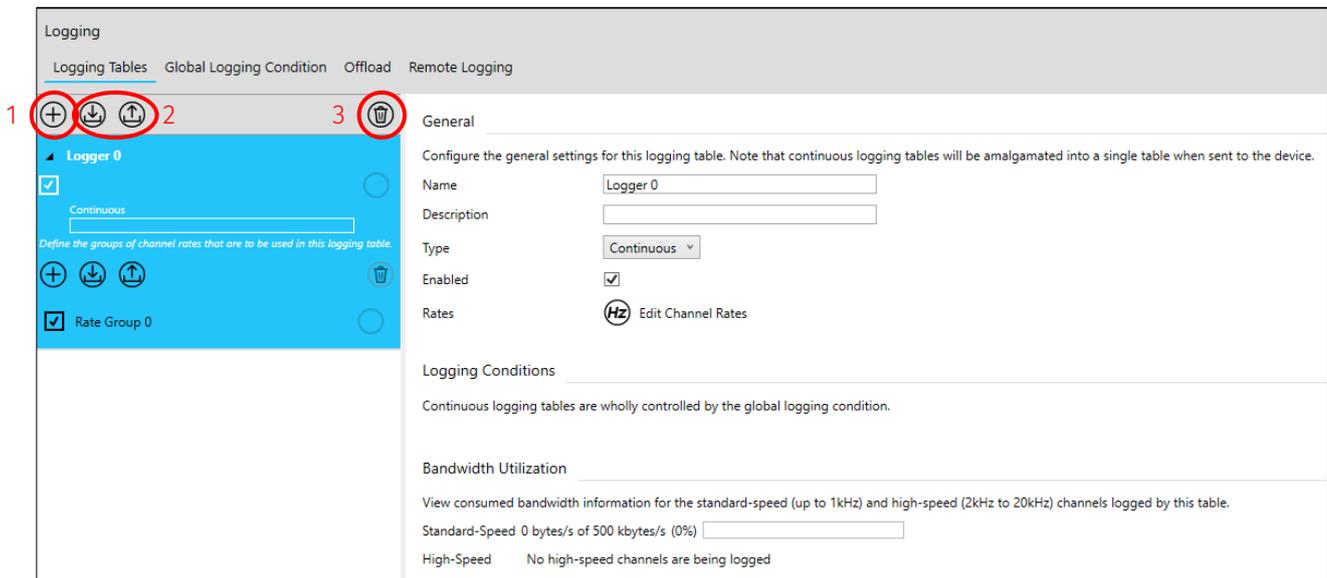
Logging overview

By default, all Cosworth logging devices are configured with one continuous logging table. The following explains how to configure and modify logging tables, configure logging and offload conditions, and configure remote logging devices.

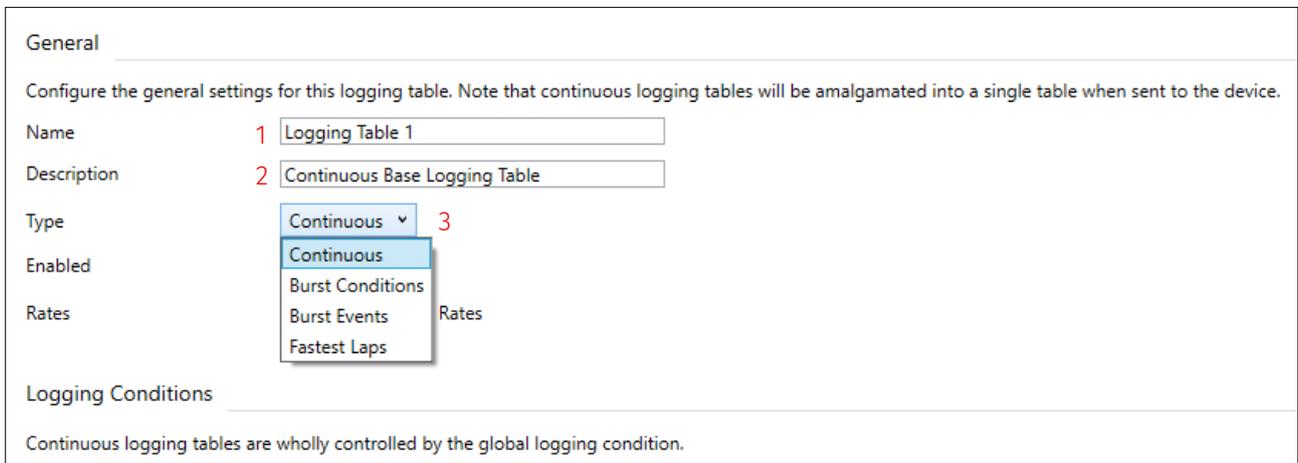
The **Logging** node is used to define the frequency at which channels are logged. Before you set channel rates, you must first define a logging table.

Configure a logging table

On the **Logging** node, all existing logging tables are shown on the left of the screen. One continuous logging table (Logger 0) is enabled as default. Click + (1) to add a new logging table. You can also import and export logging tables from existing setups using the import and export tool (2). You can delete logging tables with the 'bin' icon (3).



Enter a name for the logging table (1) and an optional description (2). Select the required type of logging table from the **Type** dropdown menu (3).



You can then configure the channel rates (1) for this logging table (see [Channel Rates](#)). The percentage bandwidth utilization is displayed in a bar graph (2).

General

Configure the general settings for this logging table. Note that continuous logging tables will be amalgamated into a single table when sent to the device.

Name

Description

Type

Enabled

Rates Hz [Edit Channel Rates](#) 1

Logging Conditions

Continuous logging tables are wholly controlled by the global logging condition.

Bandwidth Utilization

View consumed bandwidth information for the standard-speed (up to 1kHz) and high-speed (2kHz to 20kHz) channels logged by this table.

Standard-Speed 150 kbytes/s of 500 kbytes/s (30%)

High-Speed 400 kbytes/s of 1600 kbytes/s (25%)

Logging resources

You can view the total logging resource utilization at the bottom left of the page. The **Logging Resources** section shows information about the bandwidth usage and the estimated time capacity available for continuous logging. This provides an estimate of the time that the device can log with the selected table. Make sure the available logging time is greater than your session time to collect all data.

Note: If the logger runs for longer than its capacity, then the earliest data logged is over-written.

Logging Resources	
<i>Summary of logging resource utilization across the system</i>	
Total Available Memory	11 GiB
Estimated Memory consumed by Bursts	0 KiB
Consumed Standard-Speed Bandwidth	150 kbytes/s (30%)
Consumed High-Speed Bandwidth	400 kbytes/s (25%)
Estimated Continuous Logging Capacity	6 hours, 14 minutes



Types of logging table

There are four types of logging table: Continuous, Burst Conditions, Burst Events, and Fastest Laps.

Continuous

All channels in a continuous logging table are logged whilst the global logging condition is true. Continuous logging tables are wholly controlled by the global logging condition.

Burst conditions

Ideal for short-term high-speed logging, burst condition logging is activated when a channel or bit-field channel meets the specified conditions.

Note: The global logging condition (for example, 'Engine ON') must also be satisfied before any logging takes place.

Burst events

Ideal for short-term logging based on a specific event, such as an alarm being triggered. Logging can then stop 'based on' time from the start of logging or 'based on' a second event such as the alarm being reset.

Note: The global logging condition (for example, 'Engine ON') must also be satisfied before any logging takes place.

Fastest laps

Stores data from the fastest lap(s) when the global logging condition is met to reduce memory usage. You can configure the number of fastest laps to store.

An estimated memory consumption is given from the configured number of fastest laps to store (1) and an estimated lap time (2).

Logging Conditions

Log data for the fastest lap(s) when the global logging conditions are met.

1

Bandwidth Utilization

View consumed bandwidth information for the standard-speed (up to 1kHz) and high-speed (2kHz to 20kHz) channels logged by this table.

Standard-Speed 150 kbytes/s of 500 kbytes/s (30%)

High-Speed 400 kbytes/s of 1600 kbytes/s (25%)

Estimated Memory Consumption

Based on 6 lap(s), with an estimated lap time of s

2

Standard-Speed 82 MiB

High-Speed 220 MiB

Rate groups

Channels within the same logging table can be logged at different rates by adding rate groups. This is particularly useful when a manufacturer employs user groups (see [Setup Locking – User Groups](#)), or for viewing CAM & Crank data at high speed whilst cranking, but then reducing after idle, to optimise the logger capacity.

Click the + icon within a logging table to add a new rate group (1). You can name the rate group (2), enable or disable it (3), and add a brief description (4). After user groups are configured, you can define the minimum editing user group (5).

You

Logging

Logging Tables Global Logging Condition Offload Remote Logging

Example Logging Table

Continuous

Define the groups of channel rates that are to be used in this logging table.

Administrator Rates

Engine Builder Rates

Scrutineer Rates

Unlicensed Rates

General

Configure the general settings for this rate group.

Name Engine Builder Rates

Enabled 3

Description

Manufacturer Description

Manufacturer Status

Manufacturer Status This is a normal item.

Minimum editing user group

Choose a UserGroup

Engine Builder

Scrutineer

start typing to filter the selection

Show Diagnostic Items

OK Cancel



Generated channels

When you enable a logging channel, Toolset automatically generates five logging 'status' channels. These channels record:

- Available Logging Time
- Available Logging Memory
- Outing Number
- Outing Time
- Logger Status

Click the 'wrench' icon at the top right of the window to change the names of these channels.

Label	Default Name
Available Logging Time	Logging Time Remaining
Available Logging Memory	Logging Memory Remaining
Outing Number	Outing Number
Outing Time	Outing Time
Logger Status	Logger Status

Global logging condition

The global logging condition is used to define the conditions that must be met before any logging starts and when all logging stops. By default, the global logging condition is set to start logging when 'Engine is ON' and stop logging when 'Engine is OFF'.

You can also configure the global logging conditions to start/stop based on another Strategy, Channel, or Bit-



field Channel selectable from the dropdown menu (1). You can use the 'restore' tool (2) to reset the global logging conditions to the default.

The screenshot displays the 'Logging' configuration page with the 'Global Logging Condition' tab selected. The page includes a 'Set default logging conditions' button (2) and two condition rows. The first row, under 'Start Logging', has a 'Strategy' dropdown (1) with a red circle around it, currently showing 'Engine'. The second row, under 'Stop Logging', also has a 'Strategy' dropdown set to 'Engine'. The interface includes a plus sign to add conditions and a minus sign to remove them.

Offload

Synchronized offload

If you enable synchronized offload (1) you can offload data from a secondary device with the data from the primary device. When you offload data from the primary device, both sets of channels are included, with those from the secondary device specified by a user-defined prefix.

For example, if you configure a setup for a Badenia as the secondary device and an Antares as the primary device, the Antares IP address is inserted in the primary address box (2). This allows the Badenia channels to be offloaded with the Antares channels with those from the Badenia device specified by a user-defined tag (for example, 'Badenia-' (3).

Synchronized Offload

Configure whether this device's data is offloaded and combined when outings are offloaded from the main device.

Enabled	1.	<input checked="" type="checkbox"/>
Main device IP address	2.	<input type="text" value="172.16.64.3"/>
Prefix	3.	<input type="text" value="Badenia-"/>
Use legacy channel name shortening		<input type="checkbox"/>

No channel data is sent between the devices, they both log locally, using their own logging conditions. It is only during data offload that the devices are 'synchronized' together. Toolset offloads from both devices individually and then combines the data in the .pds file.



Remote logging

Enable remote logging

To log data remotely from a device, you must enable remote logging in the setup.

The screenshot shows the 'Logging' configuration page with the 'Remote Logging' tab selected. Under the 'General' section, the text reads 'Configure the sending of data to a remote logging device.' Below this, the 'Enabled' checkbox is checked, and a mouse cursor is pointing at it.

Select remote logging device

When you enable remote logging, you can select the remote logging device (1). If you have modified the remote logging device IP address in **Device Properties** (see [Devices – Device Properties](#)) you can choose whether to retain the logged data on the primary device (2) and whether high speed channels are transmitted to the remote logging device (3).

The screenshot shows the 'Logging' configuration page with the 'Remote Logging' tab selected. Under the 'General' section, the text reads 'Configure the sending of data to a remote logging device.' The settings are as follows:

- Enabled:
- Retain Data Locally: 2
- IP Address: 1 RLU 172.16.97.0 ⓘ
 CDU 10.3 172.16.102.0 ⓘ
- Transmit High Speed Data: 3

Optional stop logging on remote logging device

There is an option to stop remote logging, separate from the logging on the primary device. Click the three dots icon to open the dialog box (1), and then select a channel (2) to stop the remote logging.

The screenshot displays the 'Remote Logging' configuration page. Under the 'General' section, there are options for 'Enabled', 'Retain Data Locally', 'IP Address' (with RLU and CDU 10.3 radio buttons and text input fields), and 'Transmit High Speed Data'. A 'Stop Remote Logging' section is also present, featuring a 'Condition' dropdown menu set to 'Stop Logging Channel', an equals sign, a three-dot menu icon (circled in red and labeled '1'), and a '1,000' value field. A dialog box titled 'Choose a Channel' is overlaid on the right, showing a list of channels: 'Shift Lights', 'Shift Lights Mk2', 'Stop Logging Channel' (highlighted in blue and labeled '2'), 'System Time High', and 'System Time Low'. The dialog also includes a search prompt, a source note 'Sourced from Math Channels node.', and 'OK' and 'Cancel' buttons.

Logging

Logging Tables Global Logging Condition Offload Remote Logging

General

Configure the sending of data to a remote logging device.

Enabled

Retain Data Locally

IP Address RLU 172.16.97.0

CDU 10.3 172.16.102.0

Transmit High Speed Data

Stop Remote Logging

Optionally, stop remote logging of the current outing when the following condition is true. Note, if the global stop logging condition is satisfied, then remote logging will stop, overriding this setting.

Condition =

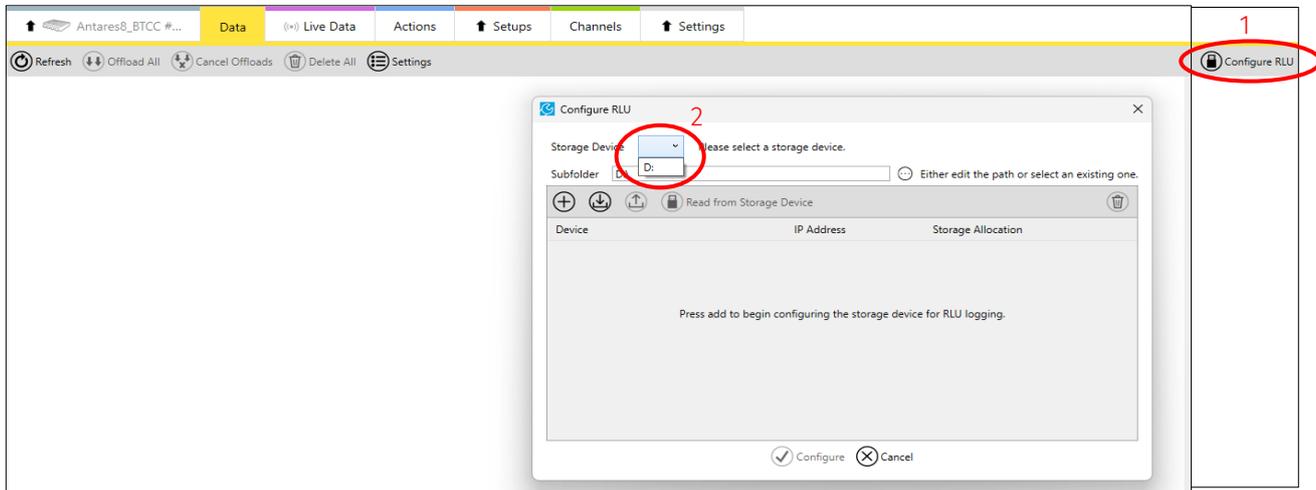
When this condition becomes true the remote logger will not log any further data for the duration of the outing.

N.B. No further data will be sent to the remote logger until a new outing is started. On starting a new outing remote logging will resume until the condition is retriggered.

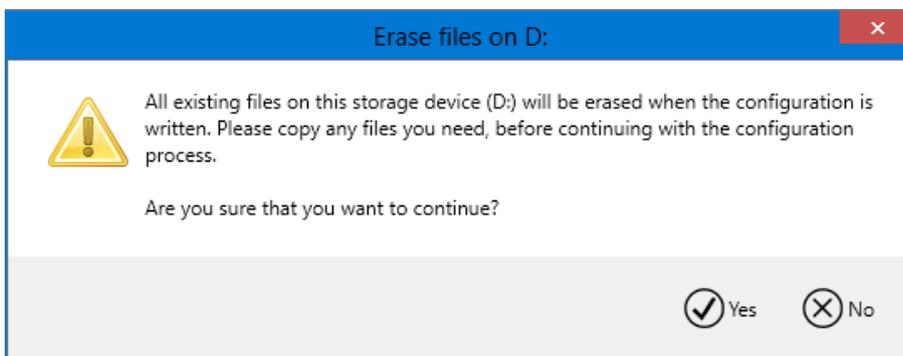
Configure remote logging USB

You can use any USB stick to log data on a remote logging device such as the RLU or CDU10.3, but make sure the stick has sufficient storage capacity, otherwise data will be lost.

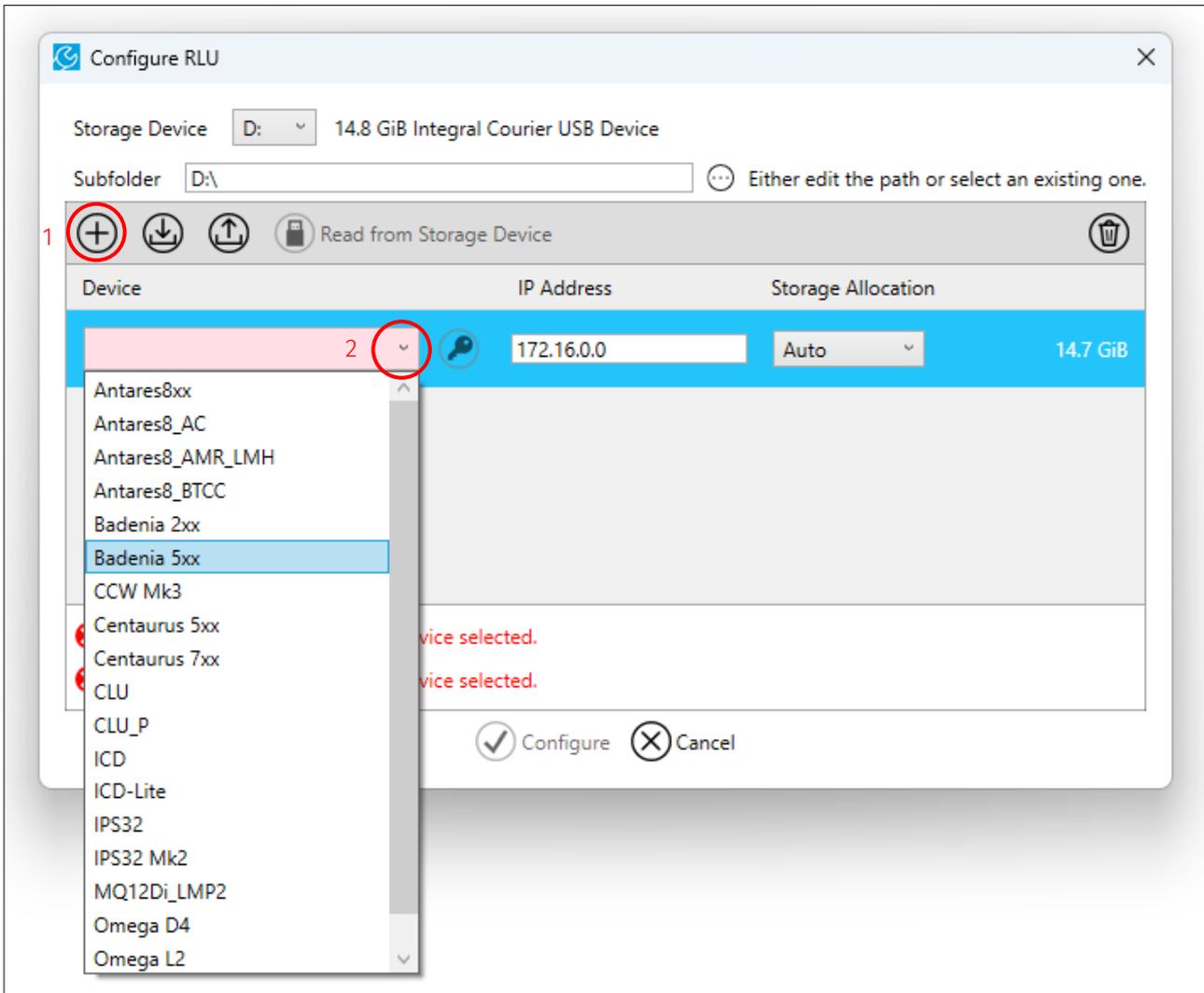
Plug the USB into a port on the PC, and then navigate to the **Data** tab in Toolset. Click **Configure RLU** at the top right (1), and then select the required device (2).



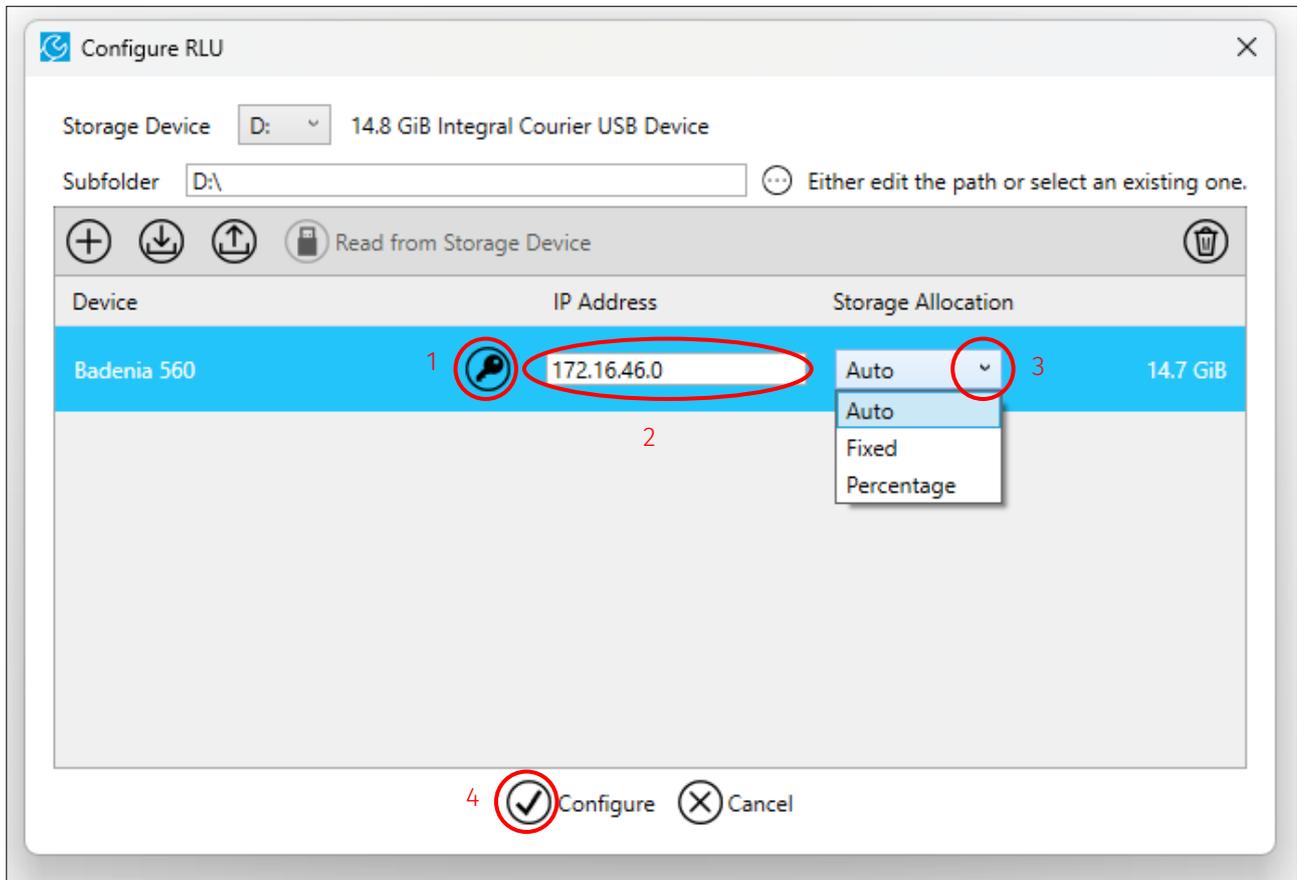
A warning dialog is displayed 'Formatting the USB for remote logging will erase all information currently on the USB.' Click **Yes** to proceed.



To add a new remote logging configuration, click + (1), and then use the dropdown menu to select the primary device (2).

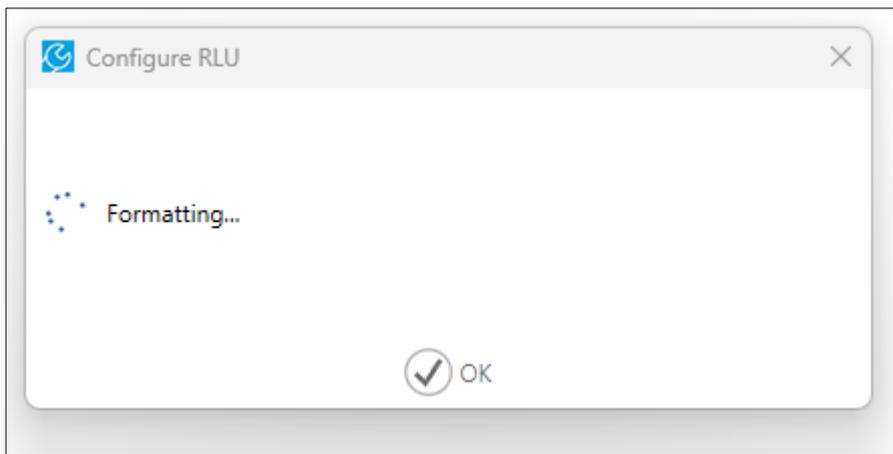


When you select the primary device, you are prompted to select the matching device variant (1). Make sure that the device IP address is correct for the primary device (2), select the storage allocation type – Auto, Fixed, or Percentage (3), and then click **Configure** (4).

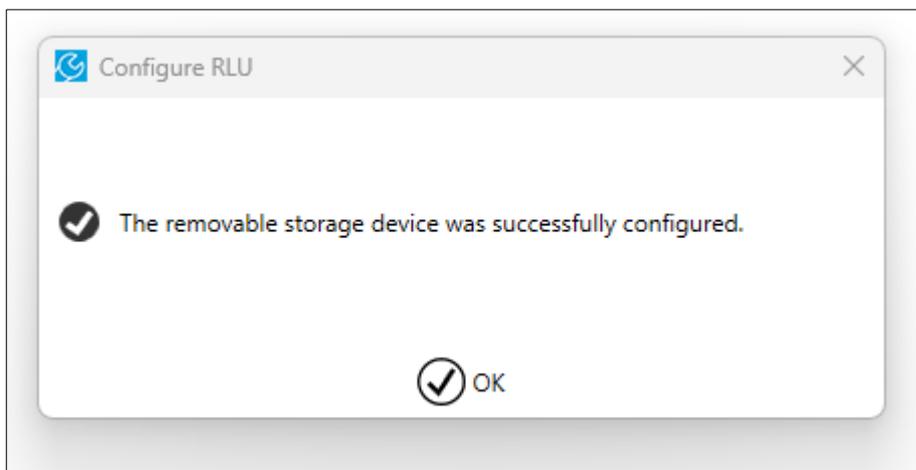




Toolset starts to format the USB device for remote logging.



Once the USB device is formatted it is ready for remote logging.





Remote logging status channels

When a remote logging device is enabled, Toolset automatically generates 9 logging 'status' channels.

Channel Rates	
Channels	Logger 0 : Rate Group 0 <input type="radio"/>
	SS <input type="text"/>
	HS <input type="text"/>
Remote Bad Packets	Off
Remote Disk Write Failures	Off
Remote Disk Writes	Off
Remote Ignored Packets	Off
Remote Missing Packets	Off
Remote Packet Retries	Off
Remote Packets Received	Off
Remote Status	Off
Remote USB Driver Resets	Off

Depending on the remote logging device selected (RLU or CDU10.3), device specific channels are also automatically generated.

Channel Rates	
Channels	Logging Table 1 : Rate Group 0 <input type="radio"/>
	SS <input type="text"/>
	HS <input type="text"/>
RLU Device Present	Off
RLU Free CPU	Off
RLU OS Version Build	Off
RLU OS Version Major	Off
RLU OS Version Minor	Off
RLU OS Version Update	Off
RLU Serial Number	Off
RLU Total Physical Memory	Off
RLU Used Physical Memory	Off
RLU Version Build	Off
RLU Version Major	Off
RLU Version Minor	Off
RLU Version Update	Off





Channel Rates		
Channels	SS	HS
	Logger 0 : Rate Group 0 <input type="radio"/>	
CDU 10.3 CPU Temperature		Off
CDU 10.3 Device Present		Off
CDU 10.3 Display Version Build		Off
CDU 10.3 Display Version Major		Off
CDU 10.3 Display Version Minor		Off
CDU 10.3 Display Version Update		Off
CDU 10.3 Displayed Page		Off
CDU 10.3 Free Cpu1		Off
CDU 10.3 Free Cpu2		Off
CDU 10.3 Module Temperature		Off
CDU 10.3 Serial Number		Off
CDU 10.3 Total Memory		Off
CDU 10.3 Used Memory		Off
CDU 10.3 Version Build		Off
CDU 10.3 Version Major		Off
CDU 10.3 Version Minor		Off
CDU 10.3 Version Update		Off

Note: You must select the channel rates to enable the channels to be logged

