Tech 20060621-1-2

Cellwatch 2.7 Additions and Implementations

Description

This document highlights and explains how to change new features implemented in Cellwatch version 2.7.x. The majority of the features can be configured by changing a single line in the cellwatch.ini file. Other settings are more involved.

Please read all instructions for the desired setting that will be configured. Some settings may cause extra scans on the system for a short amount of time.

Contents:

1. Cellwatch.ini

1.1 Notes about the Cellwatch.ini File

1.1.1 Defaults

The default cellwatch.ini file is displayed below. The alternate font describes each line.

[Program settings]
Auto start=0
Switches the automatic start-up scan on/off when Cellwatch initializes
Minutes into day for scan=0
Delays the ohmic value scan this number of minutes past midnight
Audible alarm=0
Allows the Control Unit to beep when an alarm limit has been exceeded
Resistance sensitivity=0
Adjusts the sensitivity of the ohmic value alarm
Minimum length of discharge (in Secs.)=5
Amount of time that must pass to qualify a discharge and commence recording
Interval to check on voltage alarmed cells (in Mins.)=10
Interval to monitor voltage on voltage alarmed cells after discharge
Time limit to check on voltage alarmed cells (in Mins.)=60
Maximum time limit to monitor voltage on voltage alarmed cells after discharge
Number of temperatures to average=10
Number of temperature readings to average
Degrees for temperature alarm Hysteresis (x0.1, e.g. Enter 7 for 0.7 degrees) =7
Setting used in resetting the temperature alarm. See Cellwatch Software Guide
Display Temperature in C=1
Adjusts the display for temperature between Celsius and Fahrenheit (see below)
Language=1
Adjusts the language that Cellwatch is translated in (see below)
NOTE: The Language setting is not displayed in a newly created ini file

[Modbus]
Enabled=0
Activates the Modbus output
System Unit ID=1

[HTTP]
Enabled=0
Turns on/off the monitoring webpage
Authorization needed=0
Enables the webpage to be protected by the default password
System page refresh period=10
Interval for system webpage updates
Battery page refresh period=10

Quick Facts

Language	Temperature
French = 2	Celsius = 1
English = 1	Fahrenheit = 0

Interval for battery webpage updates

String page refresh period=60

Interval for string webpage updates

Info page refresh period=10

Interval for info page to update

Maximum log file count=0

Limits the number of Cellwatch log files that can be listed

Maximum discharge file count=50

Limits the number of discharge files that can be listed

[Scan frequency settings]

Voltage=1

Interval of hours to pass for voltage scans

Resistance=24

Interval of hours to pass for resistance scans

1.1.2 Notes about Changing Cellwatch.ini

Settings in this file can be implemented when the Cellwatch program is running. Changes will take place once Cellwatch is restarted.

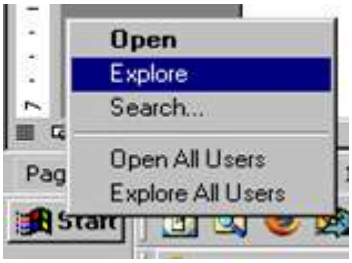
If the file becomes corrupt, Cellwatch will automatically resort to its default settings, as shown above, so that your system may be monitored.

1.1.3 Editing Cellwatch.ini

Use these steps to open the cellwatch.ini file for editing. Opening the file allows the system installer to modify specialized functions in Cellwatch.

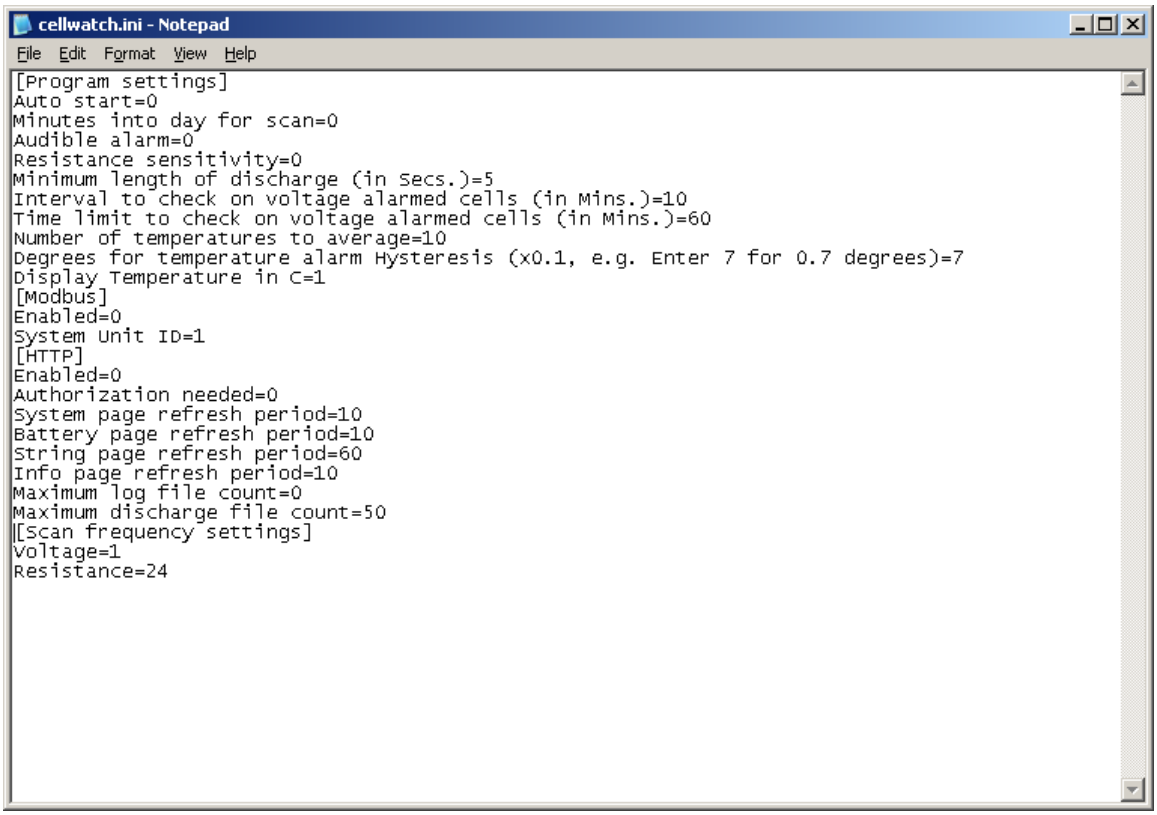
1. Stop all scans and close the Cellwatch program
2. Locate the folder icon labeled “Shortcut to Cellwatch” on the desktop and double Left Click (LC) the icon. *If an icon was found, continue with step 6. Otherwise proceed to step 3.*
3. Right Click (RC) on the Start button in the lower left corner
4. Left Click (LC) Explore
5. Navigate by selecting (LC) the [+] boxes in the file tree on the left window to the following directory:

   C:\Program Files\Cellwatch\



6. Scroll down until cellwatch.ini is visible
7. Double LC on the cellwatch.ini icon

The Cellwatch.ini file should open in Windows Notepad. The file should look similar to the example below. You can now edit select specialized Cellwatch features.



1.2 Customization

1.2.1 Software Translations

Cellwatch 2.7 can be run in both a default English version and an alternate French version. The language tables are internal to the Cellwatch program and cannot be modified by users.

1.2.1.a Script Method

A script code has been developed to simplify this process. Look for an icon on the desktop entitled “Cellwatch en Français” to convert Cellwatch into French. Look for the icon on the desktop entitled “Cellwatch in English” to convert Cellwatch into English.

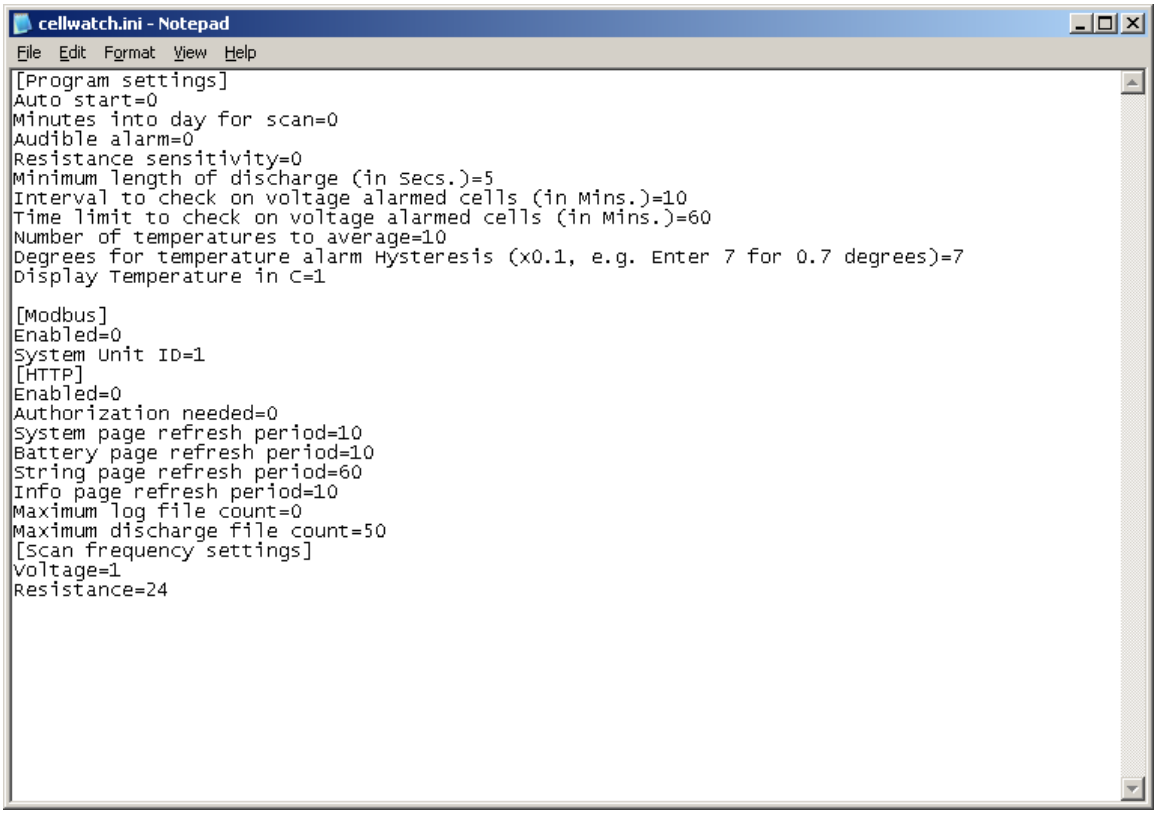
To run the script, simply double LC the desired version of Cellwatch you would like. Cellwatch will close and reopen in the selected language.

If a script is not available, you can use the manual method described in 1.2.1.b.

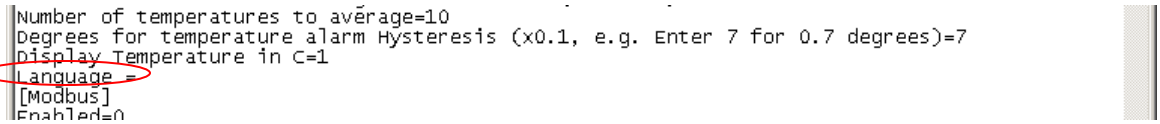
1.2.1.b Manual Method

To manually change the language settings follow these steps:

1. Open the cellwatch.ini file by using the steps mentioned in the Cellwatch.ini sub-section.
2. Locate the line with the text “Language”, if this line is found, proceed to step #. Otherwise continue to step 5.
3. Locate the line with the text “Display Temperature in C” and RC the end of the line and press enter to create a new line.



4. Type the text “Language =”



5. Enter the number corresponding to the translation of Cellwatch you wish to use

Translation Language	Number to use
English	1
French	2

The language line should read: Language=# where the # corresponds to the translation desired.

6. LC on File and select Save
7. Exit all windows that are open until you reach the desktop. This can be done by selecting the box on the upper right corner of the screen that contains an [X], or by selecting File -> Exit.
8. Double LC the Cellwatch shortcut on the desktop to start the program

By default, Cellwatch will revert to English if any invalid values are entered into the language line.

1.2.2 Temperature Display

Cellwatch 2.7 can be modified to display the temperature in both Celsius and Fahrenheit. By default, Cellwatch 2.7 is installed with the temperature display configured to Celsius.

1.2.2.a Script Method

A script code has been developed to simplify this process. Look for the icon on the desktop entitled “Make Fahrenheit” to convert Cellwatch data into Fahrenheit. Look for the icon on the desktop entitled “Make Celsius” to convert Cellwatch data into Celsius.

To run the script, simply double LC the desired version of Cellwatch you would like. Cellwatch will close and reopen with the temperature displayed in your preferred setting.

If a script is not available, you can use the manual method described in 1.2.2.b.

1.2.2.b Manual Method

To manually configure Cellwatch 2.7 to display in Fahrenheit or to convert a system back to Celsius, follow these steps.

1. Open the cellwatch.ini file by using the steps mentioned in the Cellwatch.ini sub-section.
2. Locate the text line with text “Display Temperature in C”
3. Replace the number after the “=” with the appropriate number

Temperature Display	Number to use
Celsius	1
Fahrenheit	0

The temperature line should read “Display Temperature in C=#” where # corresponds to the desired temperature display setting (see table above).

4. LC on file and select Save.

5. Exit all windows that are open until you reach the desktop. This can be done by selecting the box on the upper right corner of the screen that contains an [X], or by selecting File -> Exit.
6. Double LC the Cellwatch shortcut on the desktop to start the program

To check that the temperature display setting was properly set, hold the cursor on the word “String” on a string tab on any battery. The temperature display should now read the temperature in your desired preference.

1.2.3 Minutes into Day Delay

This setting allows Cellwatch to change the way it records ohmic value scans. The setting shifts the first ohmic scan for the day, allowing for ohmic value scans to be completed at a specified time, for example 8:15 a.m.

Note that the delay value is in minutes.

Use the following example to set the ohmic scan at 8:15am:

8 Hours * 60 + 15 Minutes = *495 Minutes*

Use the following steps to change your Minutes into Day Delay:

1. Open the cellwatch.ini file by using the steps mentioned in the Cellwatch.ini sub-section.
2. Locate the line with the text “Minutes into day for scan”
3. Replace the value located after the “=” with your preferred delay setting that you calculated above.
4. LC on file and select Save.
5. Exit all windows that are open until you reach the desktop. This can be done by selecting the box on the upper right corner of the screen that contains an [X], or by selecting File -> Exit.
6. Double LC the Cellwatch shortcut on the desktop to start the program

NOTE: This setting can take 48 hours to begin to fully operate due to the system cycles. There will be an extra system scan during the first full day continuous monitoring. This is due to the internal clock of the system conforming to the system delay.

1.2.4 Resistance Sensitivity

This setting will configure the sensitivity of the resistance alarm. Cellwatch recommends that this setting be left at the default of 0. This default setting will cause the system to alarm with any resistance reading that passes the alarm limit.

Call Cellwatch Technical Support at NDSL or email support@cellwatch.com before changing this setting.

NOTE: Cellwatch does not recommend that this setting be changed from 0.

2. Current Clamp Specifications

This setting allows the Cellwatch System to be customized for larger sized current clamps/transformers. Cellwatch specifications allow for either a 1000A or 2500A current clamp specification. Other Cellwatch approved current clamps can be used as well. Not only can this setting allow multiple ratings of current clamps to be used on the same control unit, it can be used to scale a system where a clamp cannot be fitted around all the high current cables. This allows for more variability within a system and ensures that proper readings can be recorded.

NOTE: Cellwatch defaults to a 1000A current clamp specification if the setting is left blank. Only use current clamps approved by NDSL. Current specifications for these clamps should not be exceeded.

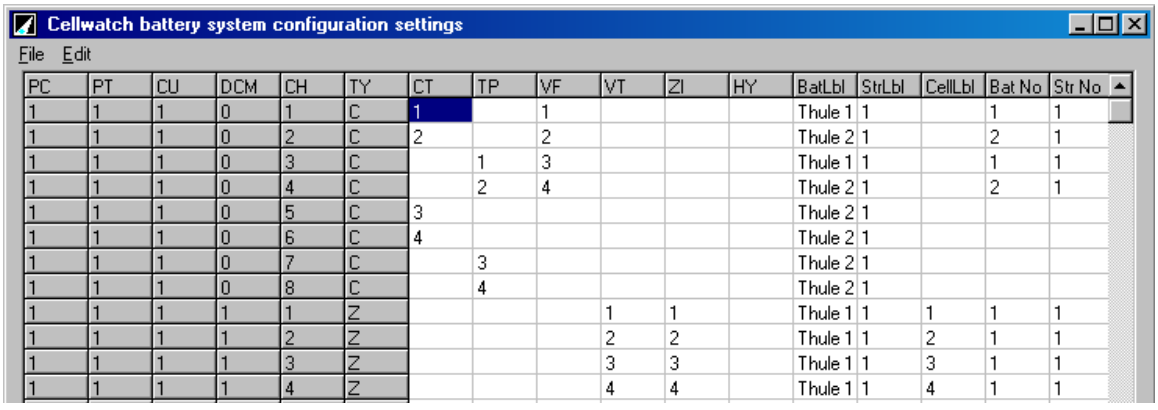
NOTE: Current Clamps will not work if they do not for a closed loop around the cables.

Use the steps below to modify the system configuration file for your system specifications.

2.1 Single String Current

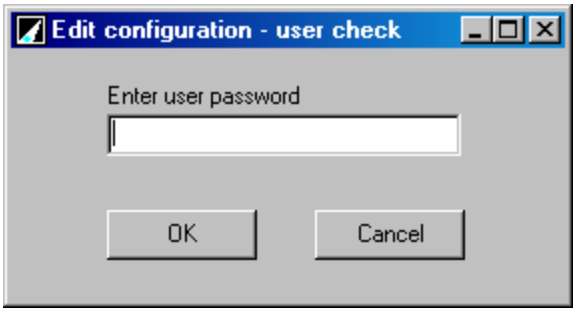
To change the current clamp specifications for a string follow these steps. These steps can be modified to adjust the current clamp specifications for a whole system or a system battery by modifying the steps. This will allow various approved current clamps to be mixed within a system.

1. Stop Cellwatch Operation by Selecting the 'Start/Stop' drop down menu and right clicking on 'System Stop'
2. Select the 'Configuration' drop down menu and LC on 'View Configuration'

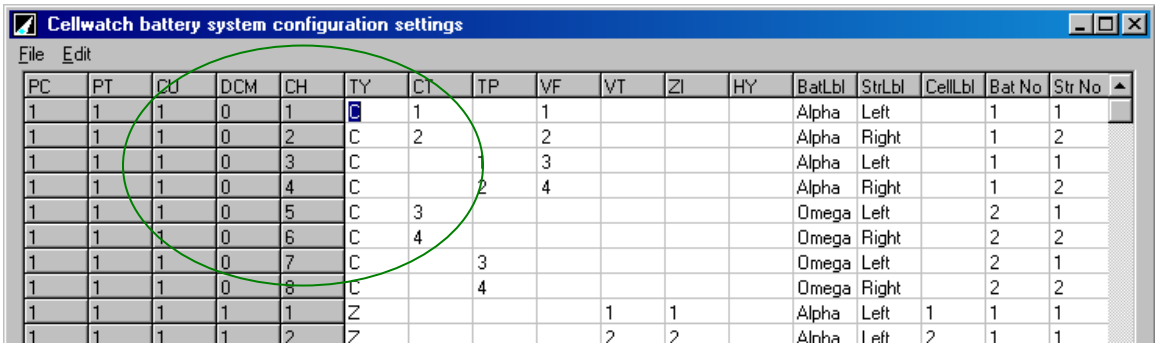


PC	PT	CU	DCM	CH	TY	CT	TP	VF	VT	ZI	HY	BatLbl	StrLbl	CellLbl	Bat No	Str No
1	1	1	0	1	C	1		1				Thule 1	1		1	1
1	1	1	0	2	C	2		2				Thule 2	1		2	1
1	1	1	0	3	C		1	3				Thule 1	1		1	1
1	1	1	0	4	C		2	4				Thule 2	1		2	1
1	1	1	0	5	C	3						Thule 2	1			
1	1	1	0	6	C	4						Thule 2	1			
1	1	1	0	7	C		3					Thule 2	1			
1	1	1	0	8	C		4					Thule 2	1			
1	1	1	1	1	Z				1	1		Thule 1	1	1	1	1
1	1	1	1	2	Z				2	2		Thule 1	1	2	1	1
1	1	1	1	3	Z				3	3		Thule 1	1	3	1	1
1	1	1	1	4	Z				4	4		Thule 1	1	4	1	1

3. Select the 'Edit' drop down menu and LC on 'Edit Config data'
4. Enter the user password **deafcat** for the Cellwatch monitoring program



5. Select 'OK' on the Information prompt *(Note: This prompt signals that the configuration file has been backed up)*
6. Select any box within the white field.

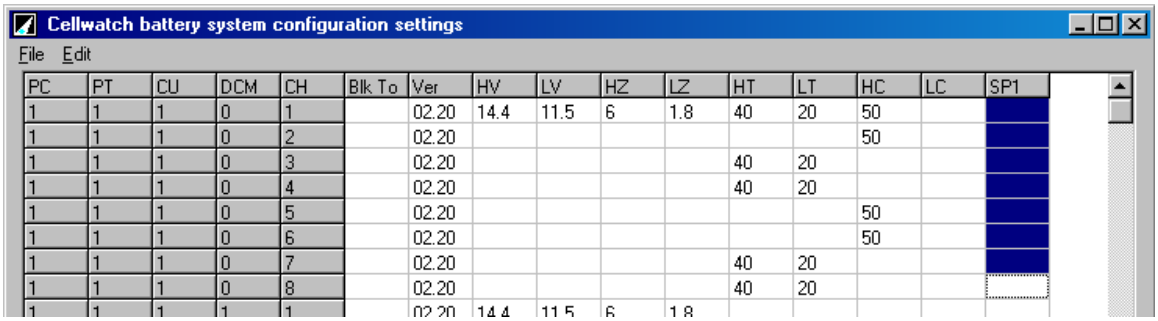


7. Scroll down with the down arrow key until you reach the first cell of the Control Unit (CU) that you would like to change. CU's can be located by looking for a 'C' within the TY column. The address of the CU is shown in the CU column.

CU's are labeled as DCM = 0, and TY = C. See the circled area above for clarification.

8. Locate the channel address for the current clamp that you are configuring, this can be found in the CT column.
9. Press the Right Arrow Key and move the box to the right until you reach the column labeled 'SP1'

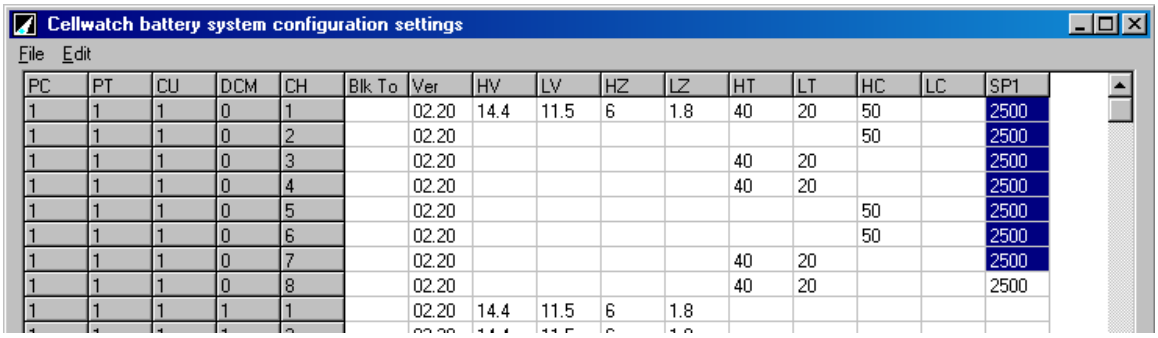
NOTE: When changing an entire system, it is easiest to select the entire column. To do so, simply go to the top of the SP1 column, and hold the shift key and then depress the down arrow key until all keys are selected.



PC	PT	CU	DCM	CH	Blk To	Ver	HV	LV	HZ	LZ	HT	LT	HC	LC	SP1
1	1	1	0	1		02.20	14.4	11.5	6	1.8	40	20	50		
1	1	1	0	2		02.20							50		
1	1	1	0	3		02.20					40	20			
1	1	1	0	4		02.20					40	20			
1	1	1	0	5		02.20							50		
1	1	1	0	6		02.20							50		
1	1	1	0	7		02.20					40	20			
1	1	1	0	8		02.20					40	20			
1	1	1	1	1		02.20	14.4	11.5	6	1.8					

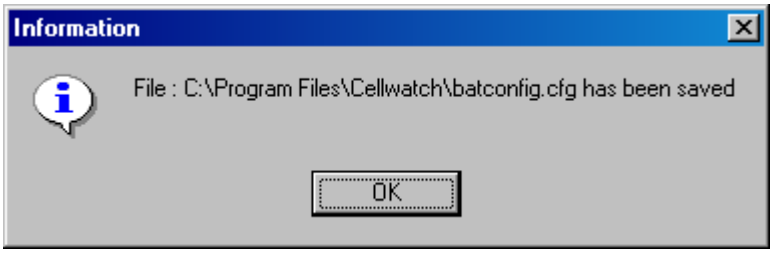
10. Type the maximum rating of your current clamp

Max Current Clamp Rating	Enter This Value
1000 Amps	1000
2500 Amps	2500
X Amps	**X**

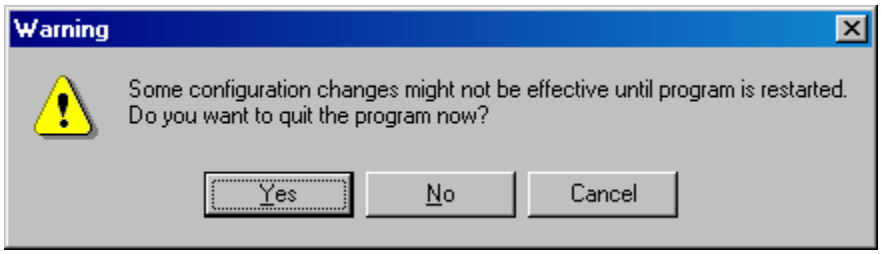


PC	PT	CU	DCM	CH	Blk To	Ver	HV	LV	HZ	LZ	HT	LT	HC	LC	SP1
1	1	1	0	1		02.20	14.4	11.5	6	1.8	40	20	50		2500
1	1	1	0	2		02.20							50		2500
1	1	1	0	3		02.20					40	20			2500
1	1	1	0	4		02.20					40	20			2500
1	1	1	0	5		02.20							50		2500
1	1	1	0	6		02.20							50		2500
1	1	1	0	7		02.20					40	20			2500
1	1	1	0	8		02.20					40	20			2500
1	1	1	1	1		02.20	14.4	11.5	6	1.8					

11. Press Enter on the keyboard
12. Select the ‘File’ drop down menu and LC on ‘Save Configuration’
13. Select ‘OK’ on the prompt box that appears



14. Select the ‘File’ drop down menu and LC ‘Exit’
15. Select ‘Yes’ on the prompt to close Cellwatch



16. Reopen Cellwatch for the changes to take effect.

This setting can be checked by placing known amperage through the current clamp. If configured correctly Cellwatch should measure the correct amperage within 4%. Adjust the zero measurement reading if necessary for calibration.

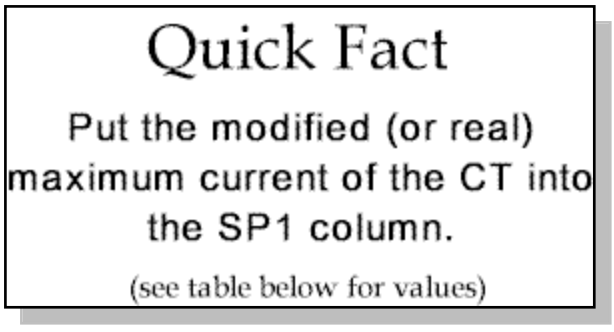
NOTE: 2500A Current Clamps are zeroed during manufacturing. They cannot be adjusted for in the Cellwatch program and cannot be manually configured for zero amps.

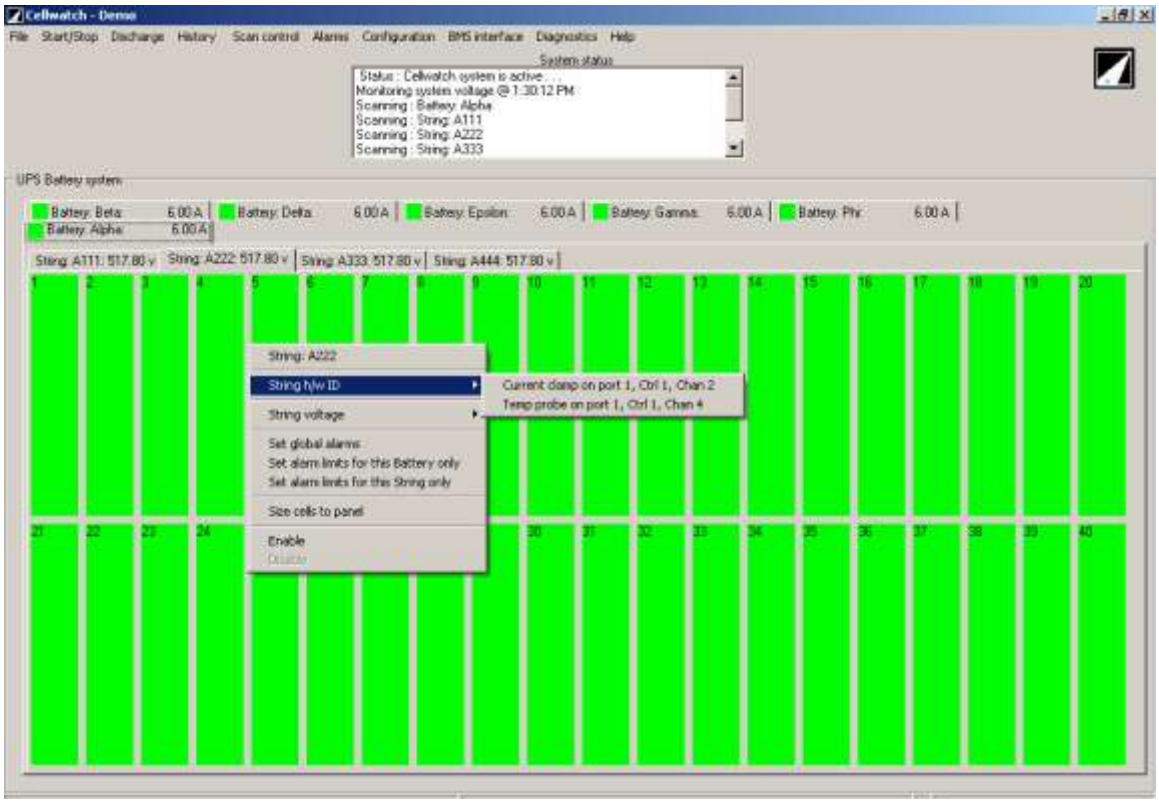
2.2 Scaling Current Clamps

Scaling allows a current clamp to go around only a few of the cables connecting the racks and/or UPS. This method of connection is typically needed for high current systems where multiple cables are needed to connect the racks together.

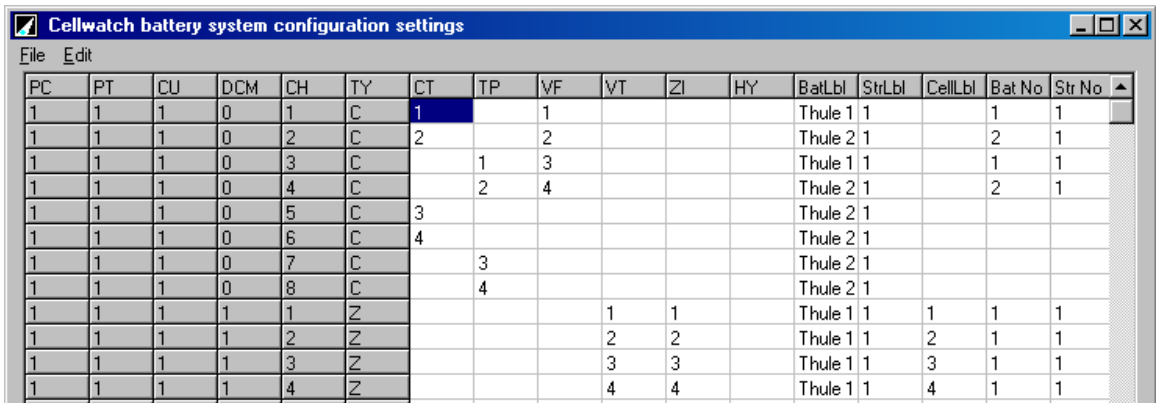
The ability to scale current clamps is allowed by another manipulation of the configuration file. By scaling the value in column SP1, only a few of the cables connecting the racks are needed. To scale a system, follow the steps below:

1. Stop Cellwatch Operation by Selecting the 'Start/Stop' drop down menu and right clicking on 'System Stop'
2. RC in the gray area between the cells of the string that you would like to scale the current of
3. Hover over String H/W ID and look at the CU and channel number of the current clamp



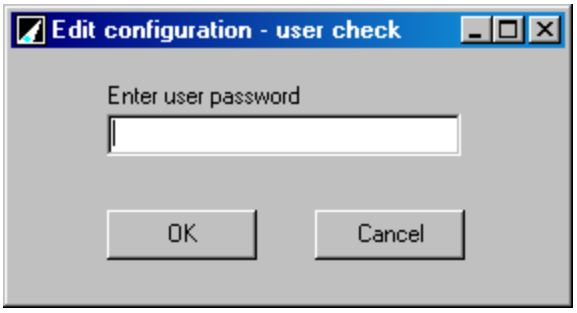


4. Select the ‘Configuration’ drop down menu and LC on ‘View Configuration’

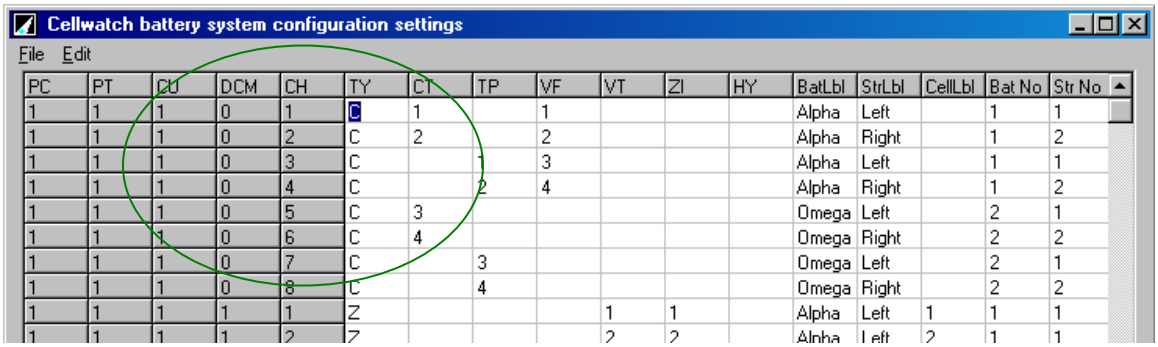


PC	PT	CU	DCM	CH	TY	CT	TP	VF	VT	ZI	HY	BatLbl	StrLbl	CellLbl	Bat No	Str No
1	1	1	0	1	C	1		1				Thule 1	1		1	1
1	1	1	0	2	C	2		2				Thule 2	1		2	1
1	1	1	0	3	C		1	3				Thule 1	1		1	1
1	1	1	0	4	C		2	4				Thule 2	1		2	1
1	1	1	0	5	C	3						Thule 2	1			
1	1	1	0	6	C	4						Thule 2	1			
1	1	1	0	7	C		3					Thule 2	1			
1	1	1	0	8	C		4					Thule 2	1			
1	1	1	1	1	Z				1	1		Thule 1	1	1	1	1
1	1	1	1	2	Z				2	2		Thule 1	1	2	1	1
1	1	1	1	3	Z				3	3		Thule 1	1	3	1	1
1	1	1	1	4	Z				4	4		Thule 1	1	4	1	1

5. Select the ‘Edit’ drop down menu and LC on ‘Edit Config data’
6. Enter the user password **deafcat** for the Cellwatch monitoring program



7. Select 'OK' on the Information prompt *(Note: This prompt signals that the configuration file has been backed up)*
8. Select the first box in the TY column.

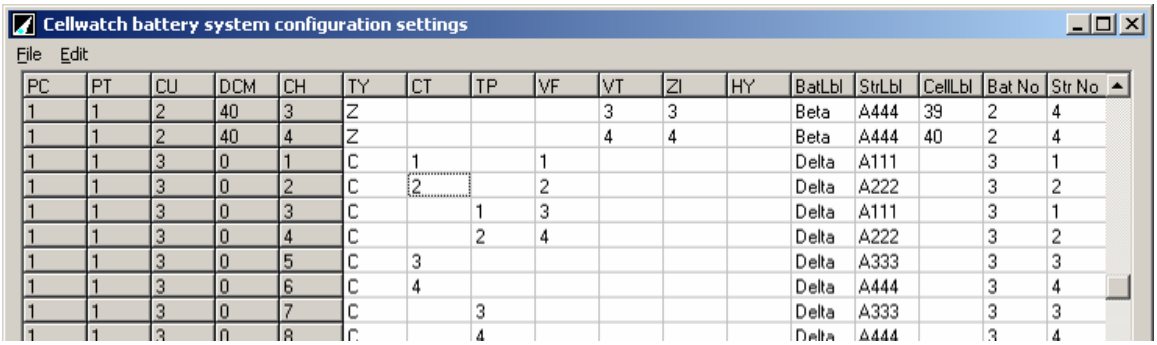


PC	PT	CU	DCM	CH	TY	CT	TP	VF	VT	ZI	HY	BatLbl	StrLbl	CellLbl	Bat No	Str No
1	1	1	0	1	C	1		1				Alpha	Left		1	1
1	1	1	0	2	C	2		2				Alpha	Right		1	2
1	1	1	0	3	C		1	3				Alpha	Left		1	1
1	1	1	0	4	C		2	4				Alpha	Right		1	2
1	1	1	0	5	C	3						Omega	Left		2	1
1	1	1	0	6	C	4						Omega	Right		2	2
1	1	1	0	7	C		3					Omega	Left		2	1
1	1	1	0	8	C		4					Omega	Right		2	2
1	1	1	1	1	Z				1	1		Alpha	Left	1	1	1
1	1	1	1	2	Z				2	2		Alpha	Left	2	1	1

9. Scroll down with the down arrow key until you reach the first cell of the Control Unit (CU) the string is located on. CU's can be located by looking for a 'C' within the TY column. The address of the CU is shown in the CU column.

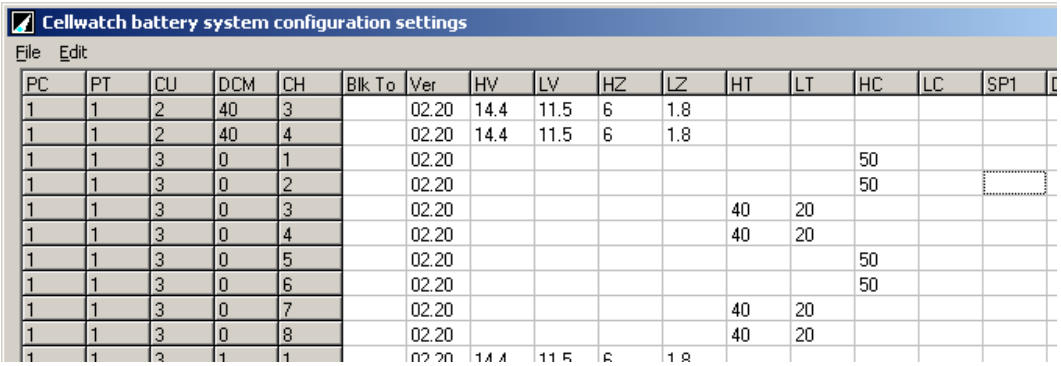
CU's are labeled as DCM = 0, and TY = C. See the circled area above for clarification.

10. Locate the channel address for the current clamp that you are configuring, this can be found in the CT column, and highlight the box with a RC



PC	PT	CU	DCM	CH	TY	CT	TP	VF	VT	ZI	HY	BatLbl	StrLbl	CellLbl	Bat No	Str No
1	1	2	40	3	Z				3	3		Beta	A444	39	2	4
1	1	2	40	4	Z				4	4		Beta	A444	40	2	4
1	1	3	0	1	C	1		1				Delta	A111		3	1
1	1	3	0	2	C	2		2				Delta	A222		3	2
1	1	3	0	3	C		1	3				Delta	A111		3	1
1	1	3	0	4	C		2	4				Delta	A222		3	2
1	1	3	0	5	C	3						Delta	A333		3	3
1	1	3	0	6	C	4						Delta	A444		3	4
1	1	3	0	7	C		3					Delta	A333		3	3
1	1	3	0	8	C		4					Delta	A444		3	4

11. Press the Right Arrow Key and move the box to the right until you reach the column labeled 'SP1'



PC	PT	CU	DCM	CH	Blk To	Ver	HV	LV	HZ	LZ	HT	LT	HC	LC	SP1
1	1	2	40	3		02.20	14.4	11.5	6	1.8					
1	1	2	40	4		02.20	14.4	11.5	6	1.8					
1	1	3	0	1		02.20							50		
1	1	3	0	2		02.20							50		
1	1	3	0	3		02.20					40	20			
1	1	3	0	4		02.20					40	20			
1	1	3	0	5		02.20							50		
1	1	3	0	6		02.20							50		
1	1	3	0	7		02.20					40	20			
1	1	3	0	8		02.20					40	20			
1	1	3	1	1		02.20	14.4	11.5	6	1.8					

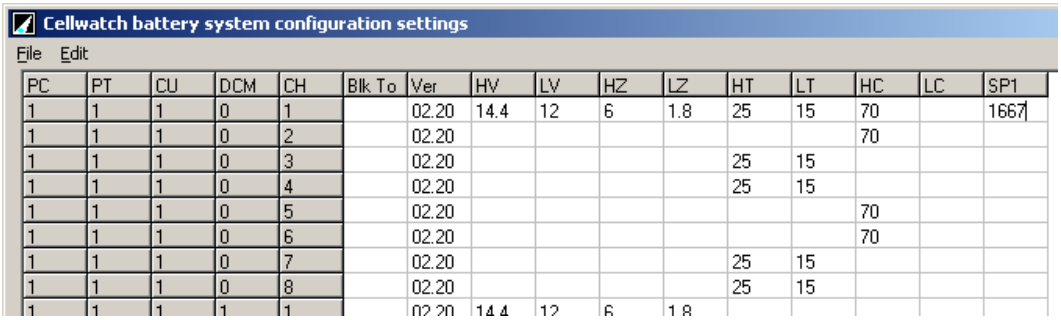
12. Type the SP1 value for the current clamp using the following method:

$$\text{SP1 Value} = \frac{ClampRating}{\#TotalCables \diagup \#MeasuredCables}$$

Note: An example and a table are provided for you. Review the example and then use the table to quickly determine your SP1 value.

For example:

System A has 5 cables connecting the string rack to the UPS. A current clamp, rated at 1000A, is placed around only 3 cables due to the large size of the cables. Currently the system reads 3/5 of the actual current because the clamp is around only 3 of the 5 cables. Using the table provided below, locate the line that says there are 3 out of 5 cables being measured in the cable column. The 1000A value for 3 out of 5 is 1667. This value is the SP1 value and will be entered into the SP1 column. Entering the SP1 value into the SP1 column allows the system to display the proper current.

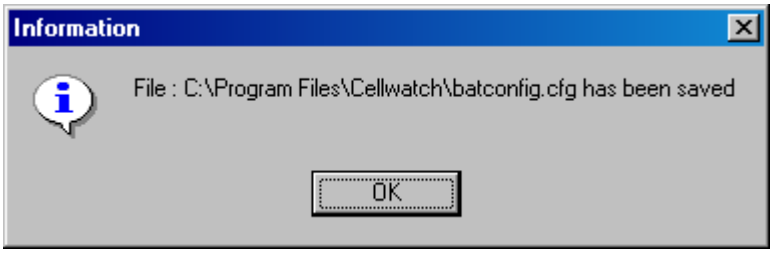


PC	PT	CU	DCM	CH	Blk To	Ver	HV	LV	HZ	LZ	HT	LT	HC	LC	SP1
1	1	1	0	1		02.20	14.4	12	6	1.8	25	15	70		1667
1	1	1	0	2		02.20							70		
1	1	1	0	3		02.20					25	15			
1	1	1	0	4		02.20					25	15			
1	1	1	0	5		02.20							70		
1	1	1	0	6		02.20							70		
1	1	1	0	7		02.20					25	15			
1	1	1	0	8		02.20					25	15			
1	1	1	1	1		02.20	14.4	12	6	1.8					

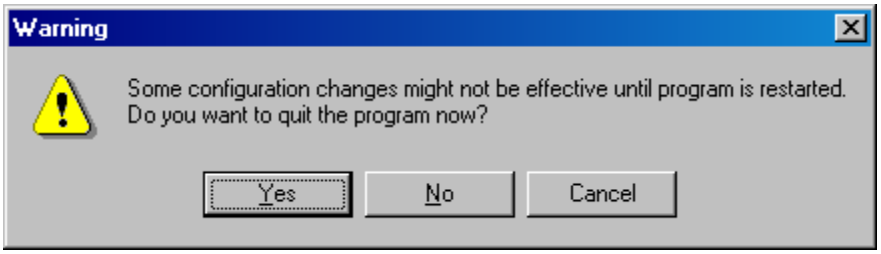
Note: Use the following table to determine what SP1 value you will use.

Cables			1000A Clamp	2500A Clamp
# Measured	out of	Total	SP1 Value	
1	out of	2	2000	5000
1	out of	3	3000	7500
1	out of	4	4000	10000
1	out of	5	5000	12500
1	out of	6	6000	15000
2	out of	3	1500	3750
2	out of	4	2000	5000
2	out of	5	2500	6250
2	out of	6	3000	7500
3	out of	4	1333	3333
3	out of	5	1667	4167
3	out of	6	2000	5000
4	out of	5	1250	3125
4	out of	6	1500	3750
5	out of	6	1200	3000

13. Press Enter on the keyboard
14. Select the ‘File’ drop down menu and LC on ‘Save Configuration’
15. Select ‘OK’ on the prompt box that appears



16. Select the ‘File’ drop down menu and LC ‘Exit’
17. Select ‘Yes’ on the prompt to close Cellwatch



18. Reopen Cellwatch for the changes to take effect.

This setting can be checked by placing known amperage through the current clamp. If configured correctly Cellwatch should measure the correct amperage within 4%. Adjust the zero measurement reading if necessary for calibration.

NOTE: 2500A Current Clamps are zeroed during manufacturing. They cannot be adjusted for in the Cellwatch program and cannot be manually configured for zero amps.

3 Date Format

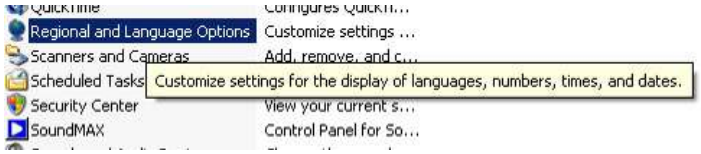
New to Cellwatch is a regional date format. Depending on your location, i.e. US, Europe, or elsewhere, a date format based the region setup in your iBMU is used.

3.1 Verify Regional Settings

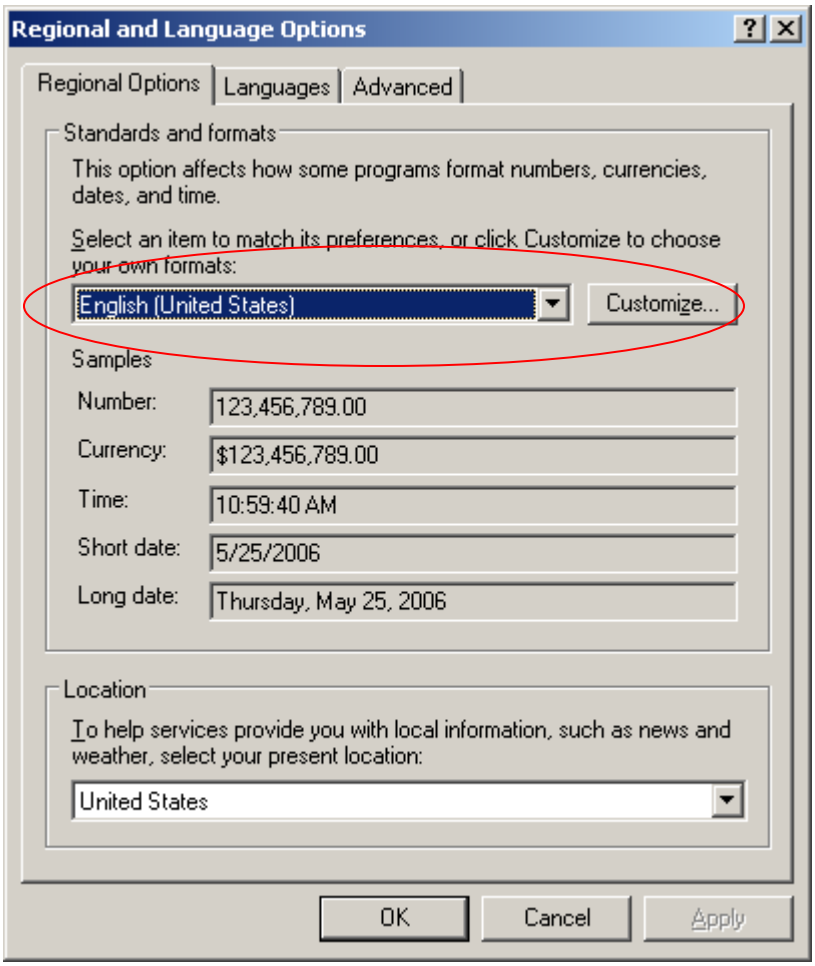
During installation, your system should be configured to your regional language and time settings. Use the steps below to verify your language settings:

1. LC the Start button
2. Highlight the Settings Label
3. LC on Control Panel

4. Locate the icon labeled Regional and Language Options



5. Double LC on the Regional and Language Options Icon



6. Locate the Standards and formats box and check that the Language and region are correct
7. If settings are Incorrect call Cellwatch Technical Support at NDSL or email support@cellwatch.com
8. LC the OK box at the bottom of the window
9. Close all other windows, leaving Cellwatch open

3.2 US Date Format

The date format for the United States is mm/dd/yyyy.

3.3 Europe Date Format

The date format for Europe is dd/mm/yyyy.