10.c Data Integrity Checking

Starting with Centurion V1.42 Build #0013, Centurion has the ability to perform Data Integrity Checking on downloaded data files. In addition, you can also manually perform the Data Integrity Check on any binary file that already exists on your computer (such as on files that have been downloaded by someone else and then transferred to your computer).

Data Integrity Checking refers to a set of data checks that can be done on any binary file. This includes PerVehicle (Raw), Classification (Binned), Volume (Count), and TimeStamp data. To enable and set the specifics of what Data Integrity checks will be done, go to the Preferences option "Data Integrity Checking ..." by clicking on the **File** menu option, selecting **Preferences**, and then select **Data Integrity Checking ...** to view the following dialog (note: specific features will vary according to your current Centurion version - V1.44 Build #0010 shown below):

🚱 Data Integrity Preferences	8	x
Download Files		
I Enable Data Integrity Checks on all newly downloaded Files.		
Downloaded Files		
Warn when any lane has this much time with no vehicles : 1 Hour		-
Warn when # of SnMis in Lane Exceeds Percent of Data :		
Percent. 20% 🔻		
Warn when # of SnMis in a Lane exceeds specific total :		
Can't exceed this amount : 20	-	
In this period of time : 1 Hour	•	
Warn when there is a higher than normal count in a Lane : \blacksquare		
Can't exceed High Count file by what percent: 25%	* *	
Auto-update High Count file if doesn't exceed this percent : 12%	*	
Create High Count File View High Count File Edit High Co	unts	
Run Chec	k Now	
OK KCancel	?⊦	

Enable Data Integrity Checks on all	When checked, Centurion will automatically run every file it downloads from
newly downloaded files.	any kind of traffic counter through a Data Integrity Check. Any warnings or
	errors that are found during the check will automatically be displayed in a
	popup window which gives the file name and all details of the issue.
Warn when any lane has this much	Select the length of time any single lane can go without a single vehicle, volume
time with no vehicles.	count, or TimeStamp activation. Centurion will automatically adjust for variable
	record interval lengths.
	For example, if you select "1 Hour", then Centurion will correctly find sites that
	have four 15 minute intervals in a row without any count, and will correctly find
	sites that have a single 1 hour interval without any counts.
Warn when # of SnMis in Lane	Check this box if you want to check the total vehicle count in each lane of a file
Exceeds Percent of Data	against the total number of SnMis in each lane. If this box is checked, then the
	next option "Percent" is used. Note that this check only applies to PerVehicle
	(Raw) and Classification (Binned) data files (does not apply to Volume data).
Percent	When the above option is selected, this sets the percentage SnMis must exceed
	the total count for a warning to be issued. For example, if you had a file with
	1000 total vehicles in Lane #1 and also saw 200 SnMis in that lane, then
	Centurion will determine that there was a 20% SnMis rate. If your Percent
	Setting was "20%" or less, Centurion will issue a warning for the file.

Warn when # of SnMis in Lane exceeds specific total	Check this box to enable checking to see if a particular lane has more than a set amount of SnMis occur in a specific period of time (the amount and the period of time are set by the pert two options)
Con't avaged this amount	The amount of Sn Mis that Conturion should shock for
Can't exceed this amount	The amount of Shivis that Centurion should check for.
In this period of time	The amount of time that the above SnMis can't occur in. For example, if you enable this warning and set the amount to "100" and the period to "1 hour", then if any lang has 100 SnMis or more in any hour long period, a warning will
	be displayed for the file.

Warn when there is a higher than	Check this box to enable checking for unusual high counts inside of a data file.
normal count in a Lane	There are always two checks done – Hourly & Daily. The hourly check is to see if
	the number of vehicles in any single hour exceeds a preset amount for the site
	by the percentage defined next. The day check does the same for the entire
	daily total.
	Because sites can vary greatly, this data integrity check is more complicated
	than the others. You must pre-define for each site the maximum allowable
	count for all 24 hours of the day as well as for the daily total. Centurion has
	several function buttons to help you do this – Create High Count File, View High
	Count File, and Edit High Counts. See below for more information on what
	these buttons do.
Can't exceed High Count file	Sets the amount a given hour or day count from a file can exceed the preset
by what percent	hour or day maximum before a warning will be issued. For example, if you
	defined the midnight hour (00:00) as having a maximum of 100 counts, and set
	this percent to 25%, you would get a warning with any file that had 125 counts
	or more from 00:00 to 00:59.
Auto-update High Count file if	The maximum hourly and day totals are predefined in what is called the
doesn't exceed this percent	"HighCounts.txt" file. This text file is stored in the main program directory of
	Centurion and holds all the maximum count information.
	If you set this auto-update value to anything above 0%, then Centurion will
	automatically increase the predefined values in the HighCounts.txt file for a site
	as long as they don't exceed the percentage value set here.
	For example, suppose you set the Can't exceed value to 25% and the Auto-
	update value to 10%. In this case, any hour or day counts that are over 25% of
	the predefined value will generate a warning message, but any value that is
	from 1% to 10% more than the predefined value will instead change the stored
	number in HighCounts.txt.
Create High Count File	Click this button to automatically create a new HighCounts.txt file based on the
	existing data inside your database. This is a good way to start your
	HighCounts.txt file as it analyzes your existing dataset and posts all the high
	hours and days it finds for every site and lane. Note that when this finishes you
	should immediately review it by clicking the Edit High Counts button because
	any data in your database which is in error will show up in the file created. This
	should just be your starting point, do not rely on it without post review.
	NOTE: This button is not available with Centurion-Field.
View High Count File	Opens a simple text editor of the HighCounts.txt file. You can edit the file this
	way if desired, or save/copy it to other computers, but it is easier to edit using
	the Edit High Counts button.

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Run Check	Click this button to run a Data Integrity Check immediately. Centurion allows you to select one or
Now	more files to run the check on.

Data Integrity Checking will automatically display a window whenever it detects any errors or warnings. This window is resizeable and allows you to scroll through all detected messages. For example:

S Data Integrity Preferences	
Download Files	
Enable Data Integrity Checks on all newly downloaded Files.	
Downloaded Files	
Warn when any lane has this much time with no vehicles : 1 Hour	
Warn when # of SnMis in Lane Exceeds Percent of Data : 7 Percent : 20% 💼	2 2
Warn when # of SnMis in a Lane exceeds specific total : 🔽	y Data Integrity Warnings
Can't exceed this amount : 20 In this period of time : Hour Warn when there is a higher than normal count in a Lane : Can't exceed High Count file by what percent : 25% Auto-update High Count file if doesn't exceed this percent : 12% Create High Count File View High Count File Edit High Counts Create High Count File View High Count File Edit High Counts Create High Count File View High Count File Edit High Counts Create High Count File View High Count File Edit High Counts Create High Count File View High Count File Edit High Counts Create High Count File View High Count File Edit High Counts Create High Count File View High Count File Edit High Counts Create High Count File View High Count File Edit High Counts	 16-12-22 TOP OAK (Start 2016-12-19 at 0000) 118.BIN ("TOP OAK"): 1. ZERO COUNT WARNING: Zero total Vehicles in Lane #1 from 00:00:01-01:00:09 (60 min) on 12/19/16. 2. ZERO COUNT WARNING: Zero total Vehicles in Lane #1 from 10:00:11-02:03:01 (63 min) on 12/19/16. 3. ZERO COUNT WARNING: Zero total Vehicles in Lane #1 from 03:03:13-04:03:23 (60 min) on 12/19/16. 4. ZERO COUNT WARNING: Zero total Vehicles in Lane #1 from 03:23:03:11 (60 min) on 12/19/16. 5. HIGH SNMIS COUNT WARNING: There were 21 SNMs in Lane #1 from 03:24-04:38 on 12/19/16. 6. ZERO COUNT WARNING: There were 45 SnMs in Lane #1 from 05:32-06:33:41 (60 min) on 12/19/16. 7. HIGH SNMIS COUNT WARNING: There were 96 SnMs in Lane #1 from 05:41-06:40 on 12/19/16. 8. ZERO COUNT WARNING: There were 96 SnMs in Lane #1 from 05:34-04:03:41 (60 min) on 12/19/16. 9. HIGH SNMIS COUNT WARNING: There were 96 SnMs in Lane #1 from 06:34-06:03:41 (60 min) on 12/19/16. 10. ZERO COUNT WARNING: Zero total Vehicles in Lane #1 from 06:03:43-07:03:41 (60 min) on 12/19/16. 11. HIGH SNMIS COUNT WARNING: There were 159 SnMs in Lane #1 from 06:03:43-07:03:41 (60 min) on 12/19/16. 12. ZERO COUNT WARNING: Zero total Vehicles in Lane #1 from 07:03:43-06:03:53 (60 min) on 12/19/16. 13. HIGH SNMIS COUNT WARNING: There were 159 SnMs in Lane #1 from 07:41-06:40 on 12/19/16. 14. ZERO COUNT WARNING: Zero total Vehicles in Lane #1 from 07:03:43-08:03:53 (60 min) on 12/19/16. 14. ZERO COUNT WARNING: Zero total Vehicles in Lane #1 from 07:03:43-08:03:53 (60 min) on 12/19/16. 15. HIGH SNMIS COUNT WARNING: There were 155 SnMs in Lane #1 from 07:41-09:40 on 12/19/16. 14. ZERO COUNT WARNING: There were 120 SnMs in Lane #1 from 08:03:55-09:04:27 (61 min) on 12/19/16. 15. HIGH SNMIS COUNT WARNING: There were 120 SnMs in Lane #1 from 09:41-00:40 on 12/19/16. 16. ZERO COUNT WARNING: There were 120 SnMs in Lane #1 from 09:
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This shows running a Data Integrity Check on a PerVehicle (Raw) file named "TOP OAK (Start 2016-12-19 at 0000) 118.BIN" which had 18 different warnings appear.