Lapcom S series Lapcom S Analysis

Instruction manual

PERCUL CORPORATION

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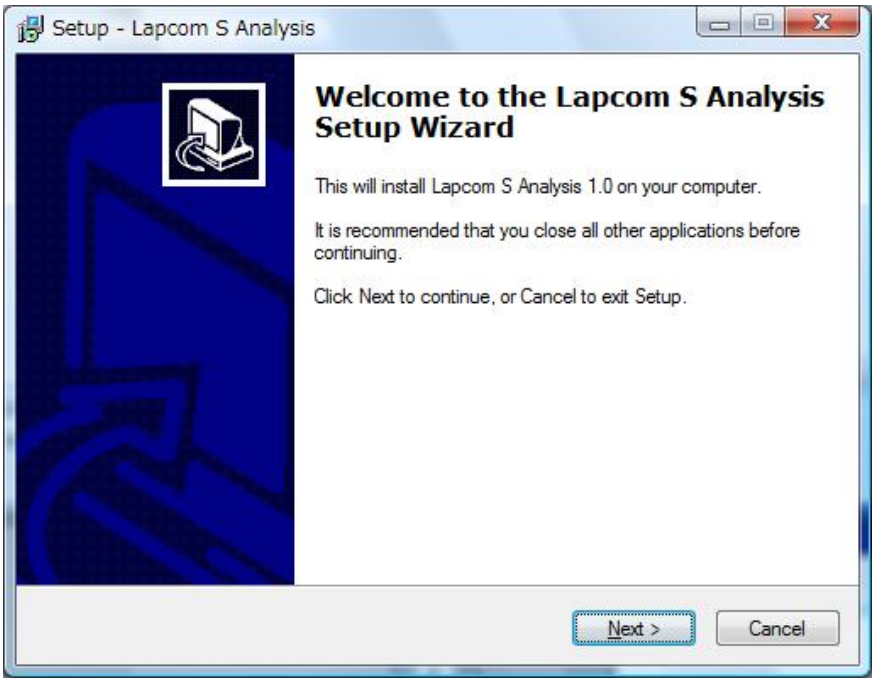
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1. How to install Lapcom S Analysis

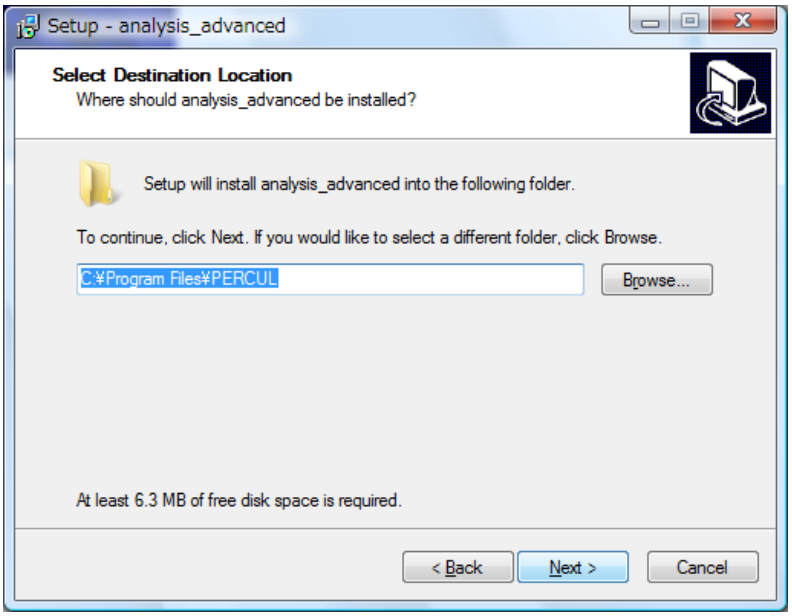
1. If any older version of Lapcom S Analysis is installed in the PC, uninstall it first.

2. Download the newest version's zip file "Lapcom_S_Analysis_Installer Ver.XXXX.zip" from our web site. Extract the zip file. Among the unzipped files, double click "Installer_Lapcom_S_Analysis.exe" file to start the installation of the software.

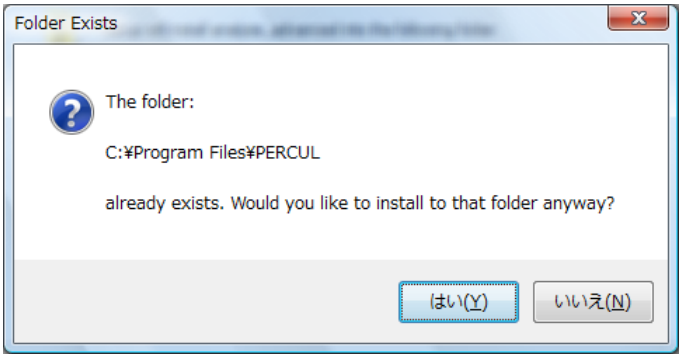
3. Click "**Next**".



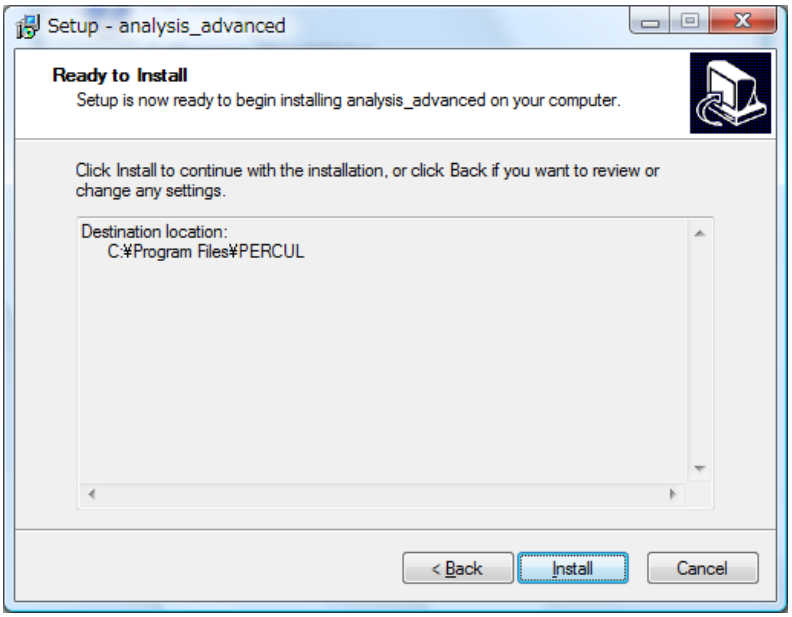
4. The drive and folder names to be installed are showing. To continue, click "**Next**". If you would like to select a different folder, click "**Browse**".



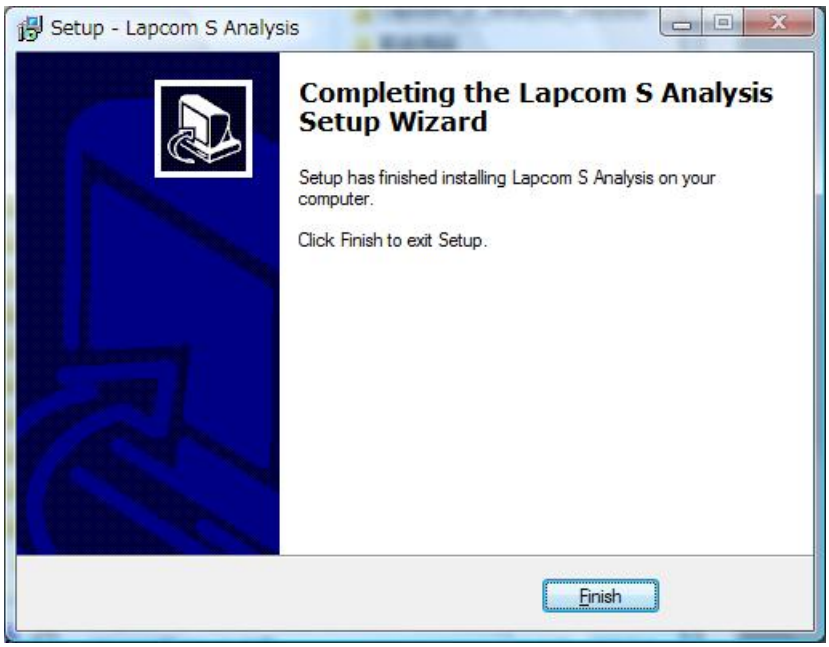
5. Click “**Yes**”.



6. Click “**install**”.



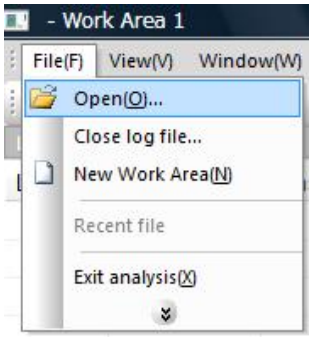
7. Click “**Finish**” to finish the installation.



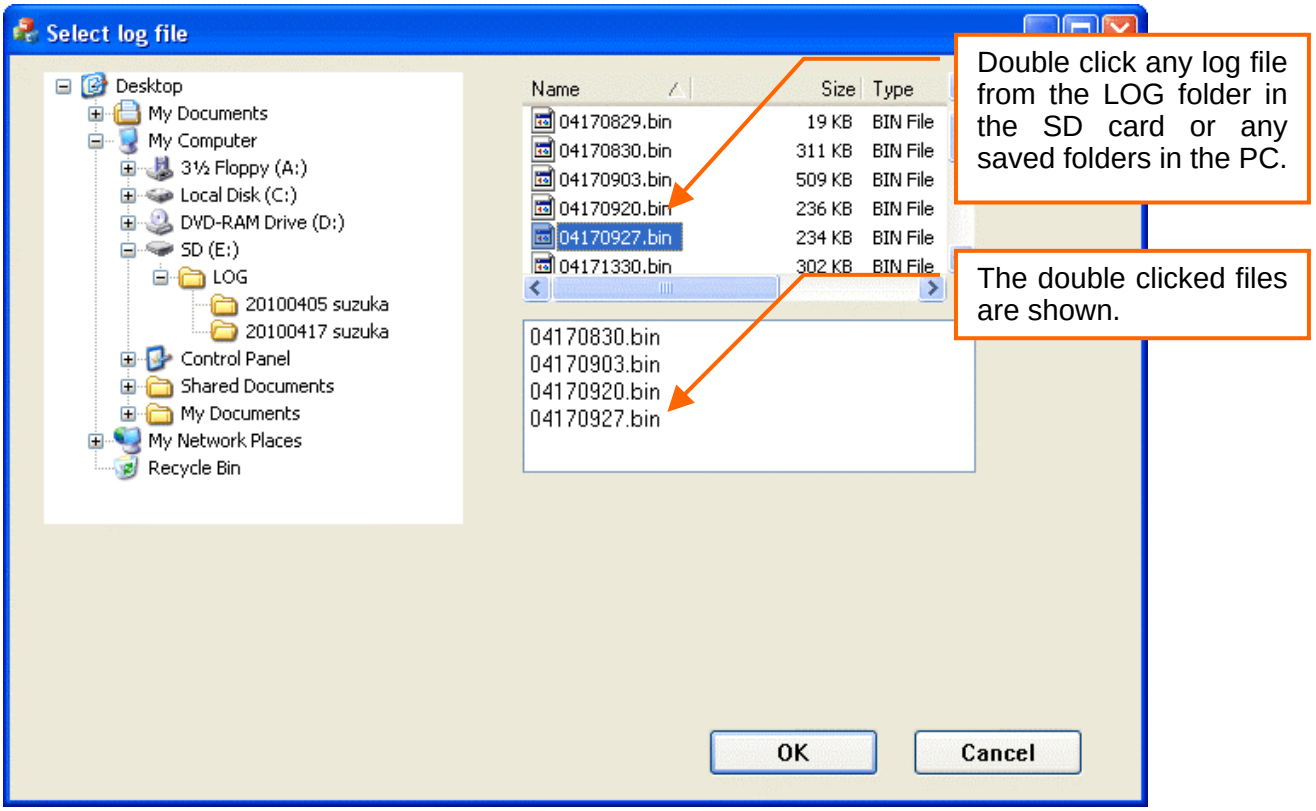
2. How to read log files

1. Remove a SD card from the Lapcom control unit and insert it to the card port in the PC. Start Lapcom S Analysis.

2. Click "**File**" from the menu bar, and click "**Open**" from the popup menu.



3. The "**Select log file**" window is opened. In the left side, select the SD card or saved folders where the log files are included. The log files in the selected place are shown in the upper right. Double click any log file. The selected file is shown in the lower right. Multiple files can be selected. Click "**OK**".



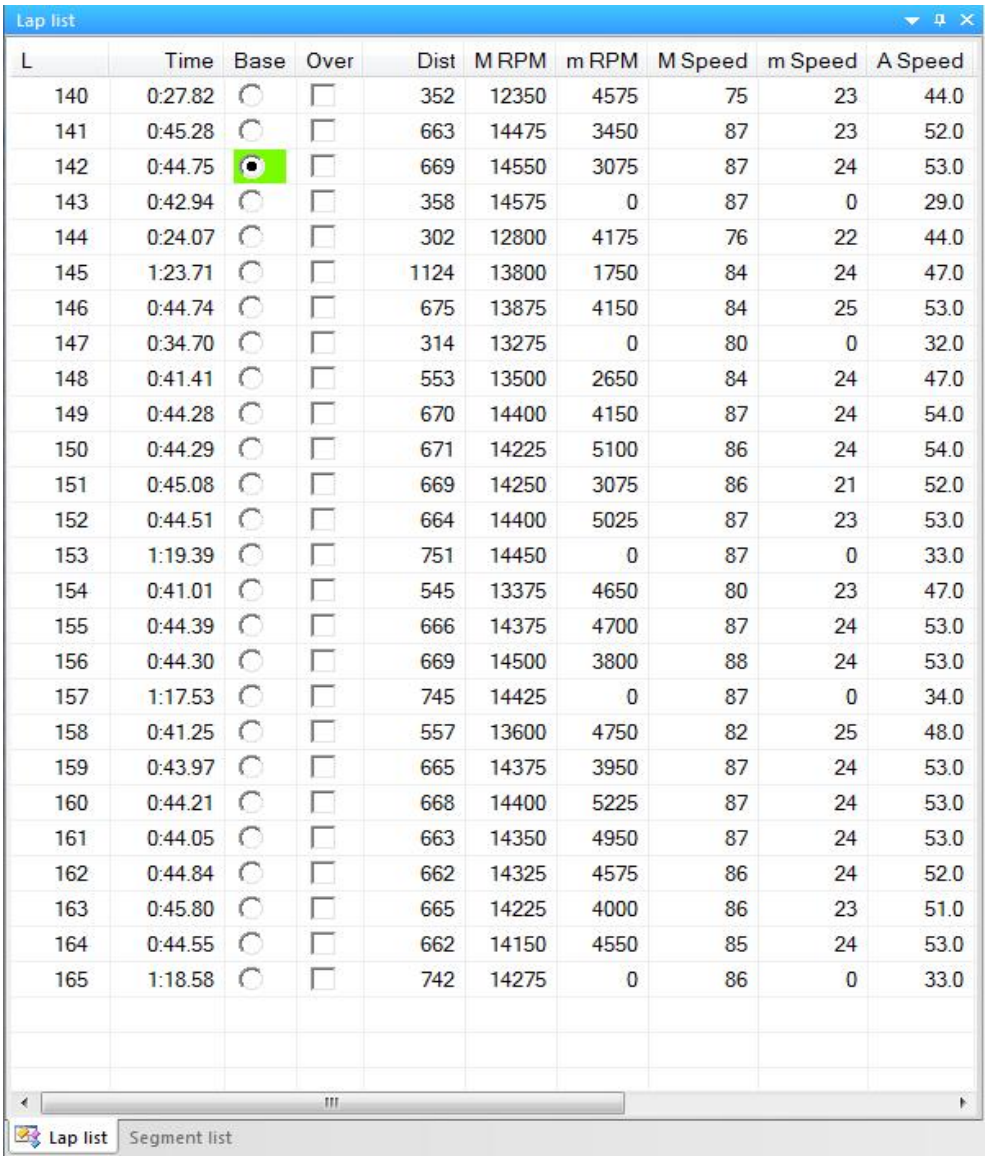
* Log files are stored in "LOG" folder in the SD card.
* Log files are named according to the month, date, and time. For example, if the logging starts 09:12 on 18th April, the file name is "04180912.bin".

* Be aware that Log files' names become the same if the loggings start at the same time of the same date. Be careful that the log file is overwritten if there is the same name's log file in the SD card.
* To manage the log files, we recommend that you save a whole LOG folder in the SD card into the PC adding more information like year, course, race or any other information. You can also change the name of the log file for your convenience though we still recommend leaving the time and date as the default name.

3. All-lap list and Segment list

1. An all-lap list is shown. If multiple files are selected, all log files' data are shown together in the list. If the all-lap list is not shown, click "**View**" from the menu bar, and click "**Side Window**" from the popup menu. Then select "**Lap list**".

* Grouping lap data by each log file is possible. See the page later.
* Lap No. is the same No. that is recorded in the Lapcom unit.
* If there are the same Lap numbers in the list, they are shown in succession.

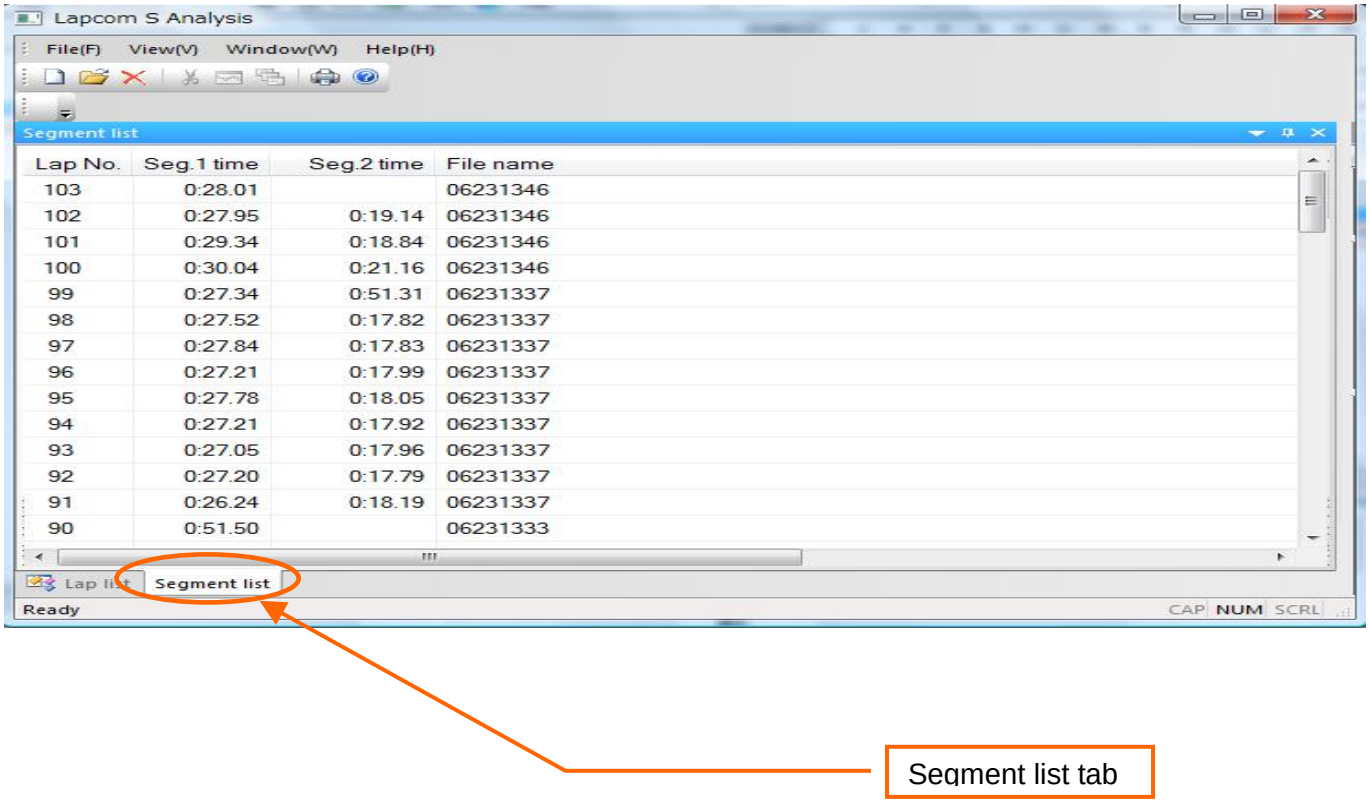


L	Time	Base	Over	Dist	M RPM	m RPM	M Speed	m Speed	A Speed
140	0:27.82	○	☐	352	12350	4575	75	23	44.0
141	0:45.28	○	☐	663	14475	3450	87	23	52.0
142	0:44.75	●	☐	669	14550	3075	87	24	53.0
143	0:42.94	○	☐	358	14575	0	87	0	29.0
144	0:24.07	○	☐	302	12800	4175	76	22	44.0
145	1:23.71	○	☐	1124	13800	1750	84	24	47.0
146	0:44.74	○	☐	675	13875	4150	84	25	53.0
147	0:34.70	○	☐	314	13275	0	80	0	32.0
148	0:41.41	○	☐	553	13500	2650	84	24	47.0
149	0:44.28	○	☐	670	14400	4150	87	24	54.0
150	0:44.29	○	☐	671	14225	5100	86	24	54.0
151	0:45.08	○	☐	669	14250	3075	86	21	52.0
152	0:44.51	○	☐	664	14400	5025	87	23	53.0
153	1:19.39	○	☐	751	14450	0	87	0	33.0
154	0:41.01	○	☐	545	13375	4650	80	23	47.0
155	0:44.39	○	☐	666	14375	4700	87	24	53.0
156	0:44.30	○	☐	669	14500	3800	88	24	53.0
157	1:17.53	○	☐	745	14425	0	87	0	34.0
158	0:41.25	○	☐	557	13600	4750	82	25	48.0
159	0:43.97	○	☐	665	14375	3950	87	24	53.0
160	0:44.21	○	☐	668	14400	5225	87	24	53.0
161	0:44.05	○	☐	663	14350	4950	87	24	53.0
162	0:44.84	○	☐	662	14325	4575	86	24	52.0
163	0:45.80	○	☐	665	14225	4000	86	23	51.0
164	0:44.55	○	☐	662	14150	4550	85	24	53.0
165	1:18.58	○	☐	742	14275	0	86	0	33.0

2. In the all-lap list, it is possible to sort lap data by clicking each data item's name or Lap No. in ascending/descending order.

   Click "**Segment list**" tab to switch to the Segment list. It is possible to sort segment data by clicking each segment No. in ascending/descending order. If the all-lap list is not shown, click "**View**" from the menu bar, and click "**Side Window**" from the popup menu. Then select "**Segment list**".

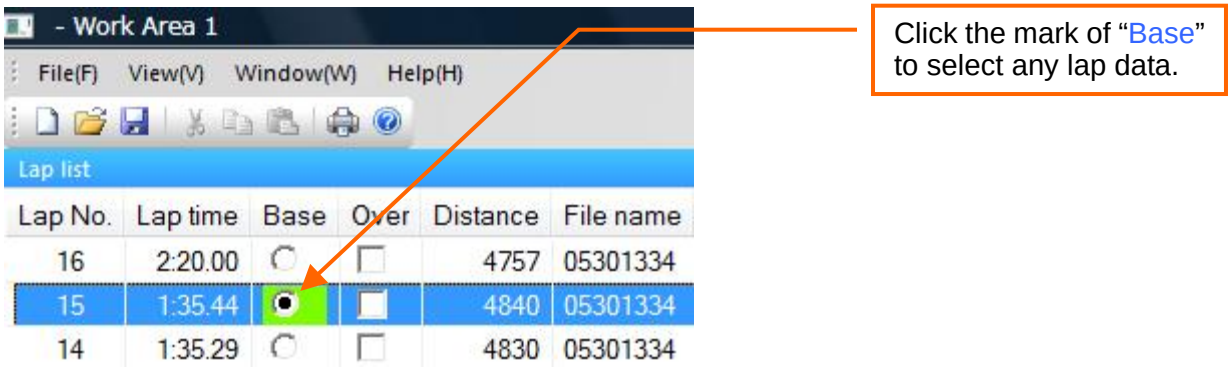
   * All data cannot be sorted by File name and Path.
   * With **Windows XP**, the data cannot be sorted after grouping.

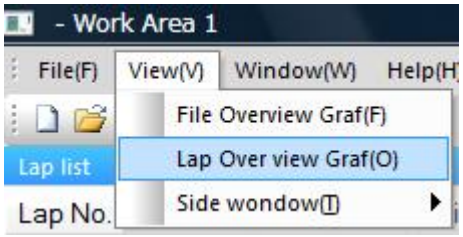


4. How to show graph data

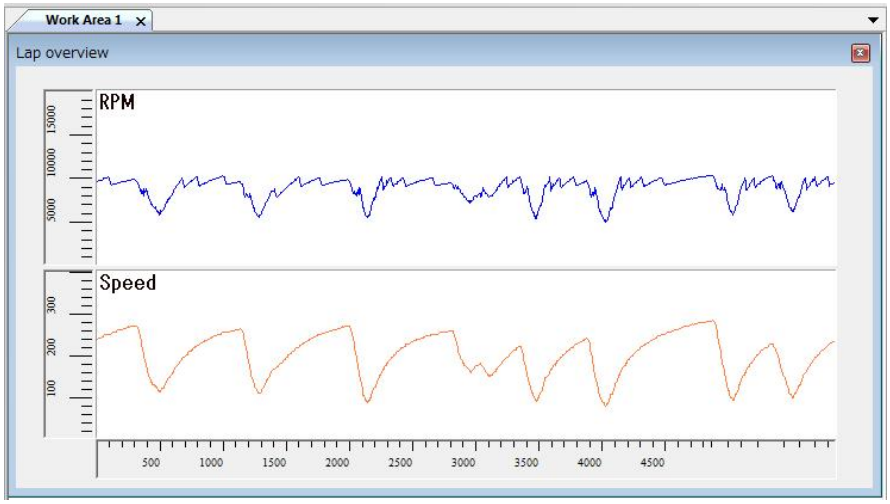
4-1. How to show lap data graphs

1. In the all-lap list, click " **Base**" mark of any lap data to be displayed. Click "**View**" from the menu bar. Click "**Lap Overview Graph**" from the pop up menu.

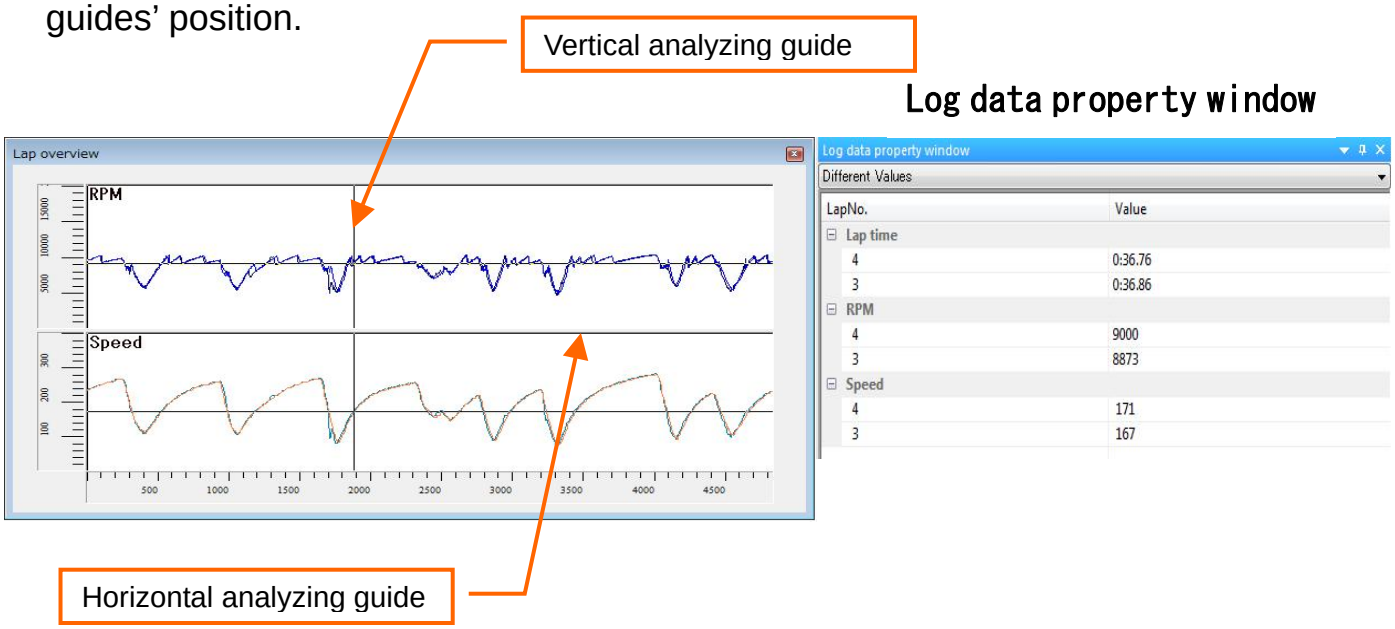




Then the lap data is generated.



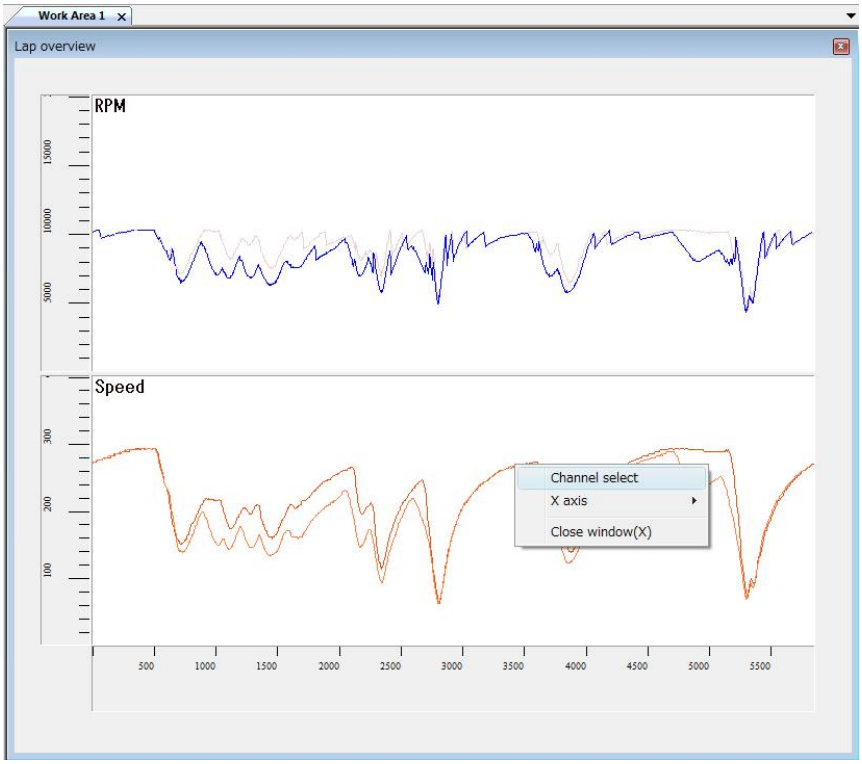
2. When clicking any point in the graph area, vertical and horizontal guides for analysis are shown, and values of the data items are displayed in "**Log data property window**". As moving the guides by arrow keys or dragging with the mouse, the values in "**Log data property window**" are changed corresponding the guides' position.

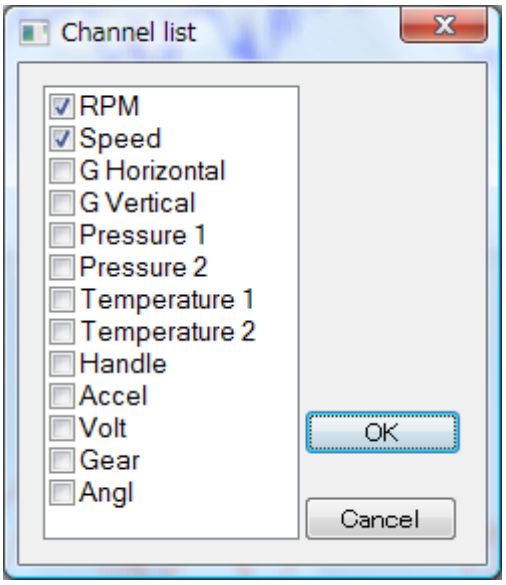


3. Right-click any point outside the graph area to show the menu window. Select "**X axis**" → "**Time**", then the X-axis is changed from distance to time.



4. Right-click any point outside the graph area to show the menu window. Select “**Channel select**” to open “**Channel list**” window. Check the data items to add and click “OK”. The checked data items are added.

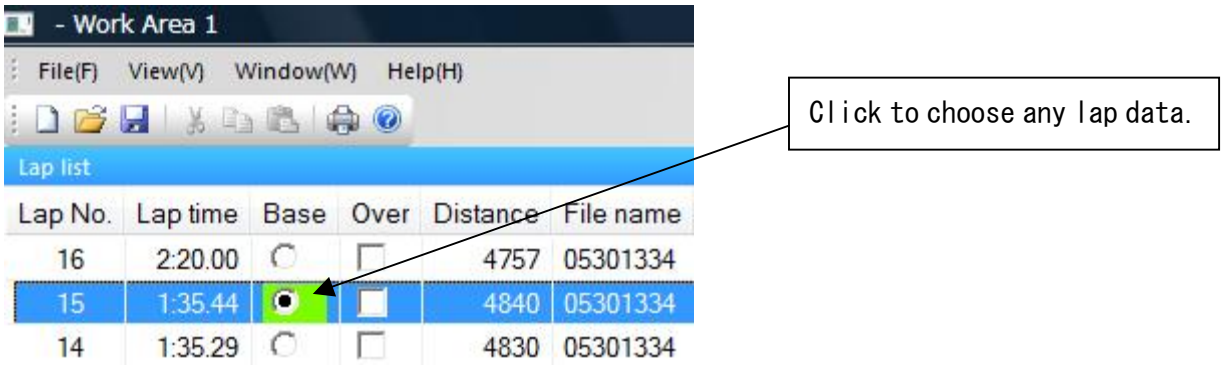


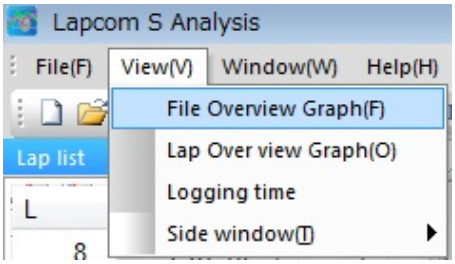


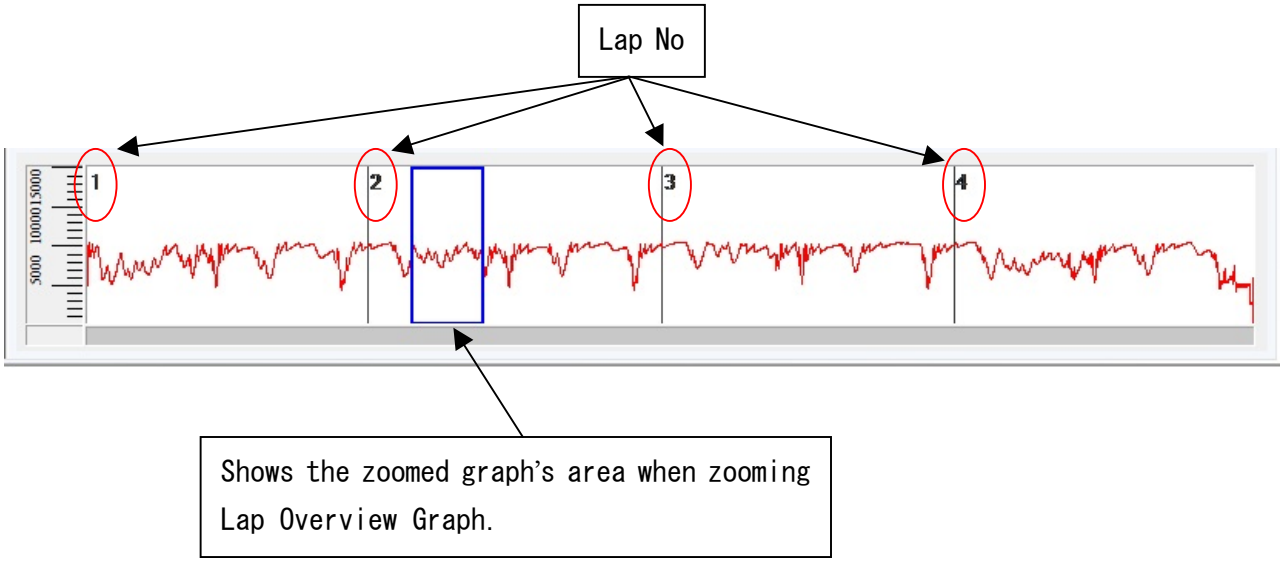
4-2. How to show file data graphs

All log data in the file can be shown.
When zooming **Lap Overview Graph**, it shows the zoomed graph's area with blue line box.

1. Click "**Base**" of any lap data to show from the all-lap list. Click "**View**" from the menu bar and click "**File Overview Graph**" from the popup menu.

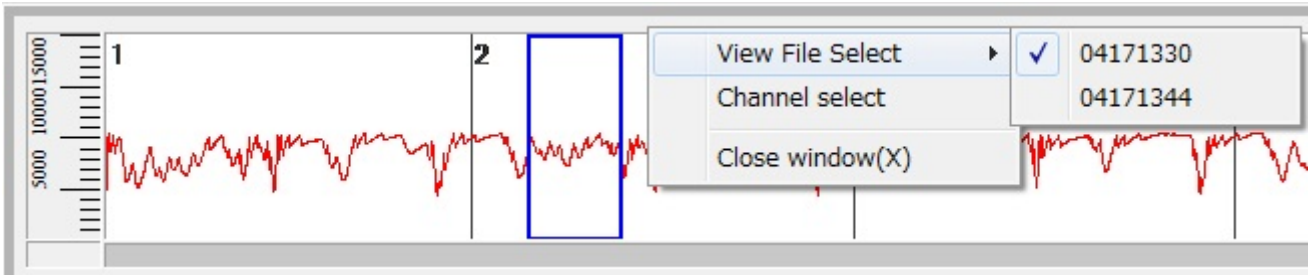




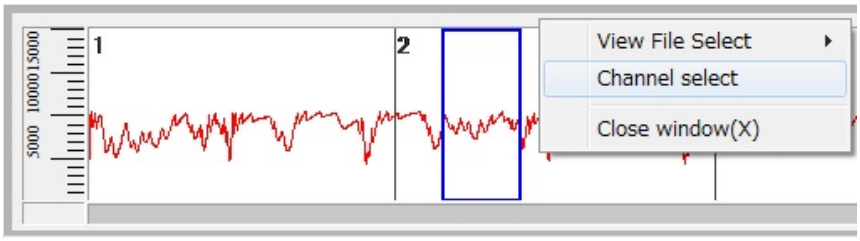


2. Right-click any point outside the graph area to show the menu.

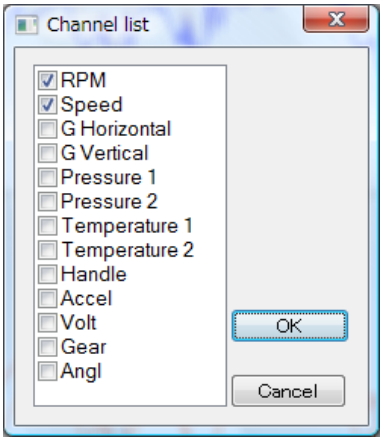
Click “**View File Select**” to select log file you want to see.



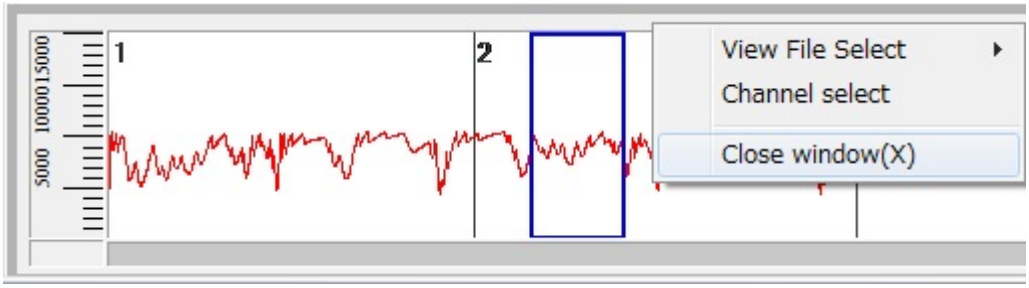
Click “**Channel select**” to show “**Channel list**”. Check the data items to add and click “**OK**” button.



Check the data items to add and OK button.



Click “**Close Window**” to close **File Overview Graph**.

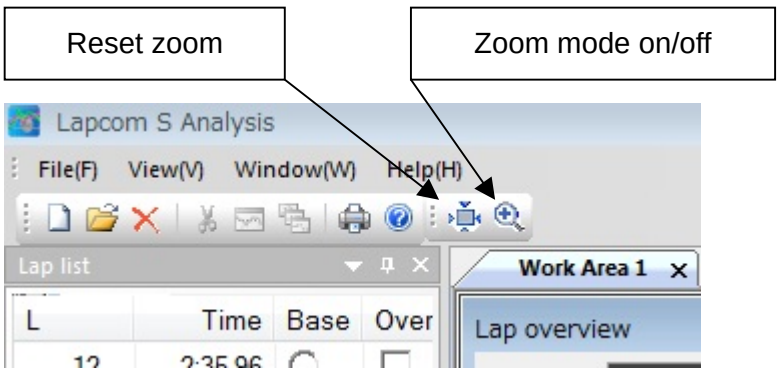


4-3. How to zoom graphs

3. Click “**Zoom mode on/off**” button, then the zoom mode is ON. Click the button again, and then the zoom mode is OFF.

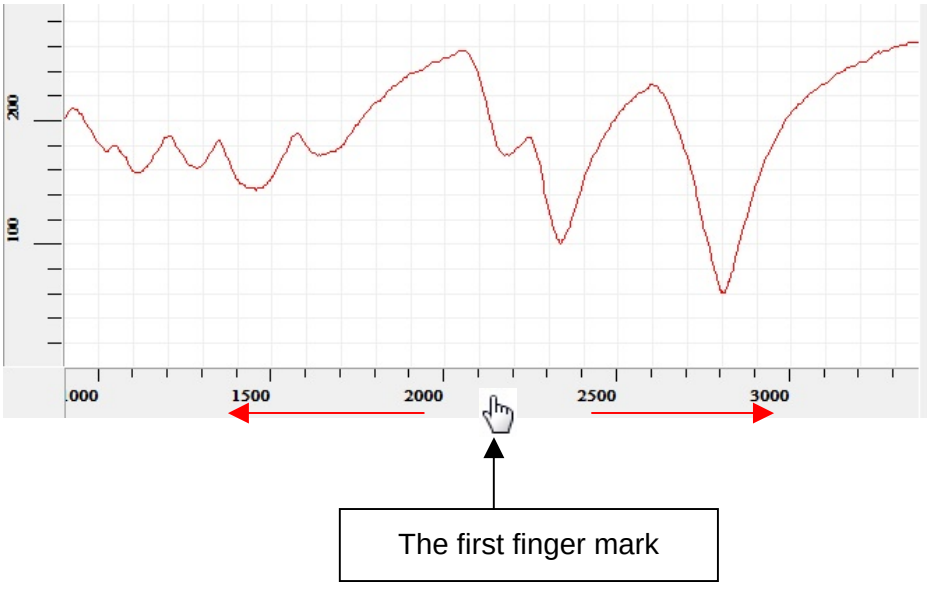
   When the zoom mode is ON, click the graph to enlarge the graph toward x-axis up to 6 levels of scale. The cursor shows “+” with this mode.

2. Click “**Reset zoom**” button to return to the default scale.



3. When the zoom mode is ON, press the **Shift** key. Then the cursor shows “-”. Click on the graph to zoom out.

4. When the graph is enlarged, move the cursor to the x-axis. The cursor shows the first finger mark. Drag the mouse with the first finger mark to scroll the graph to right and left.

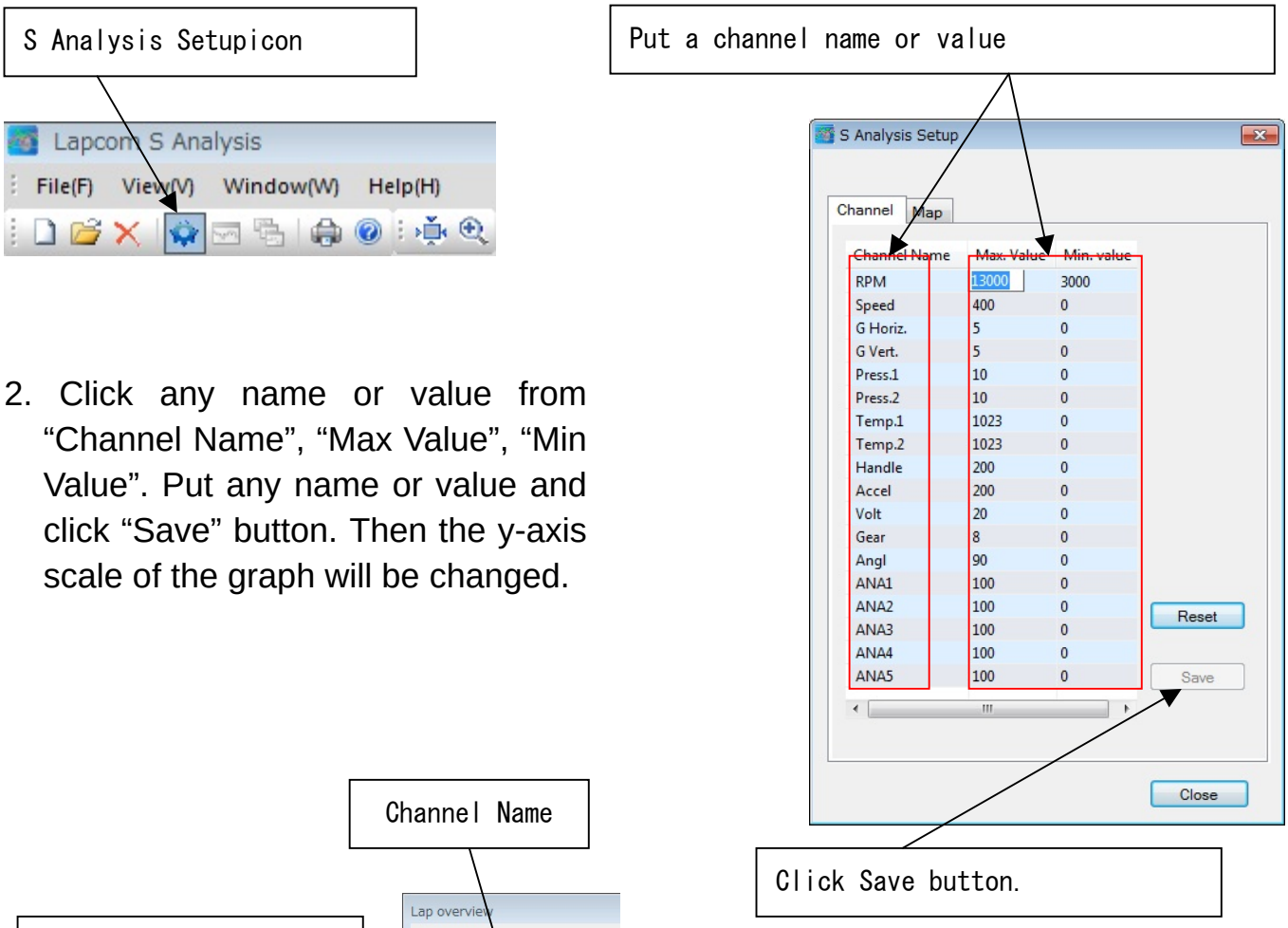


4-4. How to set Scale of Y-axis

Set the y-axis scale of the Lap Overview Graph.

<From tool bar>

1. Click “**S Analysis Setup**” icon to open “**S Analysis Setup**” window.

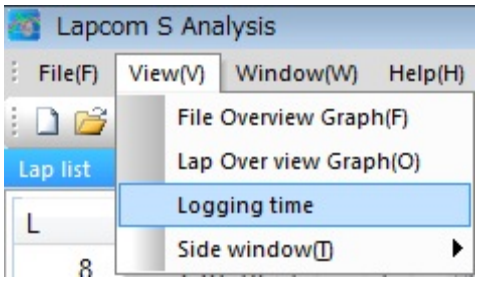


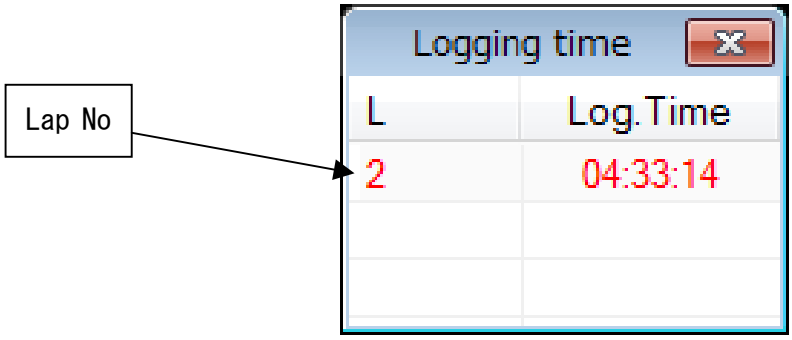
2. Click any name or value from “Channel Name”, “Max Value”, “Min Value”. Put any name or value and click “Save” button. Then the y-axis scale of the graph will be changed.

4-5. How to show Logging time

The setting time in the Lapcom main unit can be shown. If using GPS receiver, GMT will be shown.

2. Click “**View**” from the menu bar and select “**Logging time**” to show “**Logging time**” window. As moving the guides by dragging with the mouse, the values in “**Log Time**” are changed corresponding the guides’ position.





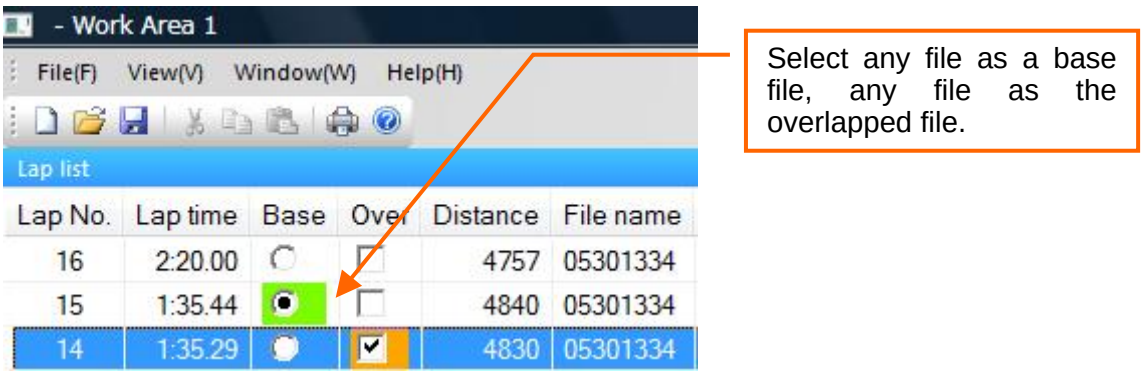
5. Overlapping graphs

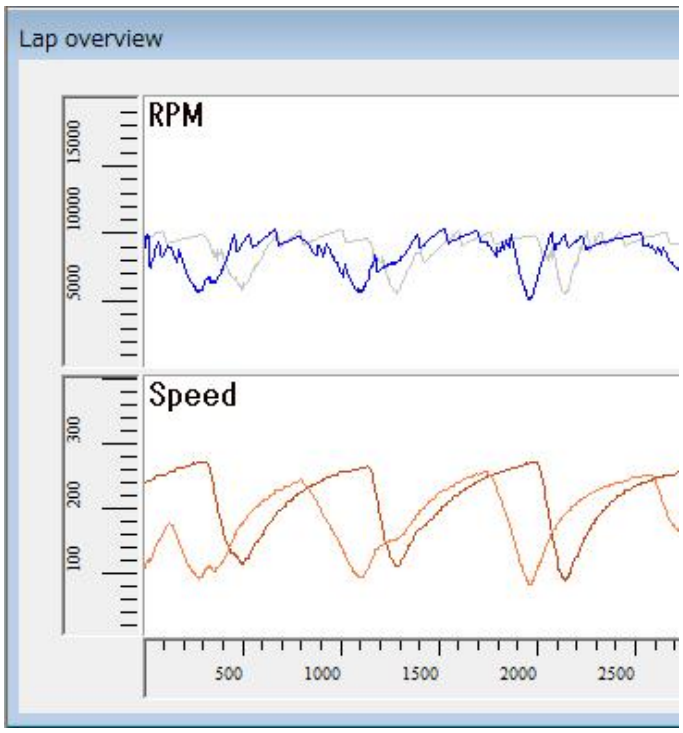
5-1. Overlapping graphs in the same log file

1. From the all-lap list, click " **Base**" mark of any lap data to be a base graph.

2. Click "**Over**" mark of any lap data to be overlapped with the base graph. Overlapping multiple graphs is possible by clicking "**Over**" marks of multiple lap data.

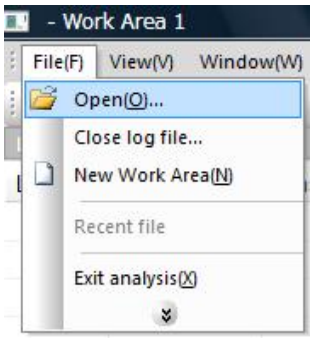
3. Click "**View**" from the menu bar. Click "**Lap Overview Graph**" from the pop up menu. Then, overlapped graphs are generated.



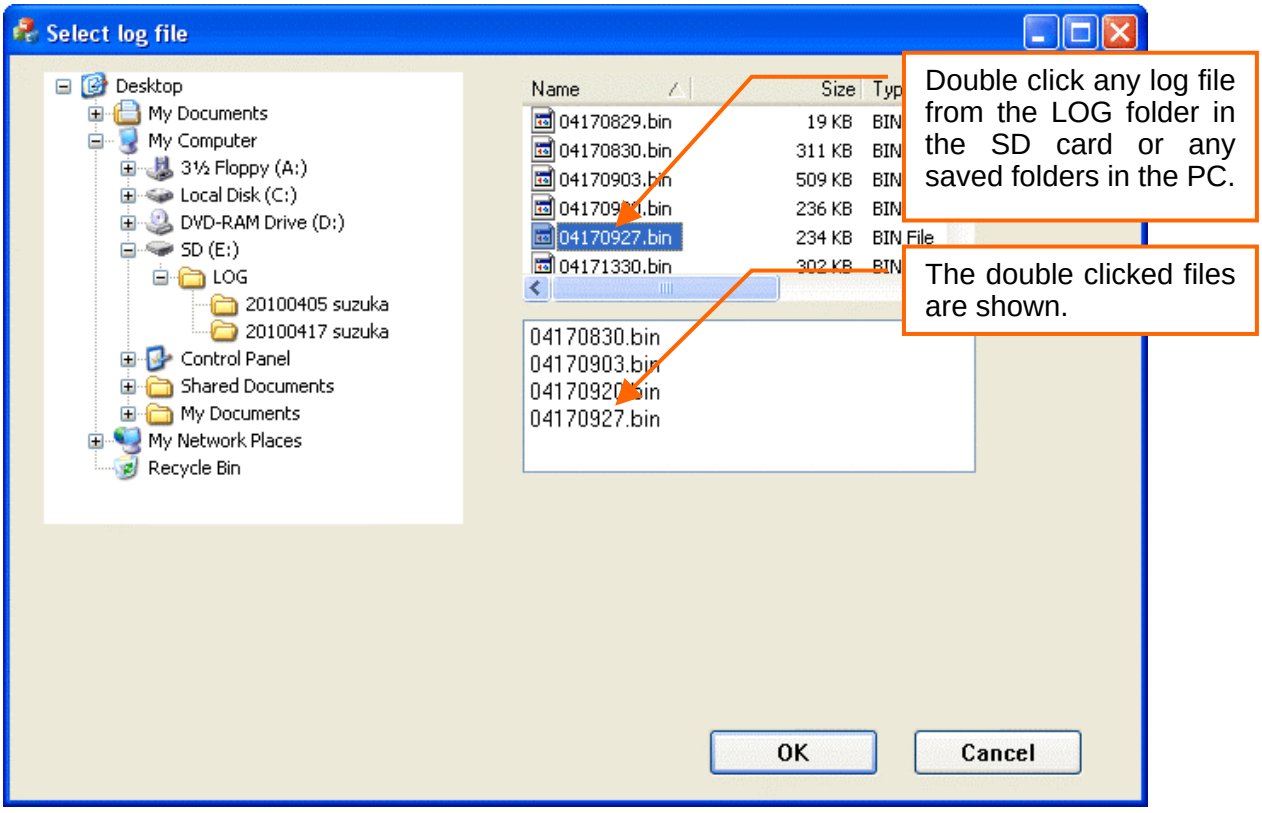


5-2. Overlapping graphs among different log files

1. Click “**File**” from the menu bar. Click “**Open**” from the pop up menu.



2. The "**Select log file**" window is opened. In the left side, select the SD card or saved folders where the log files are included. The log files in the selected place are shown in the upper right. Double click any log file. The selected file is shown in the lower right. Select multiple files. Click “**OK**”.



3. The all-lap list including multiple log files is shown.

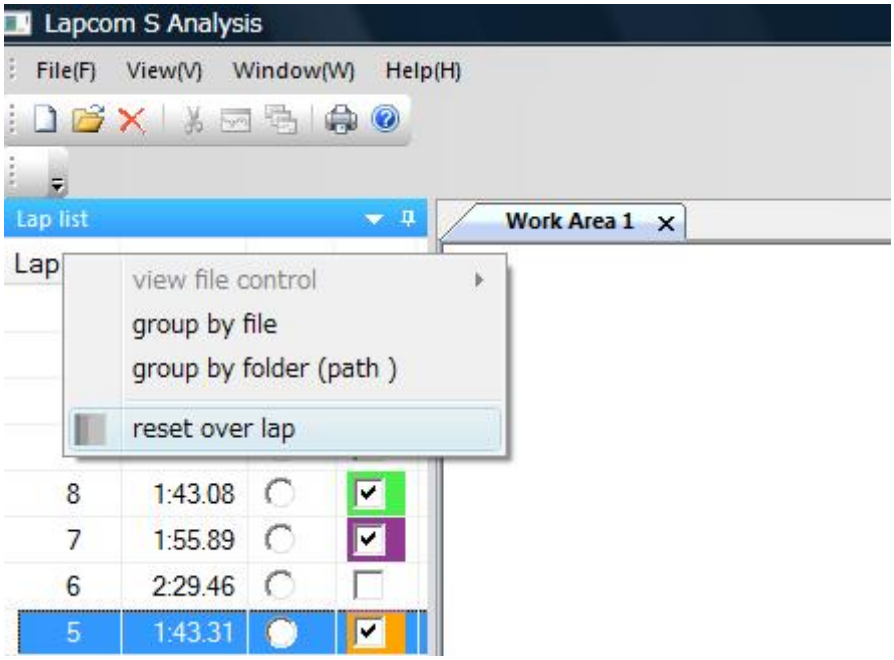
4. From the all-lap list, click “ **Base**” mark of any lap data to be a base graph.

5. Click “**Over**” mark of any lap data from the different log files to be overlapped with the base graph. Overlapping multiple graphs is possible by clicking “**Over**” marks of multiple lap data.

6. Click “**View**” from the menu bar. Click “**Lap Overview Graph**” from the pop up menu. Then, overlapped graphs are generated.

5-3. How to reset overlapped graphs

1. Right-click any point on the header of the all lap list to show the menu window. Click “**reset over lap**” to reset all the overlapped graphs.

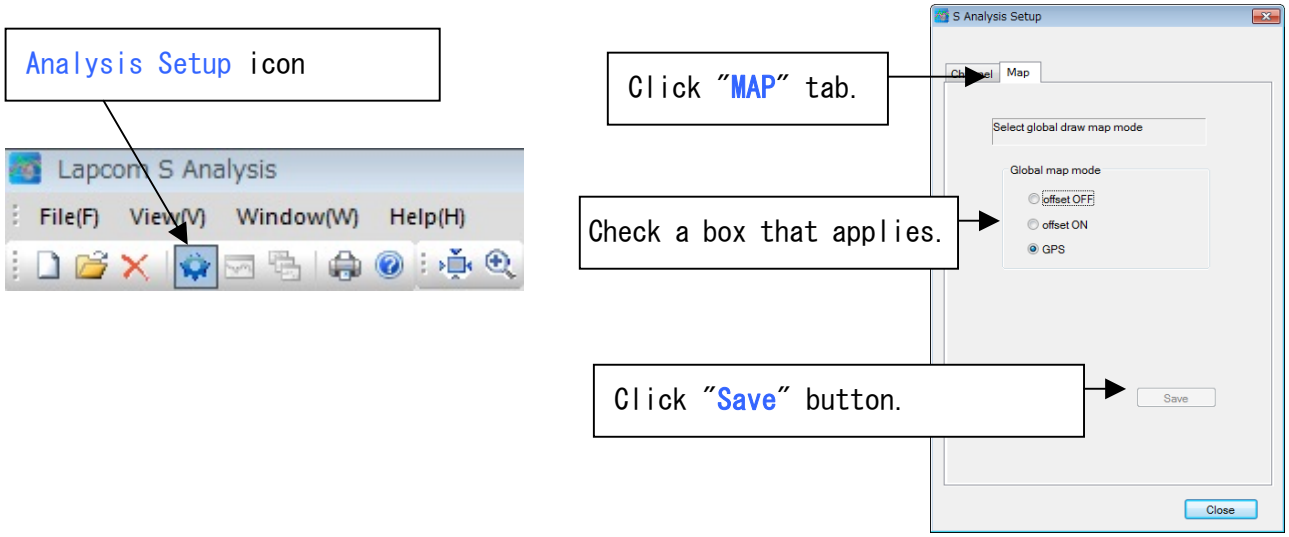


6. Driving map

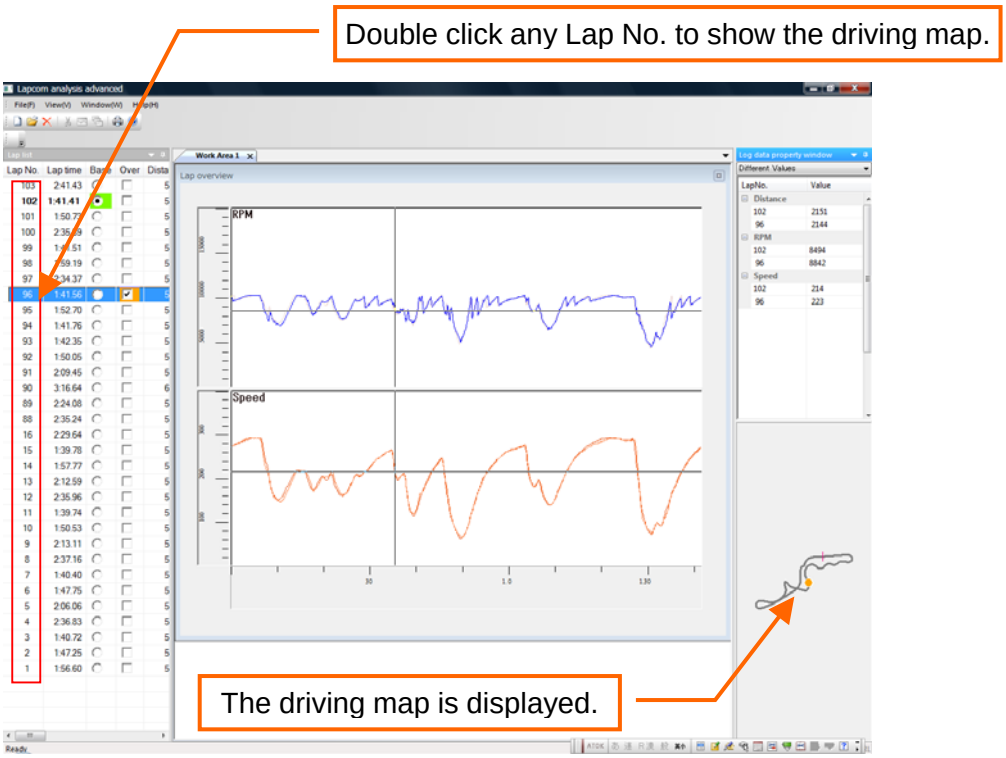
6-1. How to show driving maps

It is useful to show driving map realizing where the vehicle is driving on the course by moving analyzing guides on the graph. If an optional G sensor or GPS receiver is equipped with the Lapcom control unit, driving maps are available.

1. Click “**Analysis Setup**” icon to open “**S Analysis Setup**” window. Click “**Map**” tab. To show the maps by GPS data, mark “**GPS**” box. To show the maps by G sensor data, mark “**offset OFF**”, or ”**offset ON**”. Click “**Save**” button.



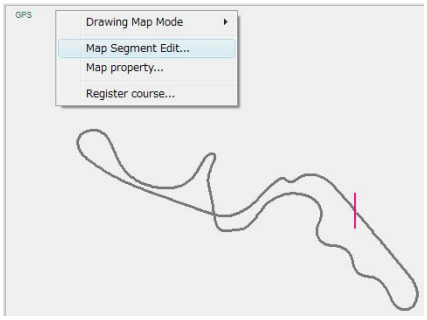
2. Double click a Lap No. to show the driving map.



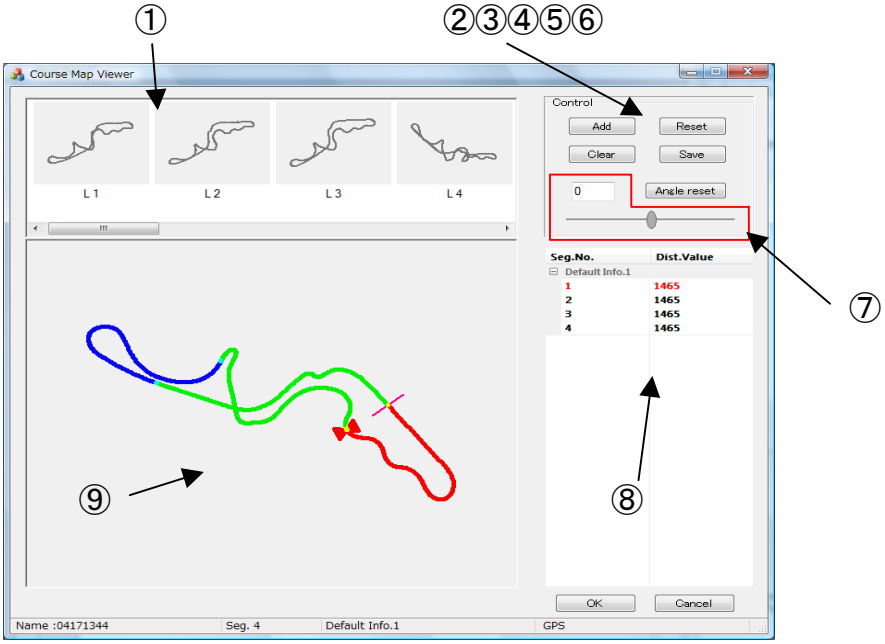
6-2. How to divide driving maps

It is possible to divide driving maps to arbitrary segments. Divided maps can be reflected to the "**Segment list**".

1. Right-click any point on the map to show "**Map Segment Edit**" menu. **The "Course Map Viewer"** window will be opened.



2.



1) Display map of each lap
2) ADD
   Divide the segment into 2 automatically by clicking this button.
   After clicking any segment on the map, the segment turns to be red. Click this button to divide the selected segment into 2.
3) CLEAR
   After clicking any divided segment on the map, click this button to cancel the divide and return to the previous status.
   If not selecting any segment, clear all segments.
4) Reset
   To re-edit the saved map's segments, click this button to return to the default segment information.

5) Save

Save the divided and edited segment information by clicking this button. After inputting file name, click ”Save” button.

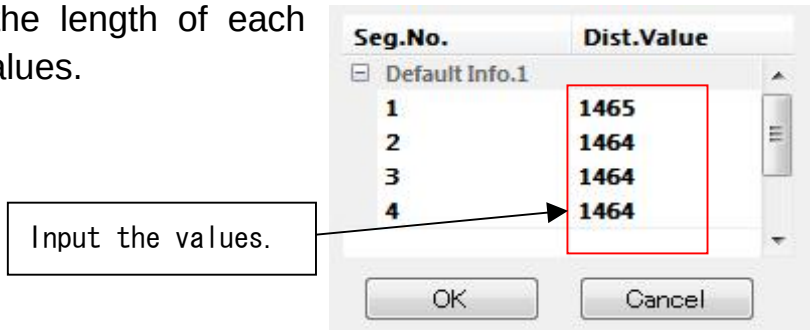
6) Angle reset

Reset the angle of the map to zero.

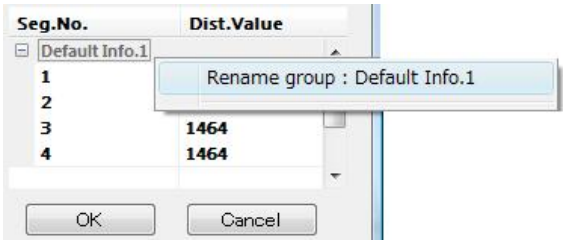
7) Input the angle value or move the slide bar to turn around the map.

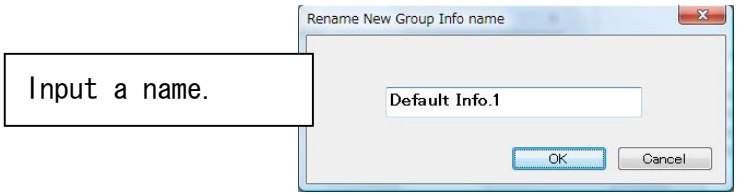
8) Segment list

It is possible to change the length of each segment by inputting the values.



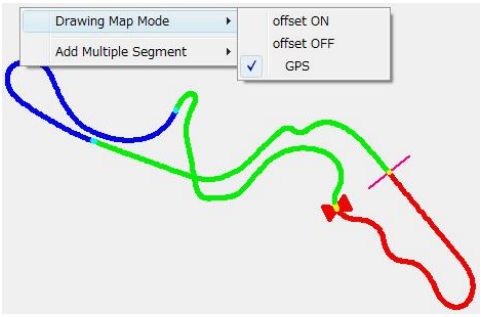
It is possible to change the name of the segment list. Right-click any point on the segment list to show “Rename group” menu. Click the menu to show the input menu. Input a name and click “OK”.



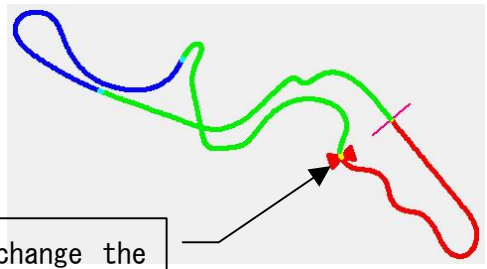


9) Edition of segments

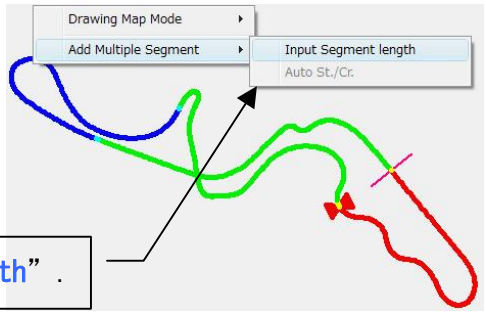
Right-click any point on any segment to show “Drawing mode offset” menu. Choose the drawing mode GPS or G sensor.

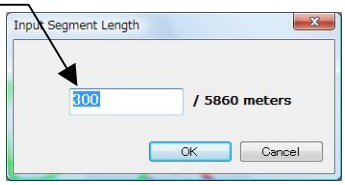


It is possible to change the length by dragging. Click the segment to choose and drag the arrow on the edge to change the segment length.



It is possible to divide segments by inputting the length. Right-click on the segment to show "**Add Multiple Segment**". Click "**Input Segment length**" to show the input menu. Input the length and click "OK".

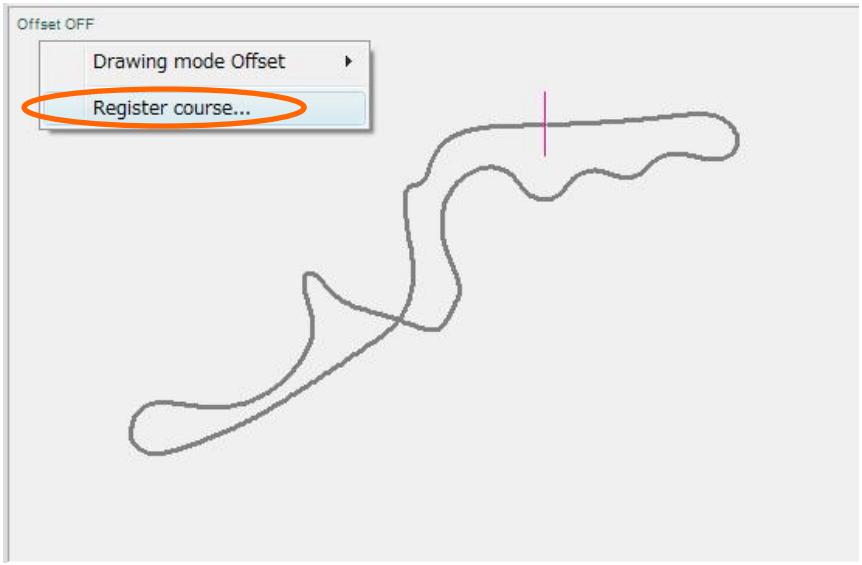


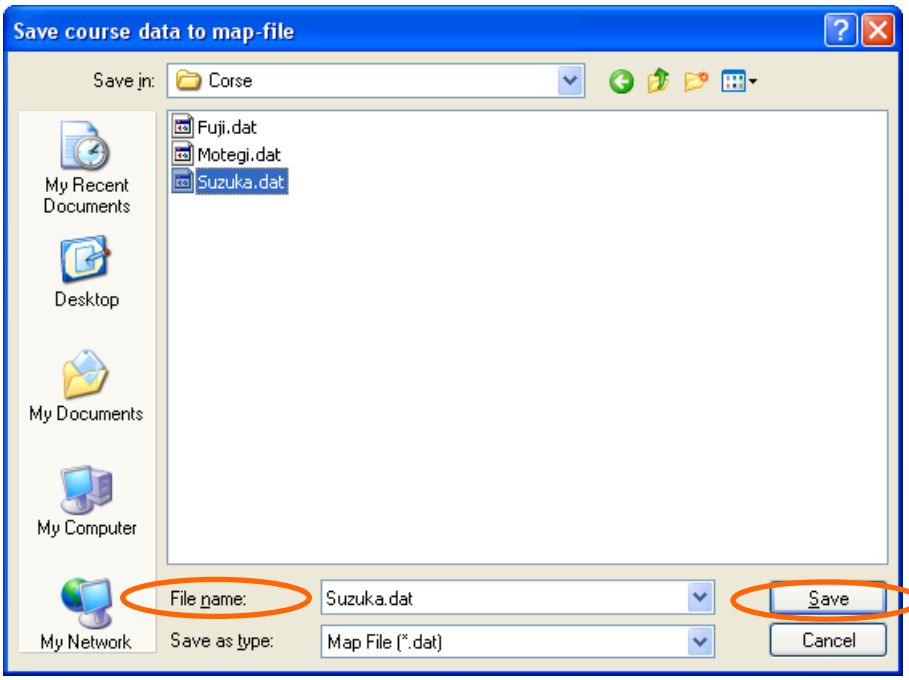


6-3. How to register driving maps

1. To save the shown map, right-click any point on the map to show “**Register course**” menu and click. Specify the destination to save the map. Input any file name and click “**Save**” button.

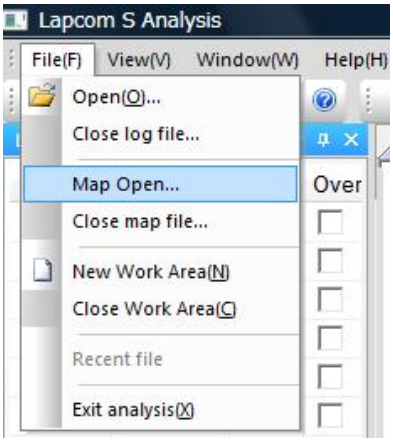
Without an optional G sensor or GPS receiver, it is possible to take advantage of the saved map file to analyze driving.



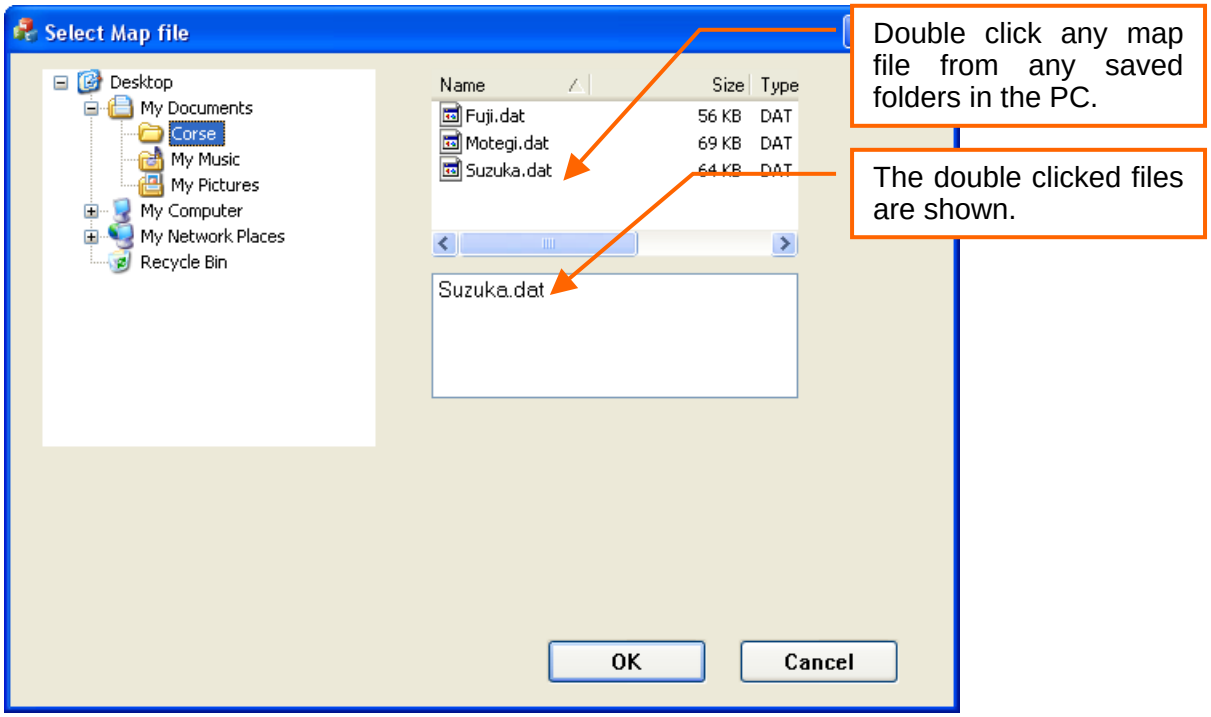


6-4. How to read registered driving maps

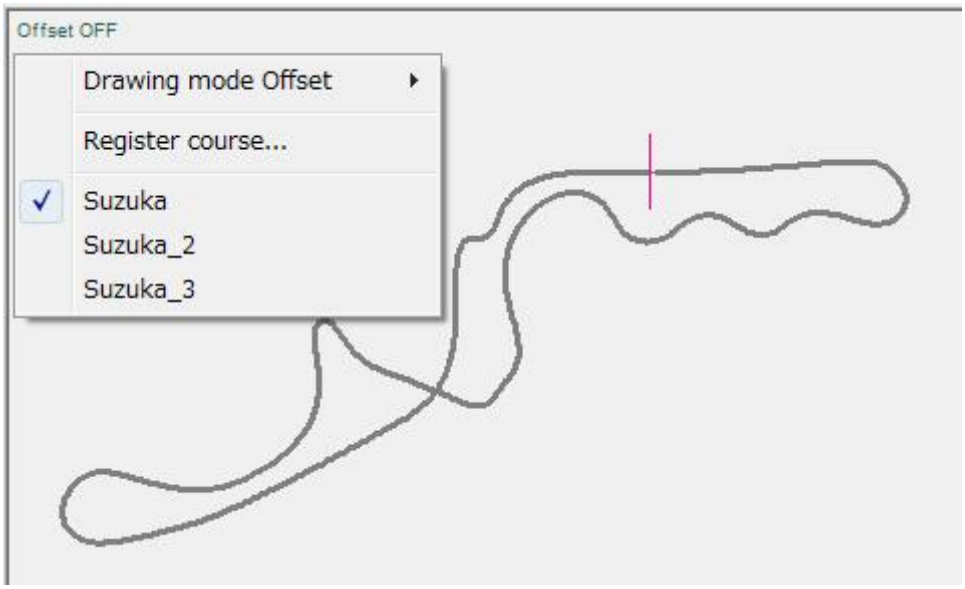
1. To call up the saved map file, click “**File**” from the menu bar. Click “**Map Open**” from the popup menu.



2. The "**Select Map file**" window is opened. In the left side, select the folder where the saved map files are included. The map files in the selected place are shown in the upper right. Double click any map file. The selected file is shown in the lower right. Multiple files can be selected. Click “**OK**”.



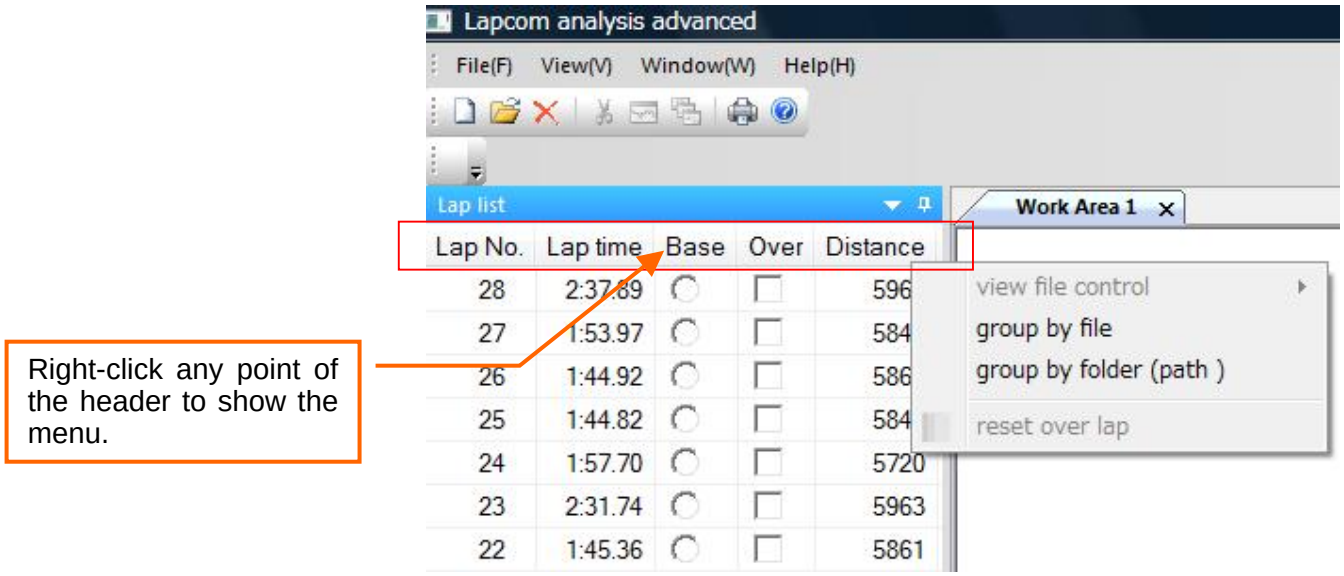
3. Right-click any point on the map. The map that is checked in the popup menu file is currently shown.



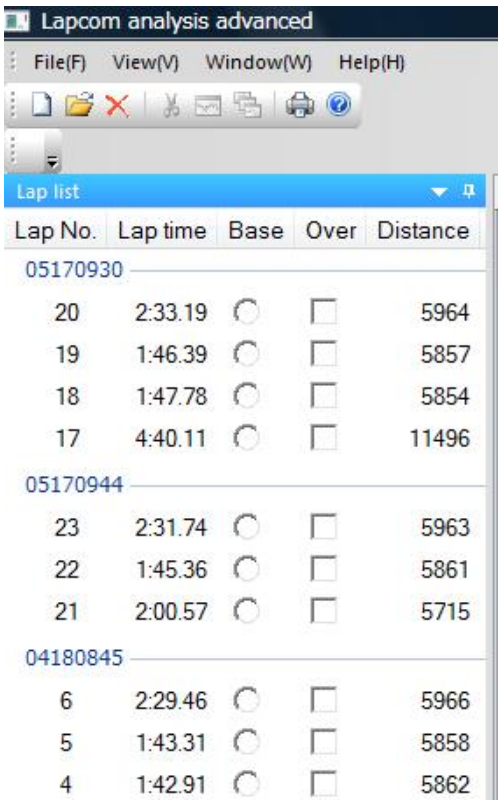
To switch to the all-lap list map display, double click any Lap No. in the all-lap list.

7. Grouping the rap data

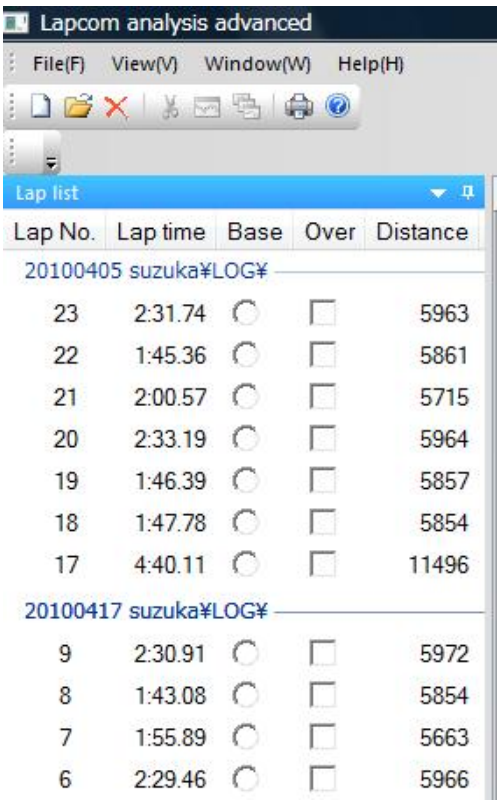
1. Right-click any point on the header of the all lap list to show the menu window. If you would like to group the lap data by each log file, select "**group by file**". If you would like to group the lap data by each folder, select "**group by folder (path)** ". The lap data is grouped according to the selection.



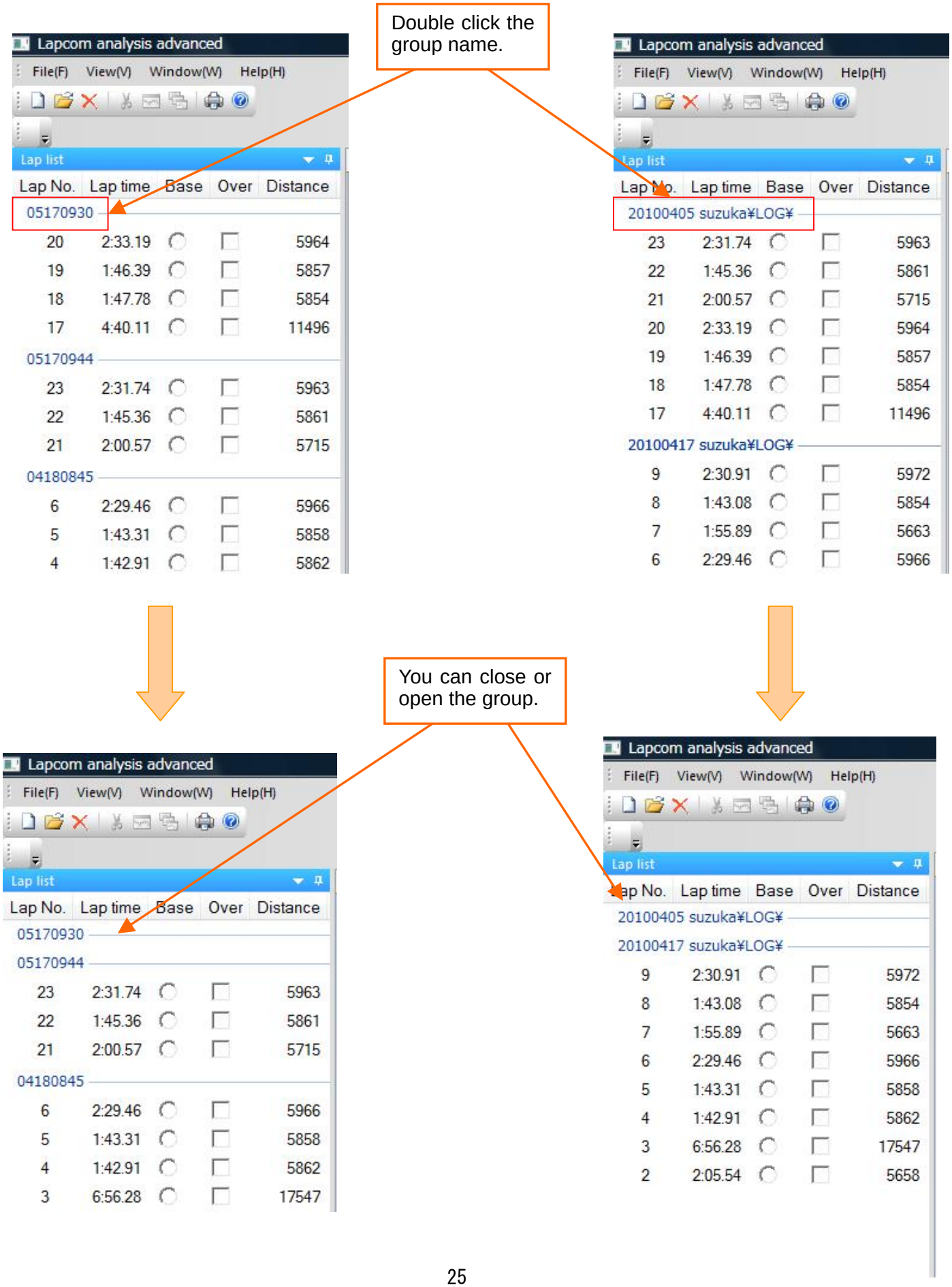
group by file



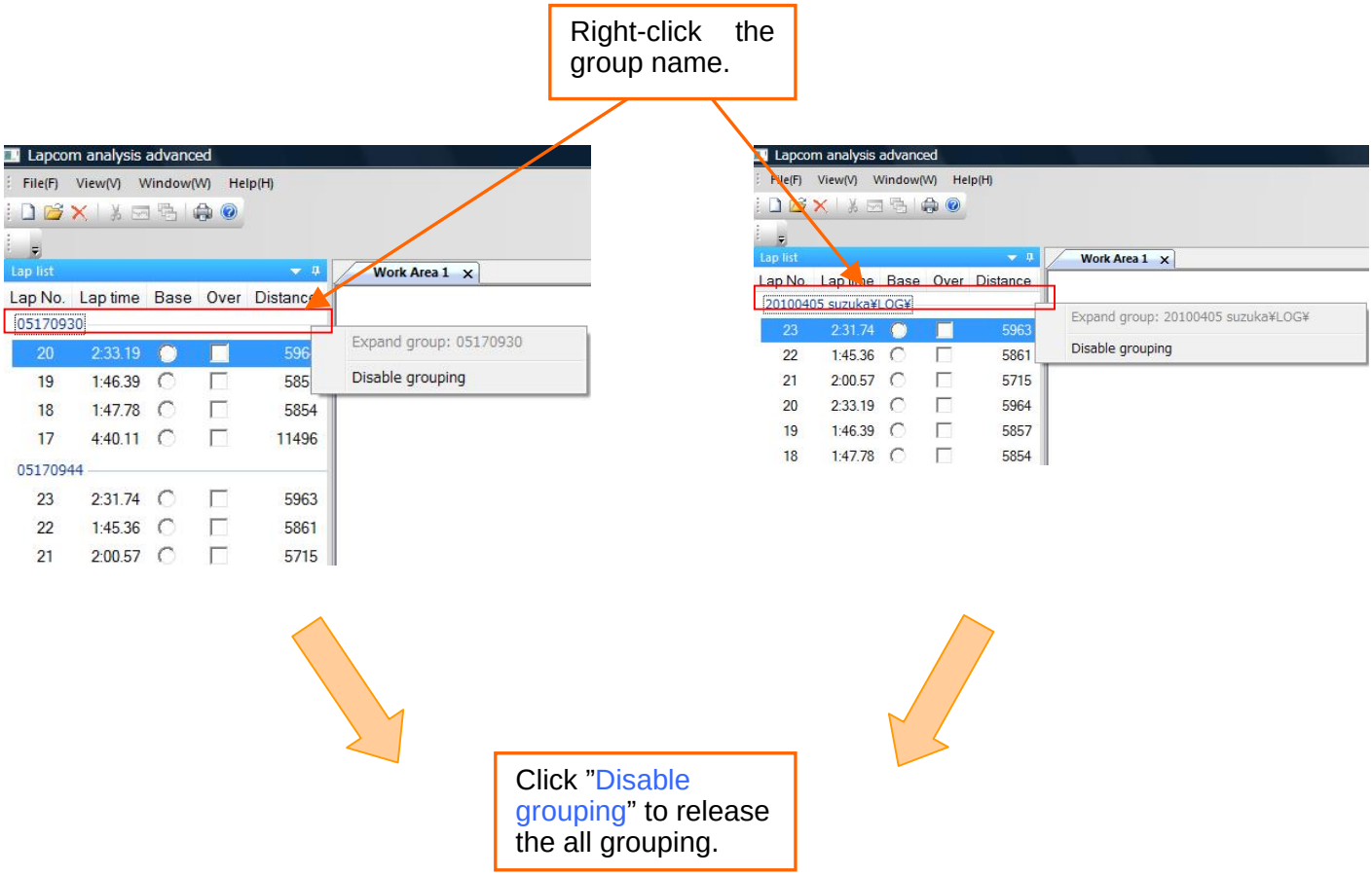
group by folder (path)

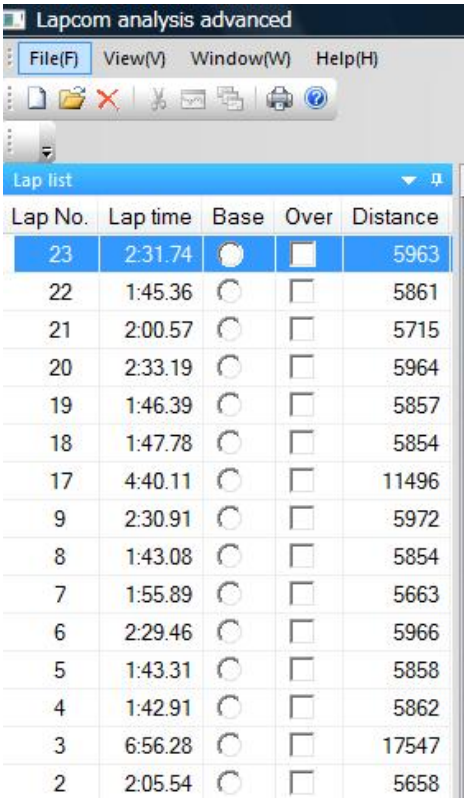


2. Double click the group name, and then you can close or open the group. * This is available with Windows Vista or Windows7.



3. Right-click the group name to show the menu window. Select ”**Disable grouping**” to release the all grouping.

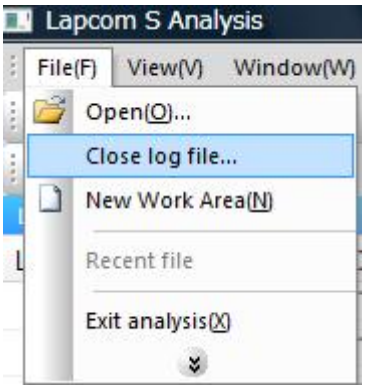




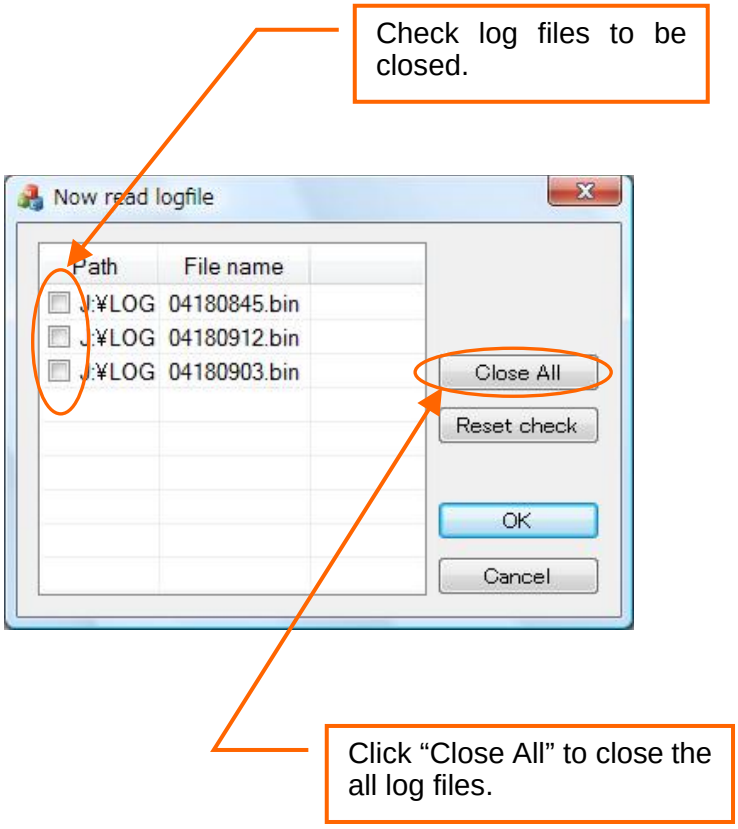
8. How to close the log files

8-1. From menu bar

1. Click “**File**” from the menu bar to show the popup menu. Click “**Close log file**”.



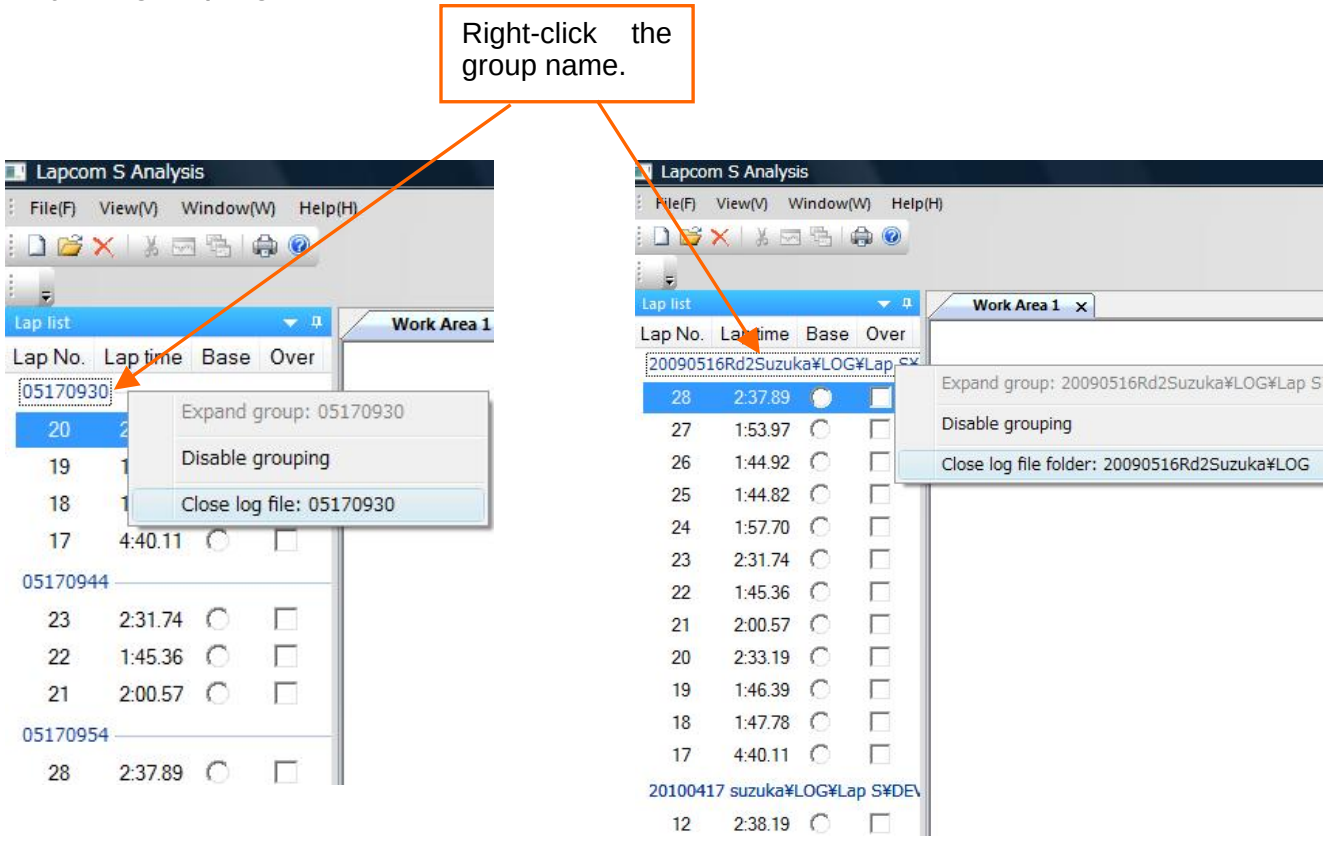
2. The log file list is sown. If you would like to close each log file individually, check any log file to be closed. Checking multiple log files is possible. If you would like to close all files, click “**Close All**”. Click “**OK**”.



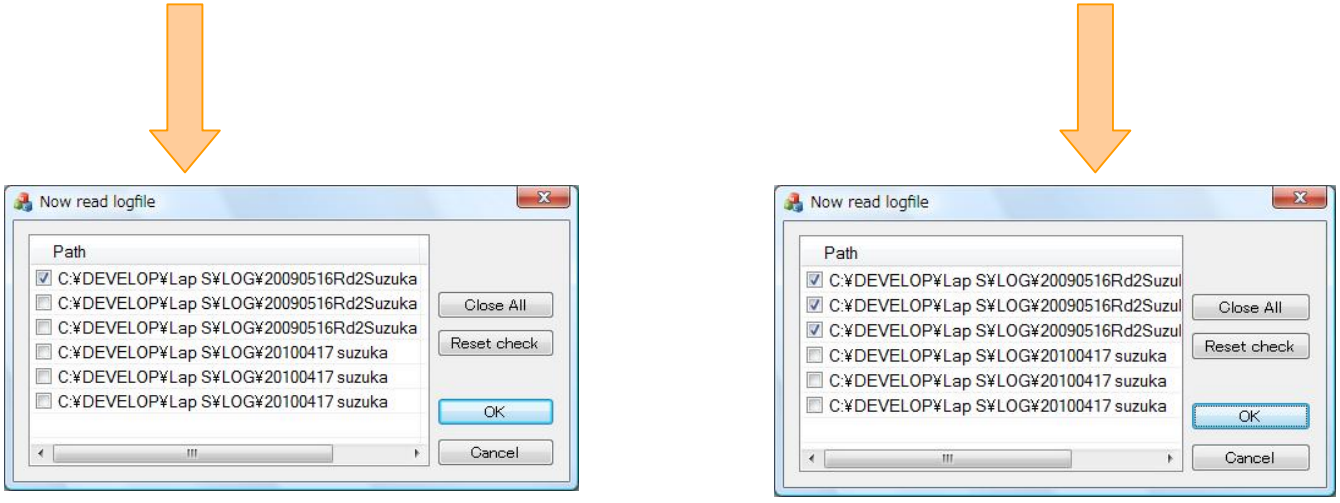
8-2. From the all-lap list

When the lap data are grouped according to the procedures in the page 23, the data can be closed per each log file or folder.

1. Right-click any point of the log file or folder name to be closed to show the menu. Click “**Close log file: file name**” or “**Close log file folder: folder name**” according to your grouping.



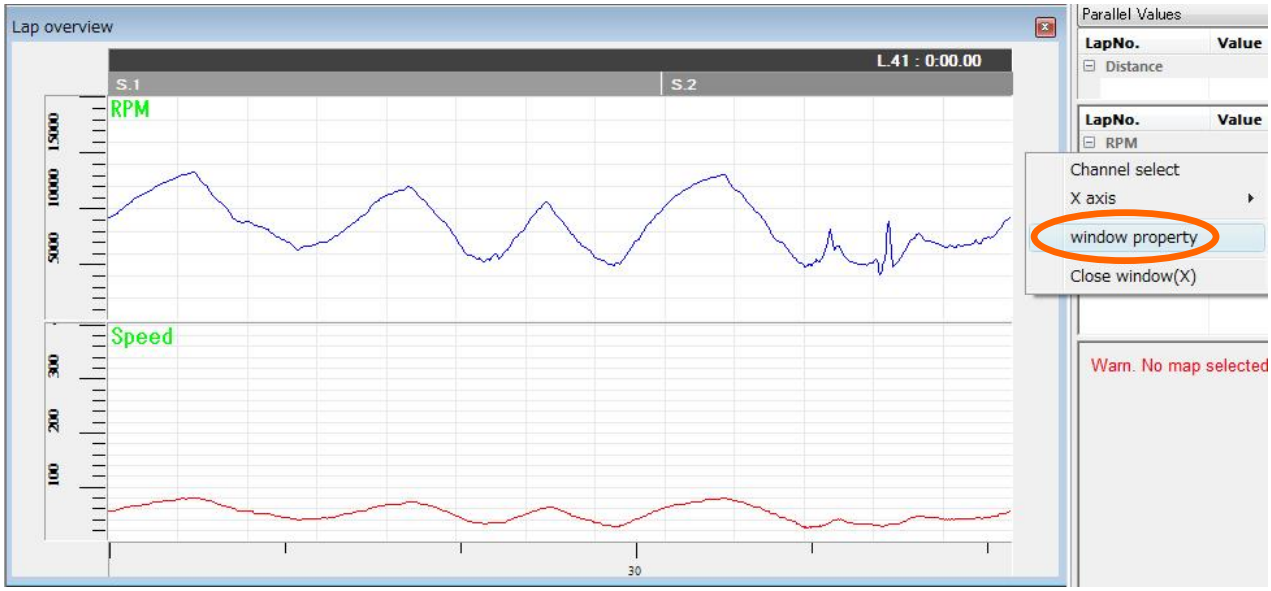
2. The log file list is shown where the log files are checked automatically according to the selected grouping above. Click “**OK**”.



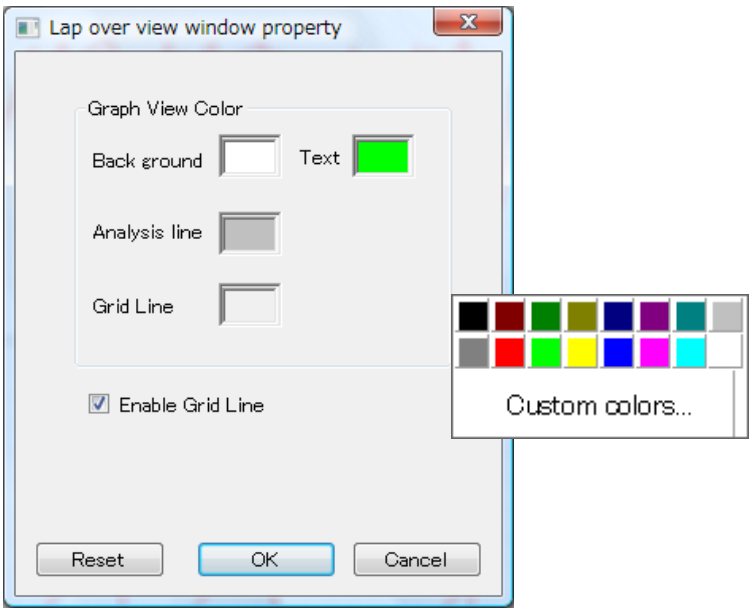
9. How to change color of graphs and maps

9-1. How to change environmental color of graphs

1. Right-click any point outside the graph area to show the menu window. Select "**window property**" to open "**window property**" window.

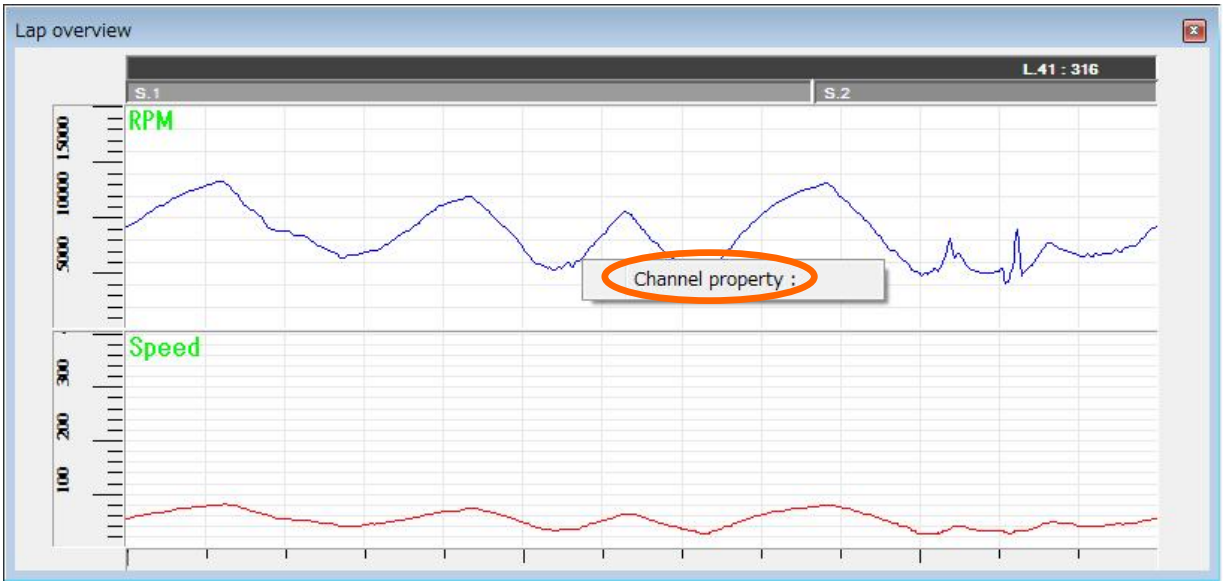


2. Click any item's color to be changed, and then a color palette is shown. Select any color from the color palette, and click "**OK**".

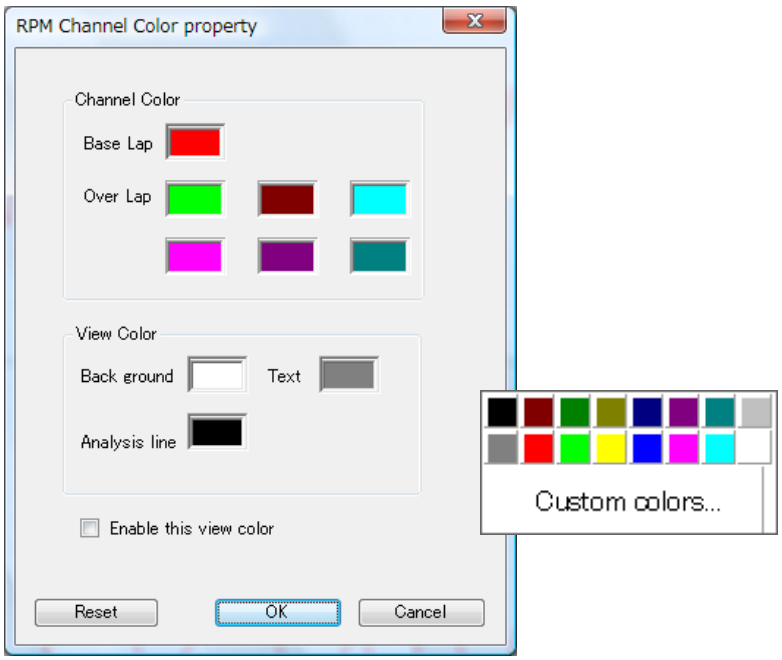


9-2. How to change each graph's color and environmental color

1. Right-click any point inside each graph area to show the menu window. Select "**Channel property**" to open "**Channel color property**" window.

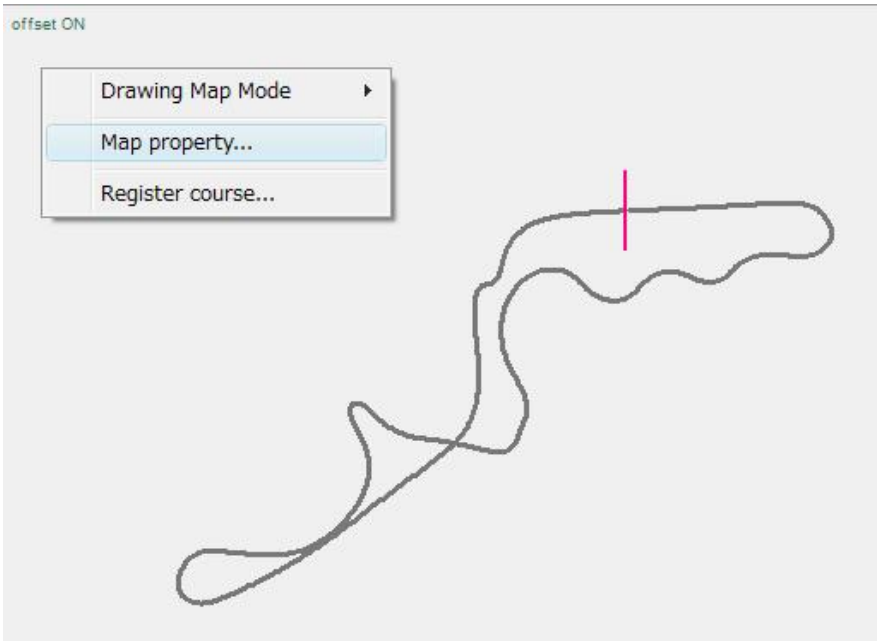


2. Click any item's color to be changed, and then a color palette is shown. Select any color from the color palette, and click "**OK**".



9-3. How to change color of maps

1. Right-click any point on the map to show the menu. Click “**Map property**” to show “**Map Property Dialog**” window.



2. Click any item’s color to be changed, and then a color palette is shown. Select any color from the color palette, and click “**OK**”.

