

Report Fundamentals

MTE User Manual

3.21

June 2009

General Features

Report Layouts

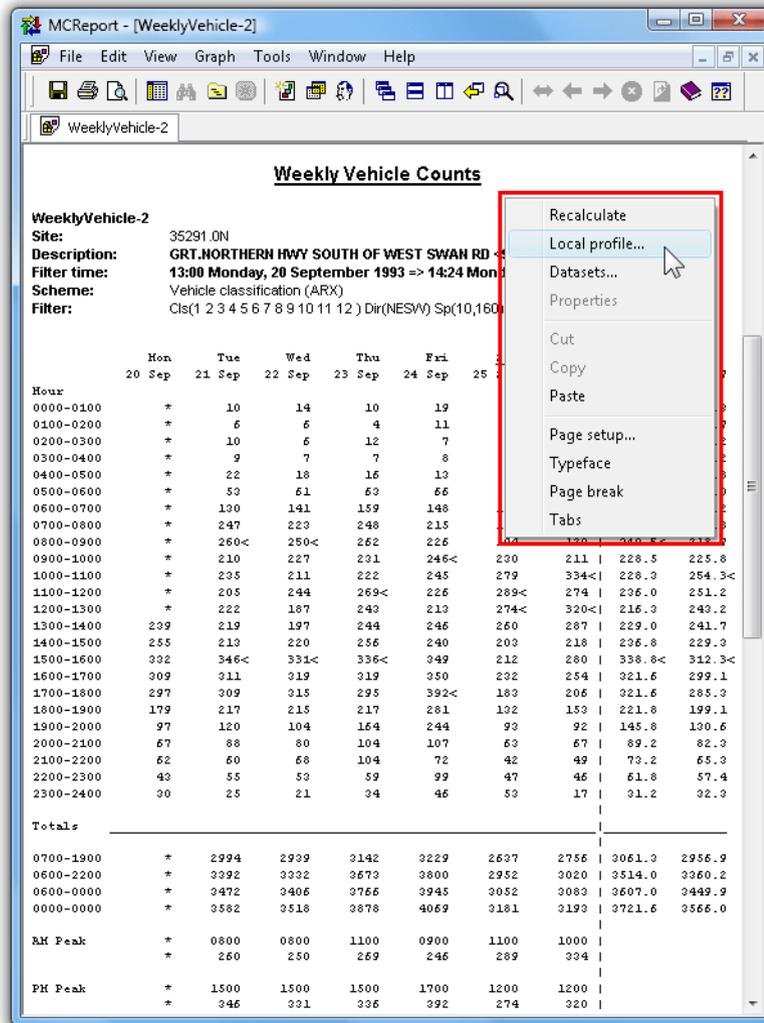
MCRReport has two report layouts:

- Text reports, with completely editable contents and manual formatting options.
- Graphical reports, combining a chart and text report in a split window.

This section introduces concepts common to all reports. Concepts unique to text reports and graphical reports can be found in following sections.

The Right-Click Menu

A report's right-click menu is one of the keys to MCRReport's flexibility. Both the report's Local Profile and tagged datasets can be changed on-the-fly, without the need to regenerate the report. Reports may also have customisable options accessible via this menu.



The right-click menu

Note that any changes to a report's Profile or datasets will result in the report being automatically recalculated. Any manual editing of the report will be lost.

When changing tagged datasets, remember that the report's signature and multi-file restrictions will still apply.

Header Sheets

MCRReport includes a detailed header sheet with most reports, giving essential details about the datasets and Profile used to generate the report. Reports may also include an abbreviated header at the start of the data, or the top of each page. When the details are too large to be compressed (such as when multiple datasets are included) the abbreviated header will refer to the main header sheet.

MetroCount Traffic Executive Weekly Vehicle Counts

WeeklyVehicle-620 -- English (ENA)

Datasets:

Site: [35291] GRT.NORTHERN HWY SOUTH OF WEST SWAN RD <90km/h>
Direction: 1 - North bound, A hit first., Lane: 0
Survey Duration: 13:00 Monday, 20 September 1993 => 14:24 Monday, 27 September 1993
File: D:\Program Files\MetroCount v316\User\Samples\UrbanHwy.ec0 (Demo FB)
Identifier: C355 Rev 9.02 6/3/1993 (c) 1993 Microcom
Algorithm: Factory default
Data type: Axle sensors - Paired (Class/Speed/Count)

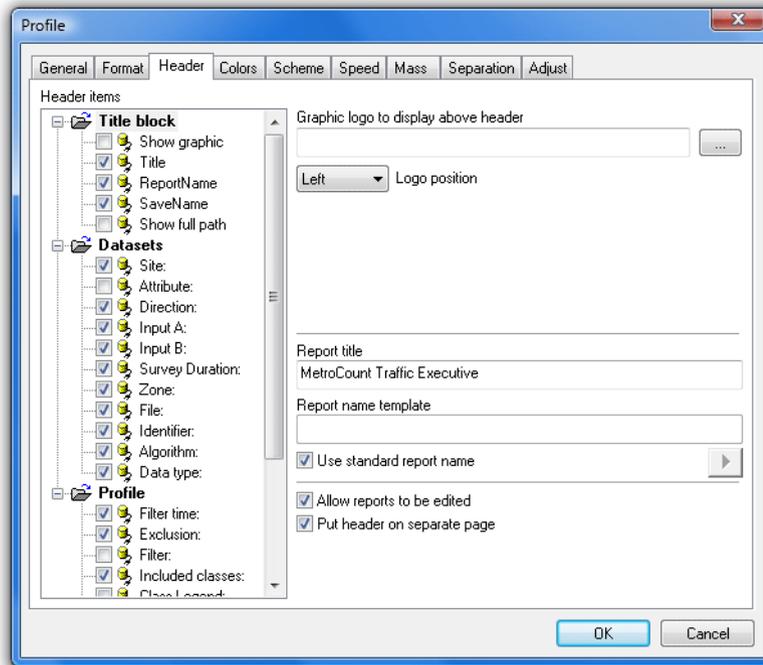
Profile:

Filter time: 0:00 Tuesday, 21 September 1993 => 0:00 Monday, 27 September 1993
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 0 - 200 km/h.
Direction: North, East, South, West (bound)
Separation: All - (Headway)
Name: Factory default profile
Scheme: Vehicle classification (ARX)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)
In profile: Vehicles = 21438 / 23718 (90.39%)

Sample header sheet

The **In Profile** line is the number of vehicles or events included in the calculations of a report, versus the total number of vehicles or events available in the tagged datasets. This is extremely useful for highlighting the effect of vehicle filter settings, especially when a large percentage of excluded vehicles is unexpected. Note that for sequentially generated reports such as the Individual Vehicle or Custom List reports, the **In Profile** line appears at the end of the report.

The fields included in a report's header sheet can be selected in the **Header items** tree in the **Header** page of the Advanced Profile options.



Changing the Header Sheet format

The header sheet includes an invisible page break to ensure the report data starts on a new page. To turn this off, toggle the **Put header on separate page** option.

The first line of the header sheet title can be changed via the **Report title** option. This is commonly set to the name of a company, council or county.

MetroCount Surveys **Weekly Vehicle Counts**

WeeklyVehicle.138 -- English (ENA)

Datasets:

Site: [35291] GRT.NORTHERN HWY SOUTH OF WEST SWAN RD <90km/h>
Direction: 1 - North bound, A hit first., Lane: 0
Survey Duration: 13:00 Monday, 20 September 1993 => 14:24 Monday, 27 September 1993
File: D:\Program Files\MetroCount v316\User\Samples\UrbanHwy.ec0 (Demo FB)
Identifier: C355 Rev 9.02 6/3/1993 (c) 1993 Microcom
Algorithm: Factory default
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 13:00 Monday, 20 September 1993 => 14:24 Monday, 27 September 1993
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range: 0 - 161 km/h.
Direction: North, East, South, West (bound)
Separation: All - (Headway)
Name: Factory default profile
Scheme: Vehicle classification (ARX)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)
In profile: Vehicles = 23717 / 23718 (100.00%)

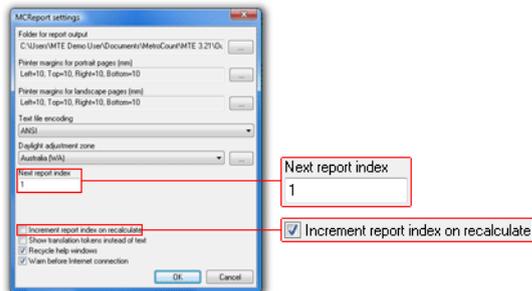
Changing the Header Sheet title

A company logo can also be added to the top of the Header Sheet in the form of a bitmap image. This is specified in the **Graphic logo to display above header** option, and enabled with the **Show graphic** option in the **Header items** tree.

The tab position between header sheet labels and data is adjustable, to cater for changes in font size. Simply right-click in a report and select **Tabs**, then click the mouse at the desired location. This can also be set using the **Tab Position** option in the **Format** page of a report's Advanced Profile options.

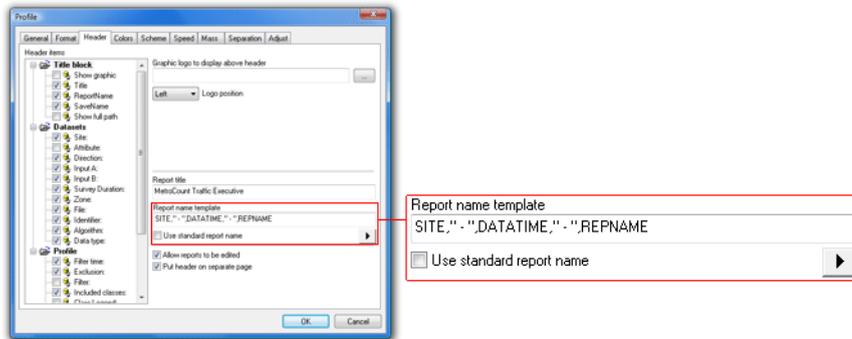
Report Name

Each report generated by MCRReport has a unique Report Name, which appears in the report's title bar and header details, and is the suggested filename when saving reports. By default this is a combination of an abbreviation of the report type, and an incrementing serial number, such as **WeeklyVehicle-1**. The report serial number can be reset at any point by selecting **Tools » Settings** from MCRReport's main menu, and changing the **Next report index** option. The **Increment report index on recalculate** option causes the serial number to increment whenever a report is recalculated, such as editing a report's Profile or tagged datasets.



Changing report serial number options

The format of the Report Name can be changed in the **Header** page of the Advanced Profile options. Unchecking the **Use standard report name** option enables the **Report name template**. This is a comma separated list of fields, which can be selected from the menu button next to the template. Fixed strings can be added inside double-quotes. The incrementing report serial number will be automatically appended to the end of the generated name.



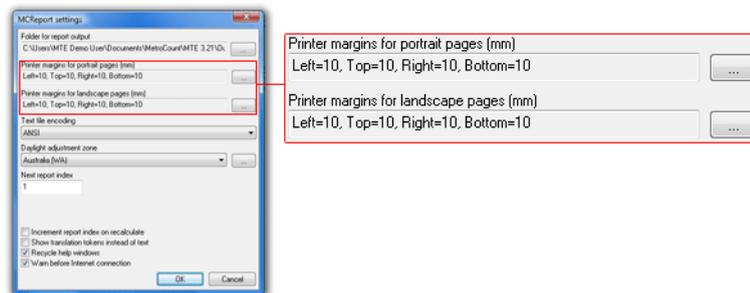
Changing the report name format

Page Setup

MCReport uses the page size of the currently selected printer to generate reports. The page orientation (portrait or landscape) is automatically selected based on the type of report being generated.

The automatic page orientation can be overridden at any time by using the **Page orientation** option in **Format** page of a report's Advanced Profile options.

The default page margins are set in MCReport's Global Settings, accessed by selecting **Tools » Settings** from MCReport's main menu. Margins may be set independently for portrait and landscape pages. Existing reports will need to be recalculated for the global page margins to take effect.



Setting default page margins

Page margins may also be set locally in a report, by right-clicking a report and selecting **Page setup**.

Report Header / Footer

The default page header of reports includes the Report Name and page number, right-aligned.

The **Format** page of a report's Advanced Profile options includes a **Printer header** and **Printer footer** option for adding a single line of left-aligned text to the top and bottom of each page.

The tokens **<DATE>** and **<TIME>** may be used to insert the current date and time. The operating system's current long date and time format will be used.

Text Reports

Editing

All text reports have fundamental word-processing properties:

- Text is completely editable.
- Fonts and colours may be changed.
- Objects, such as images can be inserted.
- Text can be copied into other programs.

The font used in a report can be set via the **Report font** option in the **Format** page of the report's Advanced Profile options. MCRReport uses a non-proportional font (such as Courier) to construct columns in tables, so they will be unaffected by this option.

Font and colour can be changed locally in a report by selecting a block of text, right-clicking and selecting **Typeface** from the pop-up menu. This is useful for manually highlighting certain figures in a report.

The normal view of a report is a continuous stream of text. MCRReport automatically inserts hidden page break characters at appropriate places, such as the end of the Header Sheet. Manual page breaks may be inserted into a report at the cursor, by right-clicking and selecting **Page break** from the pop-up menu. Use the Print Preview to view how a report will be paginated when printed.



Note: Remember that any manual editing of a report will be lost when a report is recalculated. A report is automatically recalculated when any changes are made to the report's Local Profile or tagged datasets.

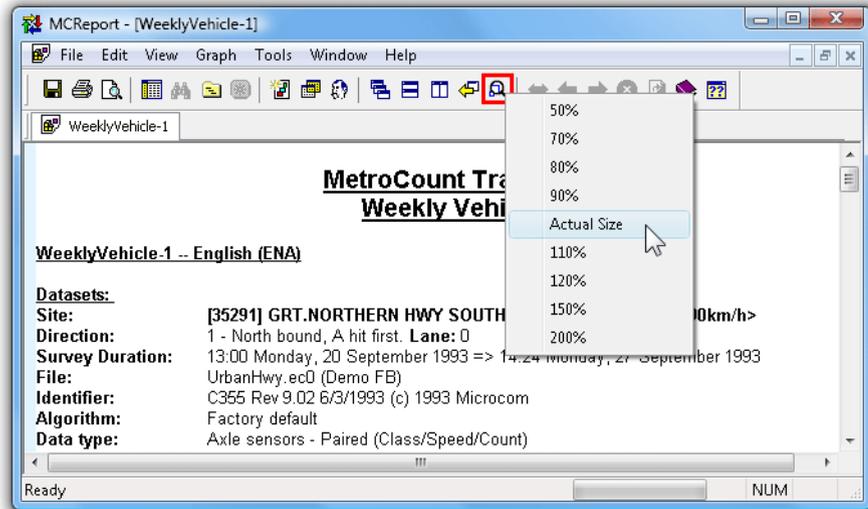
Saving

Text reports can be saved by selecting **File » Save report as** from MCRReport's main menu. Reports can be saved in Rich Text Format (RTF), which includes all the font and formatting information, or plain text (TXT).

The **Save file** dialog always defaults to the **Folder for report output** option in MCRReport's Global Settings, accessible by selecting **Tools » Settings** from MCRReport's main menu.

Zooming

Text reports can be zoomed on-screen, without affecting the actual font size or printed output. Simply click the **Zoom** button on MCRReport's main toolbar, and select the desired zoom level. Note that only a zoom level of **Actual Size** will display a page outline. For a true indication of printed output, use the Print Preview.

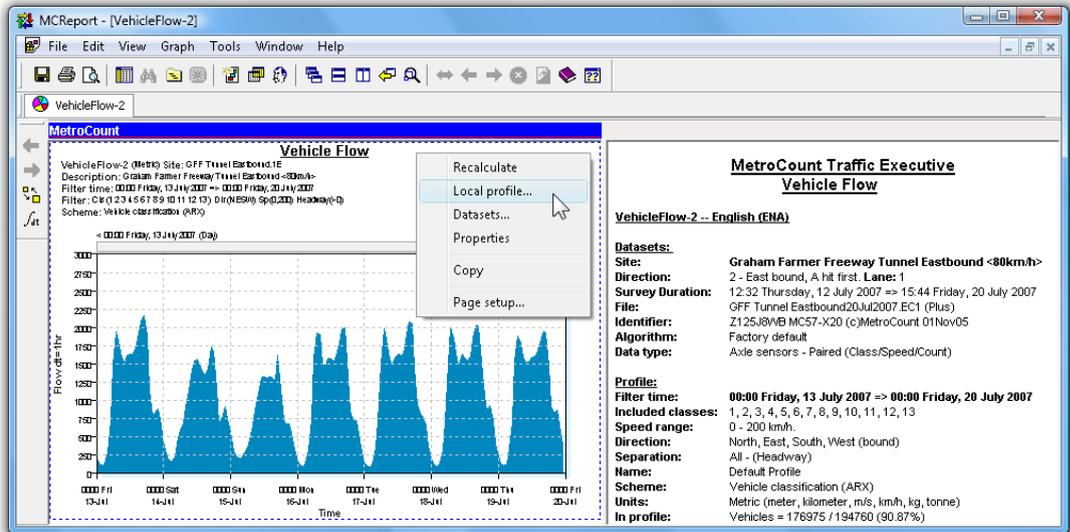


Zooming a text report

Graphical Reports

Split Window

MCReport displays charts and graphs in a unique dual-pane window, with a chart in one pane, and a text report in the other. For reports grouped into the **Charts** category in the Report Vortex, the chart is presented on the left, with the report's Header Sheet on the right. The Custom List report presents a chart on the right.



Split-window graphical report

The left pane is always the primary pane. Its right-click menu contains access to the Local Profile, included datasets, and report properties. The secondary pane's right-click menu contains the other usual functions.

The blue MetroCount bar at the top indicates the currently active pane. Certain functions, such as zooming, can relate to either pane, so only the active pane will be affected. A pane is made active by clicking anywhere within its region.

Zooming

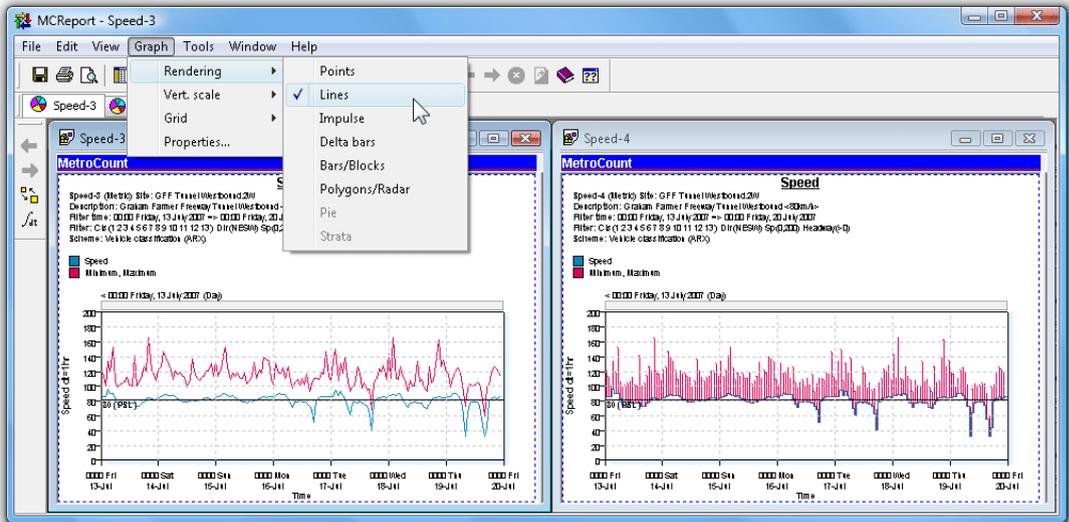
The default zoom level for a graphical report is fit-to-window, which will maximise the size of the graph for its pane. Moving the splitter bar to one side will dedicate the entire window to the graph.

The zoom level may also be set to a fixed percentage. For values larger than 100%, the scroll bars can be used to move around the report.

For finer resolution in the data itself without changing the size of the report, consider changing the Display Span or Integration Time.

Rendering

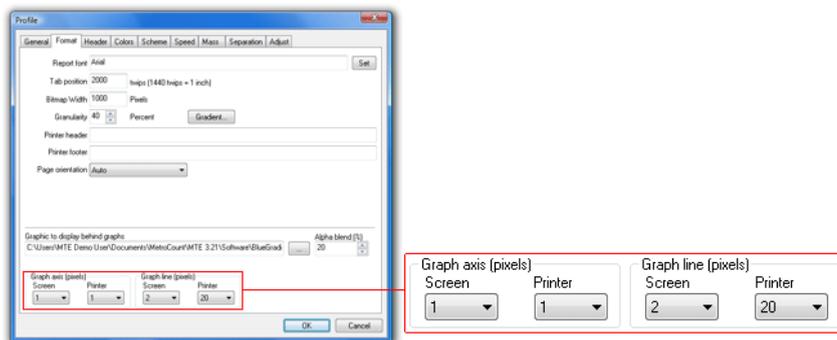
Many of the graphical reports have multiple rendering options. Reports generally default to the most appropriate rendering option, however experimenting with the available options may give better results for a given application.



Same report showing different renderings

To change the rendering of a graphical report, activate its pane, and select **Graph » Rendering** from MCRReport's main menu. The available rendering options will vary depending on the type of report.

The line-thickness used to draw a graph can also be changed in the **Format** page of the Advanced Profile options. Thickness can be set independently for on-screen viewing and printing. In general, one-pixel thickness is fine for on-screen viewing, however thicker lines may be required for the higher resolution of printers.



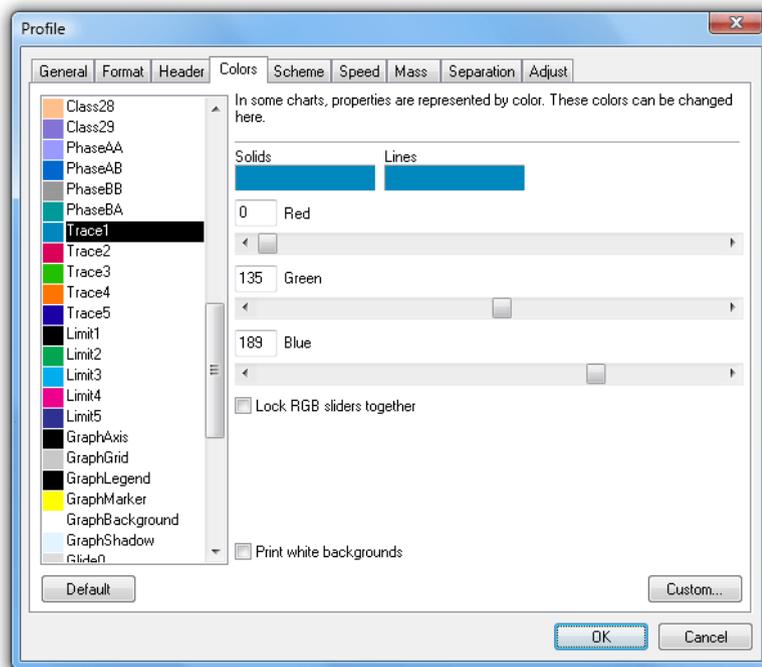
Changing graph line thickness

Colours

Almost every colour used in a graphical report can be customised via the **Colours** page of the Advanced Profile options. To change a colour, select it from the list on the left, and use the red, green and blue sliders. The **Custom** button will display the standard Windows colour-picker.

The general groups of colours are:

- Class - used for class and speed bins.
- Trace - primary colours used by most reports.
- Limit - used for horizontal markers such as speed limits, and vertical markers such as percentiles.
- Glide - used by density plots.
- Phase - used by Phase reports.



Customising report colours

Vertical Scale

There are several options for calculating the vertical scale of a graph. Graphical reports default to the most appropriate method for the type of report. An appropriate number of tick-marks will be automatically selected.

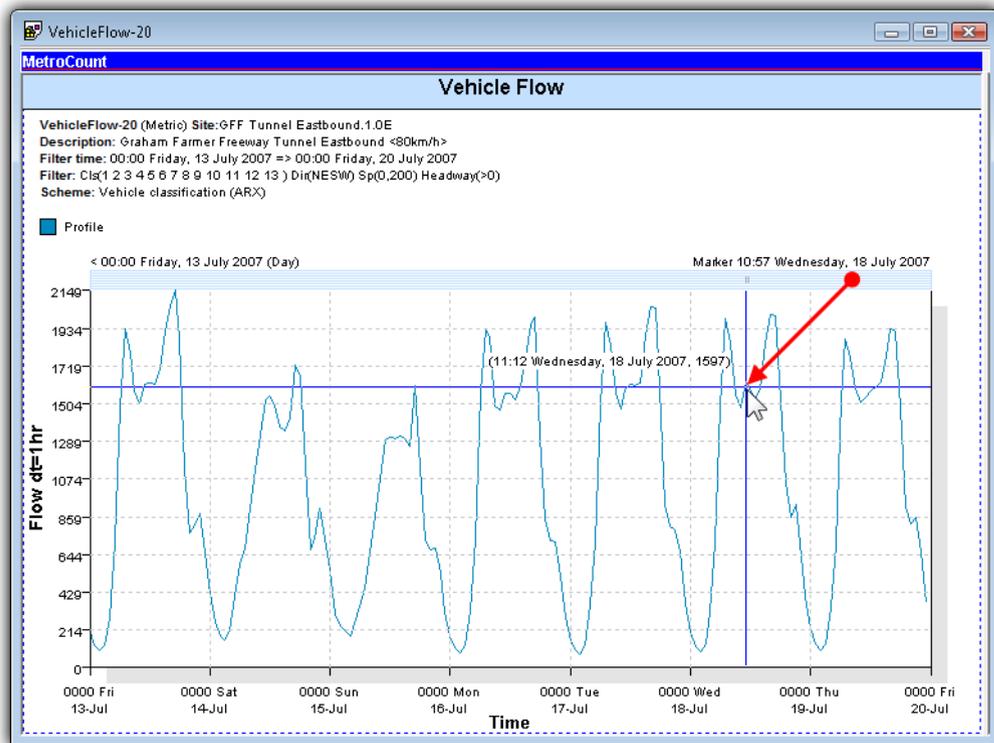
To change the vertical scale of a graphical report, activate its pane, and select **Graph » Vert. Scale** from MCRReport's main menu. The available options will vary depending on the type of report.

Option	Description
Auto	Maximum value of the y-axis will be set to the peak data value.

Option	Description
Integer power	Maximum value of the y-axis will be set to the next integer power above the peak data value. For example, for a peak of 390, the maximum y-axis value will be 400. For 8421, the maximum y-axis value will be 9000, and so on.
125 power	Maximum value of the y-axis will be set to the next 1, 2 or 5 integer power above the peak data value. That is, 1, 2, 5, 10, 20, 50, 100, 200, 500, and so on.
Custom	A dialog box will be displayed, where the y-axis minimum and maximum values can be entered.

Crosshairs and Markers

Time-based plots can be inspected with a pair of crosshairs to examine points of interest. The crosshairs are activated by clicking on the grey bar at the top of the report grid, and dragging across the report. As the crosshairs are moved, the current coordinates are displayed next to the pointer.



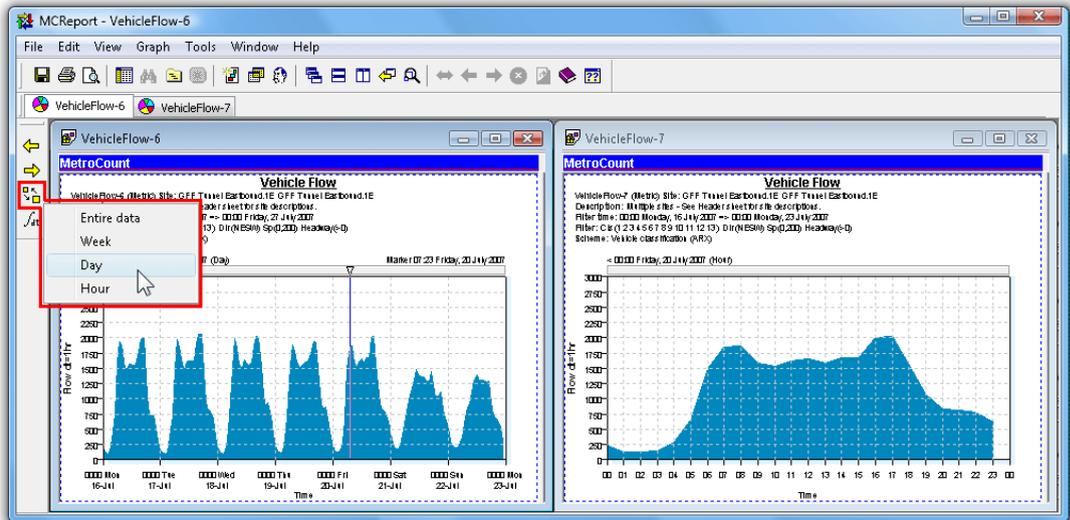
Using the crosshairs on a graphical report

The crosshairs are also used to place a marker on the graph. When the mouse button is released, a vertical marker will be placed at that point. The location of the marker is specified on the top right of the graph. The marker is primarily used for changing the Display Span of a graph.

To clear the marker, simply double-click the grey bar at the top.

Display Span

The Display Span is the subset of the available data currently shown by a time-based plot. By default, time-based plots are scaled to display the entire data time span. The Display Span may also be changed to a week, day, or hour.



Example of Display Span set to a week, and a day, for the same report

Changing the Display Span requires a marker to be placed at the point on a graph where the new Display Span will start. The new Display Span will actually start on the boundary to the left of the marker. So, for either a week or a day, the marker can be placed anywhere in the day where the new Display Span is required to start. For an hour, the marker may be placed anywhere within the desired hour.

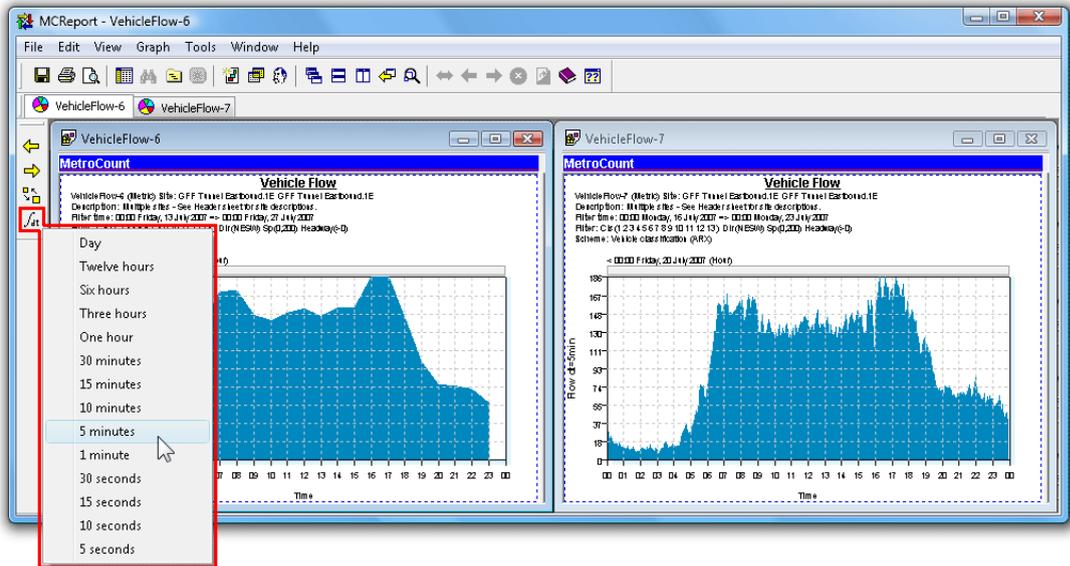
Once the marker has been placed, the desired Display Span can be selected by clicking the **Span** button on MCReport's graph toolbar, and selecting from the pop-up menu. The new Display Span will automatically appear. To step backwards and forwards through the data at intervals of the Display Span, use the **Back** and **Forward** buttons also on the graph toolbar.

The Display Span can be set to start precisely at the marker location by holding down the **Ctrl** key when selecting the Display Span from the graph toolbar. Note that this may result in odd times for the tick marks on the x-axis. To set the marker with greater precision, hold down the **Ctrl** key when dragging the crosshairs.

Integration Time

The Integration Time of a time-based plot determines the period of data used to calculate a point on the graph. For example, a Vehicle Flow graph with an Integration Time of one hour will place one point per hour of total vehicles.

The Integration Time is closely related to the Display Span. For instance, with a Display Span of a day, an Integration Time of an hour will give 24 points on the graph. An Integration Time of 10 minutes on the same Display Span will give 144 points, showing much more detail.



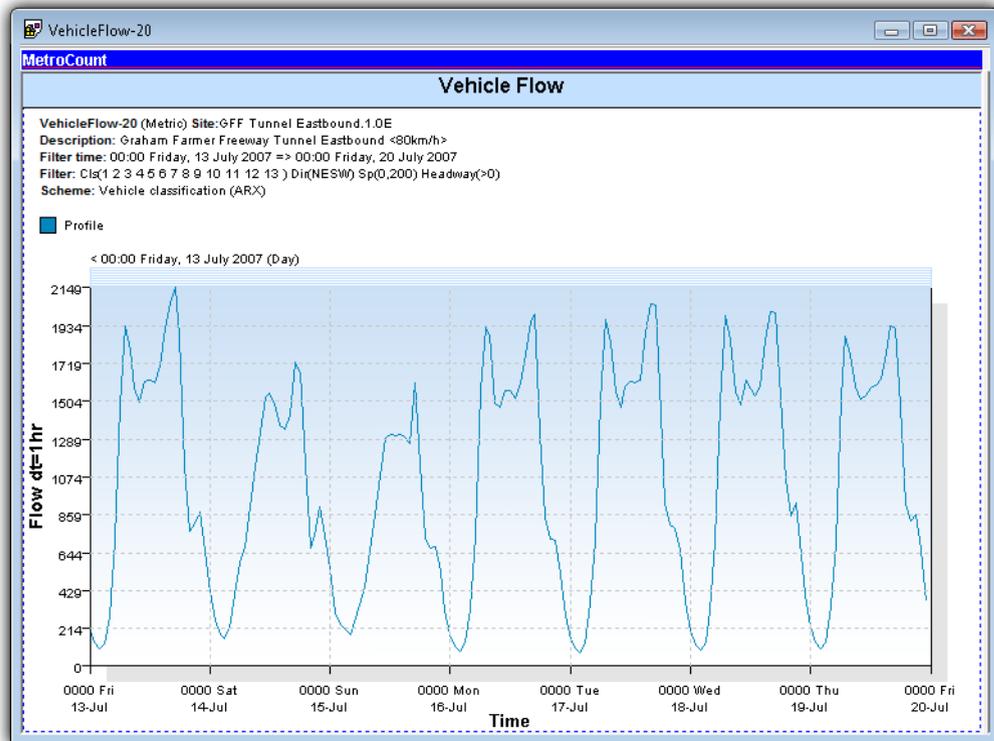
Example of smaller integration time providing more resolution

The Integration Time for a time-based plot can be changed by clicking on the **Integration Time** button on MCRReport's graph toolbar, and selecting from the pop-up menu. The graph will automatically redraw with the new Integration Time.

Note that when using a smaller Integration Time the vertical size of the graph will change since fewer vehicles are integrated into each point. Also, selecting a small Integration Time relative to the Display Span may result in an unreasonable number of points to be plotted. In this case a message will be displayed, suggesting a larger Integration Time.

Background

Graphical reports can optionally display an image in the background, such as a colour gradient or watermark.



Displaying a background image

The background image can be set in the **Format** page of the report's Advanced Profile options. The intensity of the background image can be adjusted using the **Alpha blend** percentage. The selected image is automatically scaled to fill the graph area.

Printing

Printing split-window reports requires two print operations. Selecting **File » Print** from MCRReport's main menu will only print the currently active pane, indicated by the blue MetroCount bar at the top. To activate the other pane, click anywhere within its window.

Saving

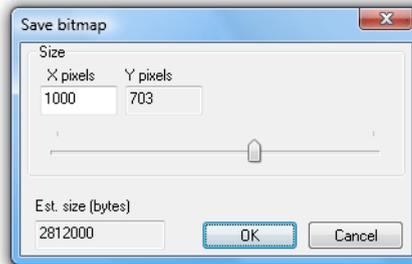
Graphical reports can be saved as vector-based Enhanced Metafiles (EMF) or as an image file (PNG, GIF, JPG or BMP). To save a graphical report, select **File » Save report as** from MCRReport's main menu. Remember that the graph must be the active pane, indicated by the blue MetroCount bar at the top.

The output format is determined by the **Save as type** drop-down list in the Save dialog box. Note that the Save dialog always defaults to the **Folder for report output** option in MCRReport's Global Settings,

accessible by selecting **Tools » Settings** from MCRReport's main menu.

Enhanced Metafiles are a vector-based format, making them ideal for inserting graphs into other documents. When an Enhanced Metafile is scaled, everything is redrawn at the new size, producing a high-quality image. The file itself is normally very small.

Image files are more widely supported by other software, however they have an inherent size, and rescaling them can often produce unsatisfactory quality. When saving as an image, MCRReport displays a dialog box where the dimensions of the image can be set. The required size will depend on the intended use of the image. Only the width needs to be set, so that the correct aspect ratio is maintained.

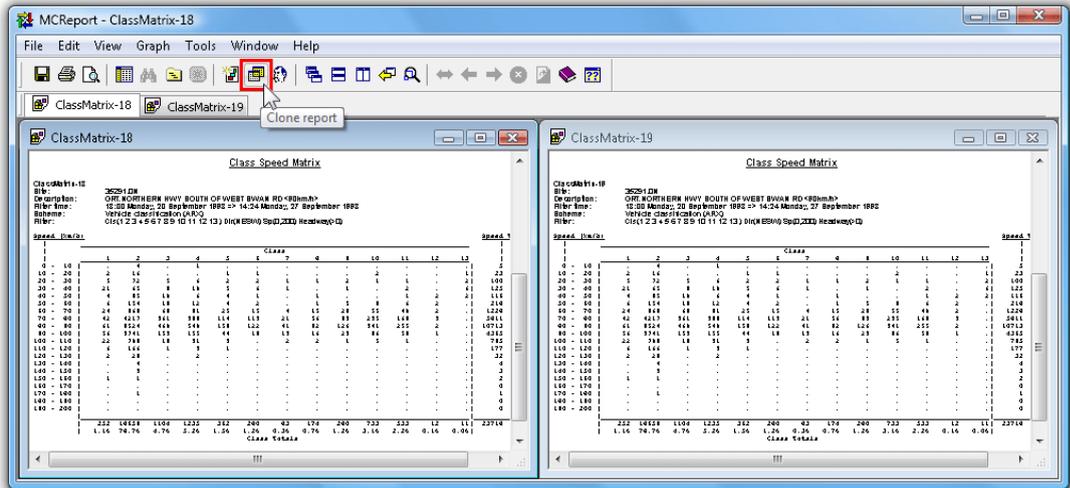


Setting the output size of a bitmap

A graphical report can also be transferred to another application using copy-and-paste. Simply right-click on a graph, and select **Copy** from the pop-up menu. The graph will be pasted as an Enhanced Metafile if the target application supports it. Otherwise the graph will be pasted as a bitmap at the size shown on screen.

Report Cloning

Report Cloning is an extremely efficient way to rapidly generate a group of reports. Cloning an active report automatically generates a new report of the same type, with the same datasets and an identical Profile. The new report's Profile or datasets can then be easily changed via the right-click menu. To clone the currently active report, simply click the **Clone report** button on MCRReport's main toolbar.



Cloning a report

Changing a report's datasets via the right-click menu is the fastest way to process a group of datasets. Load as many datasets as possible into the File Management List, then step through them via the **Datasets** option in a report's right-click menu, printing or saving for each iteration.

Report cloning makes common tasks, such as extracting each direction from bidirectional data, even more efficient. For example, generate a report filtered for the primary direction, clone it, then right-click and change the Local Profile to the secondary direction. Tile the reports on-screen, then apply the dataset swapping method described above for each report.

Another common task is comparing datasets, and it is important to start with an identical Profile, especially the vehicle filter settings. The simplest way to achieve this is to clone an existing report, right-click the new report and change the Datasets. This is much faster and more reliable than generating two reports via the Report Wizard.



*Note: Remember when toggling datasets on an existing report, using one of the Profile's time filter auto-wrap options (such as **aligned hours** or **aligned days**) is highly recommended. This ensures the start and end times will be automatically recalculated for the new datasets.*

Report Assemblies

Report Assemblies are a feature in MCRReport for automatically regenerating an active report. Saving a report as an assembly creates a file with references to everything required to regenerate the report, including:

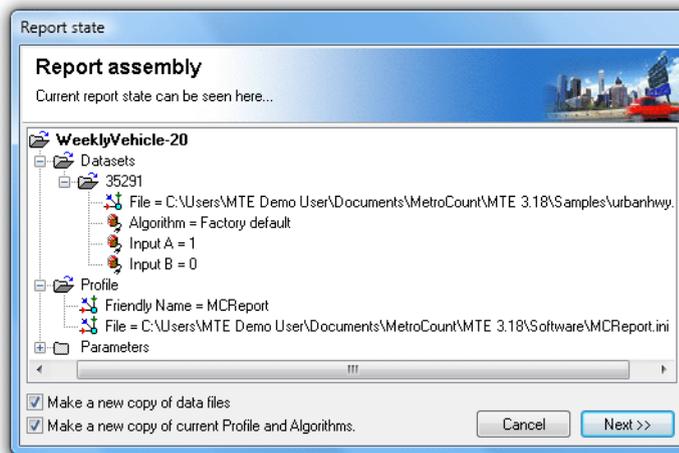
- The tagged datasets.
- The Local Profile.
- Algorithm settings.
- Custom List properties.

When an Assembly is loaded, the referenced datasets are loaded into the File Management List, and a new copy of the original report is generated - all without interacting with the Report Wizard.

Report Assemblies have a number of important uses:

- Saving the source files to recreate an exact report for future reference, rather than just the report output.
- Grouping source files together for copying to another user, so that they may generate the same report.
- As a starting point for regularly generated reports, whereby a group of datasets can be rapidly processed by swapping datasets via the right-click menu.

Assembly Load and Save functions can be found in MCRReport's **File** menu. Selecting **File » Save assembly** will save the currently active report. MCRReport initially defaults to the **Assembly** folder under MTE's working folder location.



Saving a report Assembly

Saving a report Assembly creates a text file with a **.stx** extension. By default, references to datasets, Profiles and other resources will have absolute paths. This means when loading an Assembly, it expects to find all files in their original location.

There are two options when saving an Assembly - to copy datasets, and other support files, to the same folder as the Assembly file. With these options checked, file references will have a relative path, and can therefore be copied around as a group, even to another PC.

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