Compact Tray Meter

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Introduction

This simple utility has a purpose of reporting CPU, RAM and disk drives usage right off the notification tray area, or the area by the system clock. It can also provide additional information about your installed hardware. In layman's terms, *Compact Tray Meter* is similar to gauges on the dashboard of your car. It lets you monitor performance of your computer.

INFORMATION: Read below and look for 💡 *practical tips* for description of practical application of individual features.

Compatibility: Windows XP, Windows Vista, Windows 7, Windows 8

Requirements: Visible tray notification area, 1 GB of RAM, and TruColor display with a 32-bit color scheme.

Installation

A. Copy the `Compact Tray Meter.exe` file from the downloaded ZIP archive package to some location on your hard drive (example: "My Documents")

B. Run the `Compact Tray Meter.exe` file by double-clicking its icon:

INFORMATION:

(1) This program does not require administrative privileges and can be run from any location on your hard drive.

(2) It is NOT recommended to run this program from a removable storage, such as USB Flash drives, flash memory, etc. or from a network or external drives. If such is detected, this program will display a warning window. Move the program to your (internal) hard drive to make this warning go away.

(3) This program is designed to continue running even if the current user logs out and logs back in again, or if computer is rebooted. This behavior can be changed in the Settings.

(4) This program was designed to run with as low impact on your system resources as possible. This is necessary to maximize the accuracy of the output by its meters.

C. Since this program is designed to run primarily from the notification tray area (next to the system clock), to make sure that its meter icon(s) are not hidden by your operating system, do the following:

a. **Windows XP:** Right-click somewhere in a free space on a taskbar and select Properties. Then switch to the Taskbar tab and click Customize. In a new window make sure that the Compact CPU Meter (as well as any other meter icons) are marked as "Always show". Click OK.
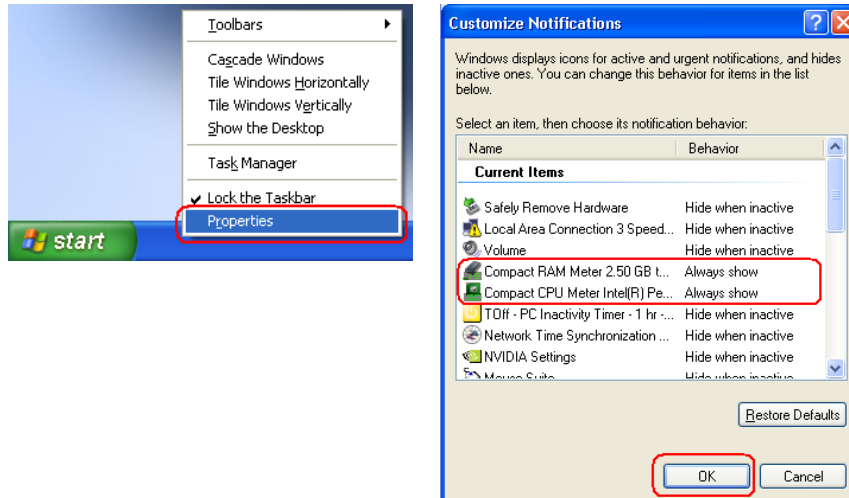
b. **Windows Vista:** Right-click somewhere in a free space on a taskbar and select Properties. Then switch to the Notification Area tab and click Customize. In a new window make sure that the Compact CPU Meter (as well as any other meter icons) are marked as "Show". Click OK.
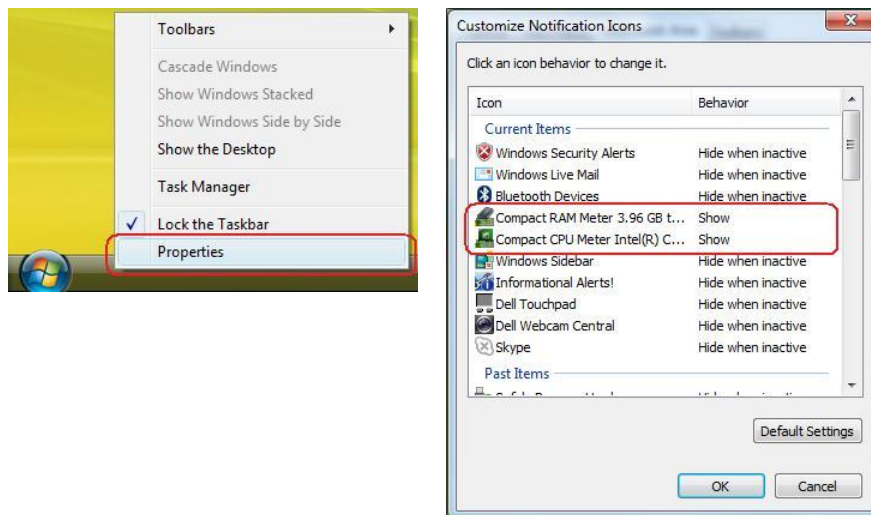

c. **Windows 7/8:** Click the small arrow button on the toolbar notification area (next to the clock) and then click *Customize*. In a new window make sure that the Compact CPU Meter (as well as any other meter icons) are marked as "*Show icon and notifications*". Click OK.
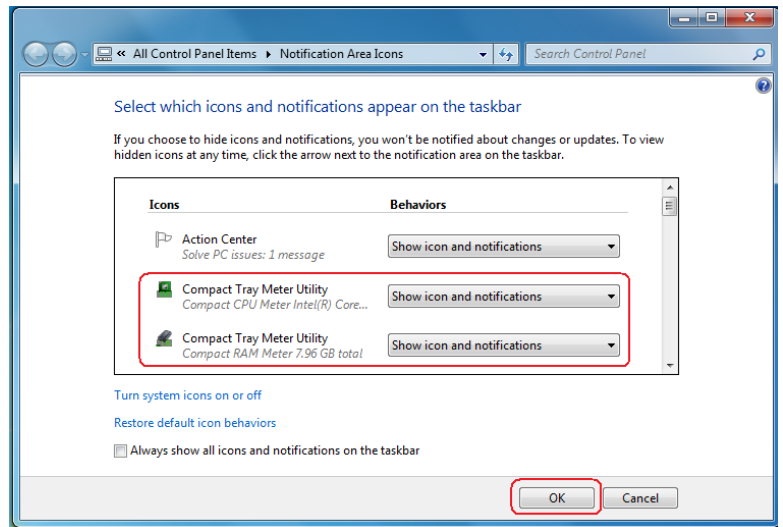
Operation

A. This program will remain running and update the status of CPU(s) in real-time (as well as, RAM, and disk drive(s), if enabled in Settings.) You should see its meter icon(s) on the taskbar notification area (next to the clock):
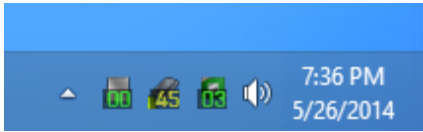
INFORMATION:

(1) Numbers displayed in the meter icons of this program represent current percentage of CPU/RAM/disk usage.

(2) The screenshot above was made on the Windows 8 machine and may look different in your case.

(3) To make sure that you can see this program's notification area icons, follow installation instructions above.

(4) To select which meter icons should be displayed by the program, read the description of the Settings below.

B. CPU Meter

To obtain additional information about the CPU(s) on your system, do the following:
INFORMATION: To enable the *Compact CPU Meter* icon, read the description of the Settings below.

- Hover your mouse cursor over the *Compact CPU Meter* icon on the taskbar notification area. You should see a pop-up prompt with the information about CPU(s):
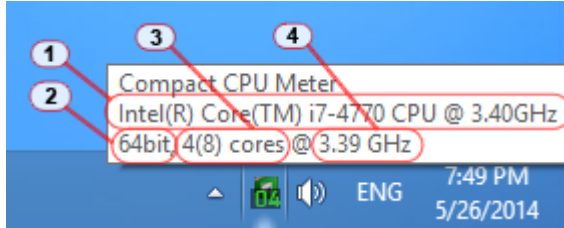
INFORMATION:
(1) Brand name of the CPU. This information is obtained from the CPU die itself.
(2) Type of the CPU architecture. Most common values are 32bit, and 64bit.
(3) Number of cores in the CPU. First value is the number of physical cores. If the CPU supports logical cores, their number will be displayed in parentheses (as an example, logical cores can be a result of CPU's Hyper-Threading.)
(4) CPU clock as determined by this program. Note that this value might be slightly different from the official clock value. The clock value reported here is calculated simultaneously for all CPU cores.

 Practical Tip

You may use *Compact CPU Meter* to track how busy your computer is at any given time. Any running program (including the system and background processes) will use up CPU time, which in turn will raise the CPU usage reported by the *Compact CPU Meter*. Higher CPU usage translates into lower battery life (in case of a portable system), hotter case on a laptop or a notebook, generally slower running computer, and higher electric bill. In some cases it may also indicate that your system is infected by malware.

In a normal operation, when your computer remains idle, the CPU usage should stay lower than 10% (ideally, lower than 5%.) Keep in mind, that any background processes and running programs, such as your anti-virus program or a backup program, will use CPU when running. Also short bursts of CPU usage when programs start or close are normal.

In case your CPU usage stays continuously high, you may want to investigate what's causing it. (The *Compact CPU Meter* does not provide you with means to do that.) Your first step is to locate the "offending" process. To do so hit Ctrl+Alt+Del on the keyboard and launch the Task Manager, then switch to the *Processes* or *Detailed* view, and sort the list of processes by the CPU usage column. This will allow you to see the process that uses up most of the CPU. After that, Google it by name and see what software the process belongs to. This will clue you in to what you need to do next. You may also want to ask for help on public computer forms.

- Right-click the *Compact CPU Meter* icon on the taskbar notification area and select "CPU Info" to obtain additional technical information about the CPU(s).

INFORMATION: You can obtain the same result by double-clicking the meter icon.
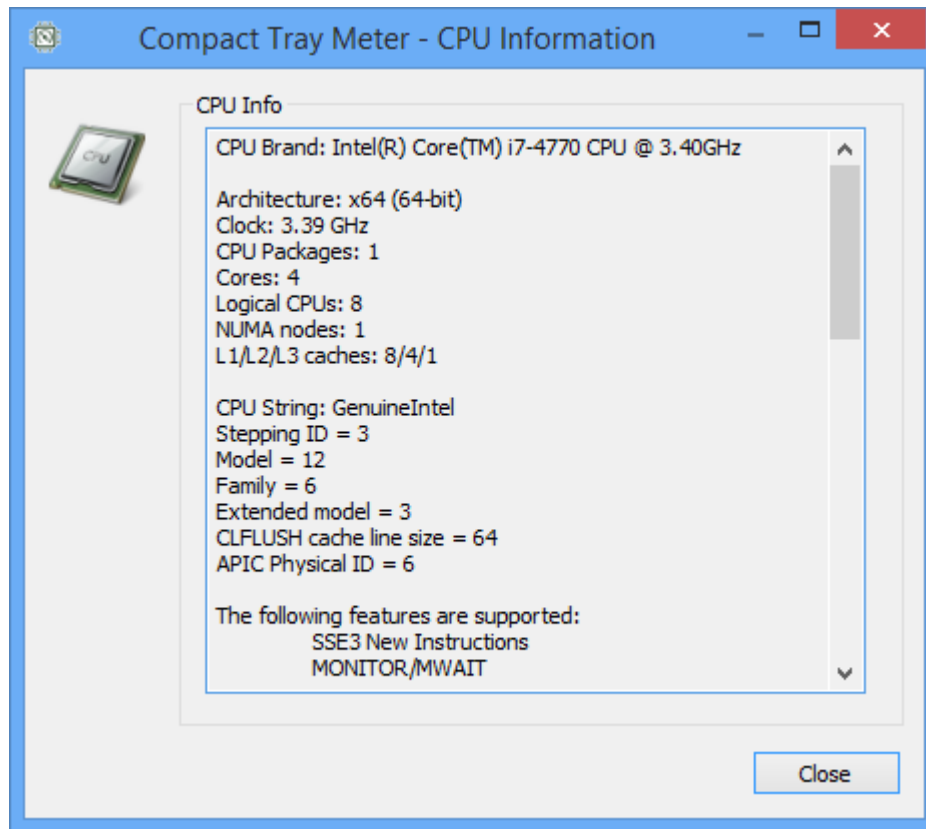
The information presented in the *CPU Information* window is dependent on the installed CPUs and may vary from computer to computer. This information is generally intended for advanced computer users.

c. RAM Meter

To obtain additional information about the RAM (or memory) on your system, do the following:
INFORMATION: To enable the *Compact RAM Meter* icon, read the description of the Settings below.

- Hover your mouse cursor over the *Compact RAM Meter* icon on the taskbar notification area. You should see a pop-up prompt with the information about the RAM (or your system memory):
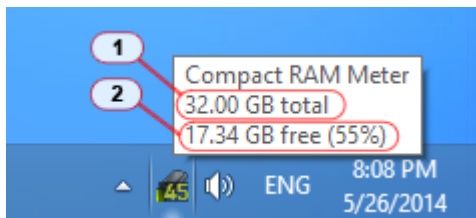
INFORMATION:
(1) Total amount of RAM recognized by the operating system. Note that some older OS may report lower amounts of RAM than physically installed in the system.
(2) Amount of RAM currently unused, or free, displayed in bytes and as a percentage from the total amount.

 Practical Tip

You may use *Compact RAM Meter* to track how much memory or RAM is used by running programs on your computer at any given time. When a program starts it uses up some of your system RAM. A program frees up its RAM when it's closed. The amount of RAM used by a program depends on the type of data it works with. For instance, a video player will use significantly more RAM than a plain text editor. Keep in mind that your operating system may also use up a significant amount of RAM right when you boot it up.

In case RAM usage on your system approaches 80% or so, you will notice that it takes longer for new programs to start. If RAM usage reaches over 90%, you will notice a significant degradation in your system's performance. It is generally recommended to keep your RAM usage lower than 75%. To lower the RAM usage, close any programs that you're not using, or reboot the system. The latter clears up the cache maintained by the operating system and refreshes all system processes. If that doesn't help to lower RAM usage, you may consider buying more RAM to meet your needs.

In case your RAM usage stays continuously high, you may want to investigate what's causing it. (The *Compact RAM Meter* does not provide you with means to do that.) Your first step is to locate the "offending" process. To do so hit Ctrl+Alt+Del on the keyboard and launch the Task Manager, then switch to the *Processes* or *Detailed* view, and sort the list of processes by the *Memory* column. (In case of Windows 7 or earlier OS, you will need to add a new column, called "Memory – Working Set" to track memory usage.) This will allow you to see the process that uses up most of your RAM. After that, Google it by name and see what software the process belongs to. This will clue you in to what you need to do next. You may also want to ask for help on public computer forms.

- Right-click the *Compact RAM Meter* icon on the taskbar notification area and select "RAM Info" to obtain additional technical information about the RAM.

INFORMATION: You can obtain the same result by double-clicking the meter icon.
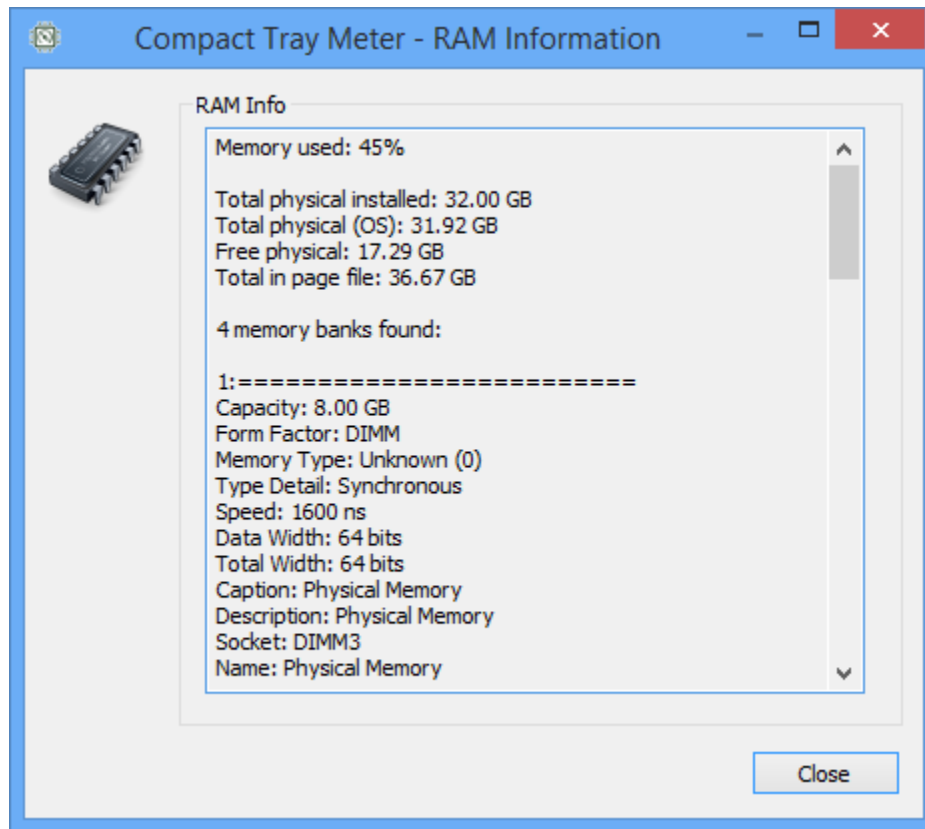
The information presented in the *RAM Information* window is dependent on the installed RAM and may vary from computer to computer. This information is generally intended for advanced computer users.

D. Drive Meter

To obtain additional information about the disk drive(s) on your system, do the following:

INFORMATION: To enable the *Compact Drive Meter* icon, read the description of the [Settings](#) below.

- Hover your mouse cursor over the *Compact Drive Meter* icon on the taskbar notification area. You should see a pop-up prompt with the information about the drive:
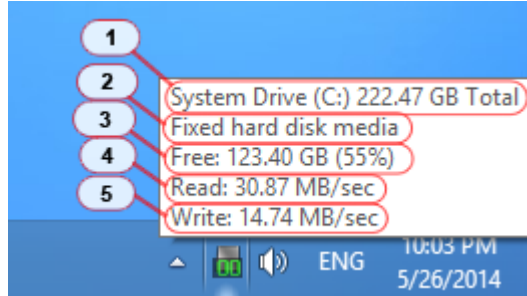
INFORMATION:

(1) Name of the drive, drive letter assigned to it, and the total drive capacity in bytes (assuming that 1MB = 1024 Bytes.)

(2) Type of the drive (as seen by the operating system.)

(3) Amount of free space on the drive, as well as the percentage from the total capacity.

(4) Last read speed* for the drive (if available), expressed in bytes per second.

(5) Last write speed* for the drive (if available), expressed in bytes per second.

* - Last read and write speeds for a drive are measured as the average against last "burst" read/write operations. Because of that this number can be different than the *advertised* read/write specs for the drive, which are measured during "continuous" read/write operation.

INFORMATION: The *Compact Drive Meter* treats both *read* and *write* drive activity as the *drive usage*.

INFORMATION: If there's more than a single *Drive Meter* shown on the tray, each meter icon will have a small drive letter displayed on it:

💡 *Practical Tip*

You may use *Compact Drive Meter* to track performance of your computer's storage devices at any given time. Contrary to popular belief, your drive's performance largely defines how fast your computer operates. In most modern PCs slower hard drives become a real bottleneck next to faster CPUs and larger amounts of RAM.

Any running program, as well as the operating system itself, will use disk drives during its operation. In most cases the drive usage goes up when a program starts up or closes. But in some cases, a program may continue using disk drive, which may be necessary for program's operation (for instance, in case of a music or a video player.) Your anti-virus or a backup program will also use disk drives during their operation.

Unlike other meters, your disk drive usage may spike up often and suddenly. If your system drive's usage stays high for longer periods of time, your computer will run visibly slower. In some cases, if the drive usage remains high for extended periods of time without any visible clues from the running software, this may indicate a misconfiguration in the system settings, or a possible malware infection.

In case your drive usage stays continuously high, you may want to investigate what's causing it. (The *Compact Drive Meter* does not provide you with means to do that.) Your first step is to locate the "offending" process. To do so hit

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Ctrl+Alt+Del on the keyboard and launch the Task Manager, then switch to the *Processes* or *Detailed* view, and sort the list of processes by the *Disk* column. (Unfortunately in case of Windows 7 or earlier operating systems the Task Manager does not provide Disk column. In that case you will need to download a third-party software to track disk usage on per-process basis.) This will allow you to see the process that uses up your disk drive. After that, Google it by name and see what software the process belongs to. This will clue you in to what you need to do next. You may also want to ask for help on public computer forms.

- Right-click the *Compact Drive Meter* icon on the taskbar notification area and select "Drive Info" to obtain additional technical information about the disk drive.

  INFORMATION: You can obtain the same result by double-clicking the meter icon.
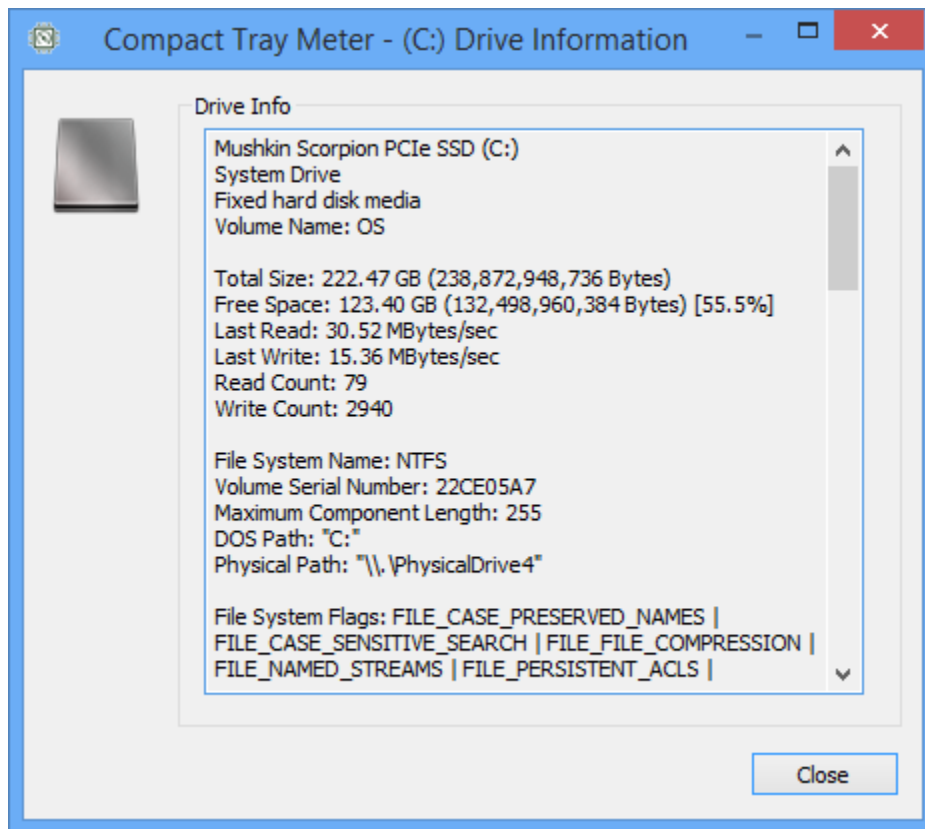
The information presented in the *Drive Information* window is dependent on the installed disk drive and may vary from computer to computer. This information is generally intended for advanced computer users.

E. Additional context menu commands are available for each tray meter icon upon the right-click:
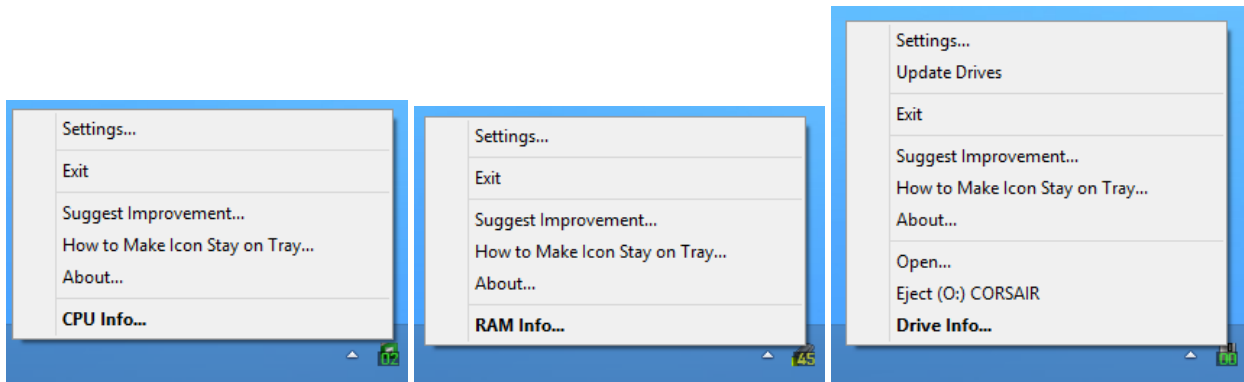
The following commands are available:

- **Settings** – brings up the Settings window described below.

- **Update Drives** – updates the cached information about available disk drives.

  INFORMATION: This command is available only for disk drive meters.

- **Exit** – closes this program.

  INFORMATION:
  (1) Unless exited, this program will remain running even if you log out and log back in, or reboot computer. (This can be disabled in Settings.)
  (2) This program does not require un-installation. All you need to do to remove it from your system is to Exit it (as described above) and delete its file (Compact Tray Meter.exe) from your hard drive. The location of this file will be determined by where you placed it initially during installation.
  (3) This program is Windows user-specific, meaning that it must be installed individually for each Windows user account.

- **Suggest Improvement** – opens up our web site that allows users to submit their suggestions for future development, as well as allows to report bugs.

  INFORMATION: Internet connection is required.

- **How to Make Icon Stay on Tray** – brings up a window that explains how to make tray meter icons stay on tray. (This option is available in Windows 7 and later operating systems only.)

  INFORMATION: By design Windows 7 and later operating systems will hide unused tray icons. Unfortunately this may include tray meter icons for this program as well. The window shown by this option demonstrates how to make tray meter icons to remain visible on the system tray. (This is also described in the installation section above.)

- **About** – displays the window with the information about this program.

  INFORMATION: Use this window to learn about the developers of this program, as well as to check your installed version. The About window also allows you to check for updates for your copy of the program.

- **Open** – opens the root folder on the disk drive (using Windows Explorer.)

INFORMATION: This command is available for disk drive meters only.

- **Eject (Drive)** – allows to safely remove (or eject) removable USB drive.

  INFORMATION: This command is not available if the drive cannot be ejected. Once ejected the drive's meter icon will disappear from tray. If ejection failed, (unless disabled in the Settings) the pop-up balloon will indicate a failure.

- **CPU Info** – displays the information window with technical details about the CPU(s).

- **RAM Info** – displays the information window with technical details about the installed RAM.

- **Drive Info** – displays the information window with technical details about a disk drive.

Un-Installation

This program does not require un-installation. All you need to do to remove it from your system is:

A. Close it by right-clicking any of its meter icons on the taskbar notification area and select Exit:
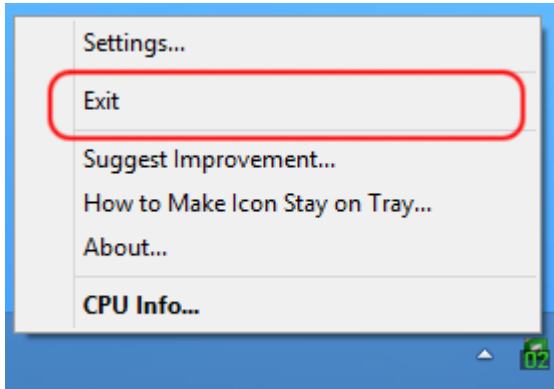
B. Although not necessary, you can remove the `Compact Tray Meter.exe` file from your hard drive.

INFORMATION:
(1) The location of this program's file will be determined by where you placed it initially during [installation](#).
(2) Although not necessary, if you wish to manually remove this program's data from the System Registry, you can remove the following key: `HKEY_CURRENT_USER\Software\from Dennis Babkin\Compact Tray Meter`

Program Settings

You can adjust the way this program operates by changing its Settings. To pull up the Settings window right-click any of the program's meter icons on the taskbar notification area

and select "Settings". You will see this window:
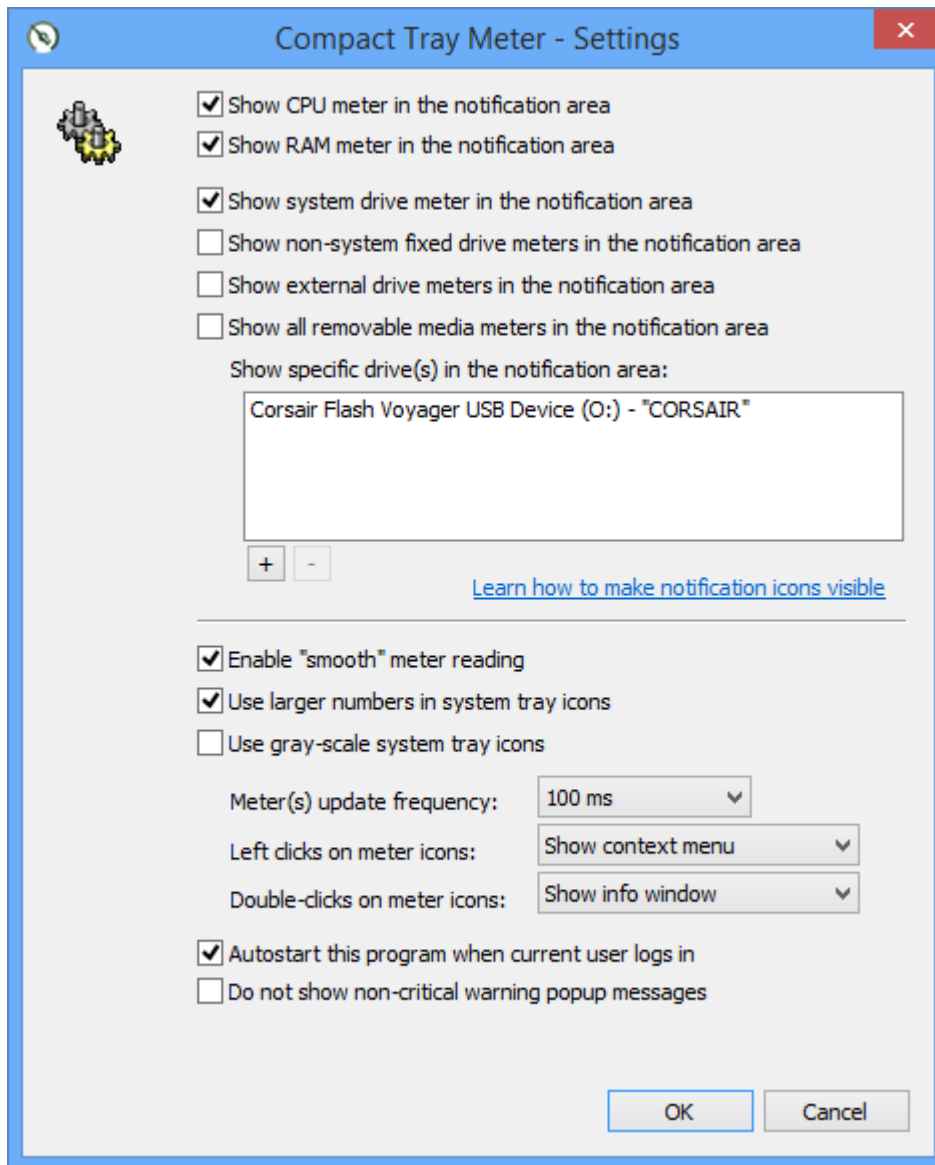
The following settings are available:

- **Show CPU meter in the notification area**
  When checked will display *Compact CPU Meter* icon in the taskbar notification area.

  INFORMATION: If this is the first time that you enable this meter icon, you may need to make sure that it stays visible by clicking "*Learn how to make notification icons visible*" link in this window.

- **Show RAM meter in the notification area**

    When checked will display *Compact RAM Meter* icon in the taskbar notification area.

    INFORMATION: If this is the first time that you enable this meter icon, you may need to make sure that it stays visible by clicking "*Learn how to make notification icons visible*" link in this window.

- **Show system drive meter in the notification area**

    When checked will display *Compact Drive Meter* icon in the taskbar notification area for the system drive.

    INFORMATION: The system drive is the disk drive where Windows operating system is installed.

    INFORMATION: If this is the first time that you enable this meter icon, you may need to make sure that it stays visible by clicking "*Learn how to make notification icons visible*" link in this window.

- **Show non-system fixed drive meters in the notification area**

    When checked will display *Compact Drive Meter* icons in the taskbar notification area for the fixed disk drives other than the system drive. Note that this option may display more than a single meter icon.

    INFORMATION: The system drive is the disk drive where Windows operating system is installed. A fixed disk drive is the drive that is generally installed inside the system block. Such drive generally requires powering down computer to be unplugged.

    INFORMATION: If this is the first time that you enable this meter icon, you may need to make sure that it stays visible by clicking "*Learn how to make notification icons visible*" link in this window.

- **Show external drive meters in the notification area**

    When checked will display *Compact Drive Meter* icons in the taskbar notification area for any external drives that are currently plugged in and powered up, and have storage media inserted in them. Note that this option may display more than a single meter icon.

    INFORMATION: Note that in some configuration an internal drive may be treated as *externally plugged in* by the operating system. In this case it will be shown as "external drive" by this option.

    INFORMATION: This option does not include any older tape, magnetic or laser disc drives, such as Floppy drives, CDs, DVDs, or Blu-Ray drives. These drives are not supported by this program.

    INFORMATION: If this is the first time that you enable this meter icon, you may need to make sure that it stays visible by clicking "*Learn how to make notification icons visible*" link in this window.

- **Show all removable media meters in the notification area**

    When checked will display *Compact Drive Meter* icons in the taskbar notification area for any disk drive that supports plugging in a removable media. This includes USB drives, media cards, *jump sticks*, etc. Note that this option may display more than a single meter icon for drives that may not be currently active.

    INFORMATION: This option does not include any older tape, magnetic or laser disc drives, such as Floppy drives, CDs, DVDs, or Blu-Ray drives. These drives are not supported by this program.

    INFORMATION: If this is the first time that you enable this meter icon, you may need to make sure that it stays visible by clicking "*Learn how to make notification icons visible*" link in this window.

- **Show specific drive(s) in the notification area**

    Allows to specify specific drives to be displayed with the *Compact Drive Meter* icon in the taskbar notification area. The list below shows drive names that are used in this option. To add a new drive to the

list click the "+" button below. This will open a new window that will let you select a local drive. To remove drives from the list, first select them with your mouse, and then click the "-" button below.

INFORMATION: Drives selected in this option are chosen along with the disk drives selected in other options described above.

INFORMATION: If this is the first time that you enable this meter icon, you may need to make sure that it stays visible by clicking "*Learn how to make notification icons visible*" link in this window.

- **Enable "smooth" meter reading**

    When checked will enable "smooth" meter reading mode, where meters are updated gradually. If unchecked, the usage values will be presented in the way they are obtained.

- **Use larger numbers in system tray icons**

    When checked will show larger numbers in the tray meter icons. You may compare it visually:
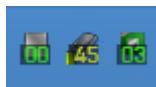

    Large numbers

    Small numbers

    INFORMATION: Due to design of the Windows system tray, the tray icons are limited to a very low resolution. By displaying larger numbers you're technically sacrificing the visibility of the rest of the meter icon.

    INFORMATION: To achieve a better meter icon readability it is suggested to increase your Display DPI setting in Control Panel.

- **Use gray-scale system tray icons**

    When checked will show tray meter icons rendered with a gray-scale color palette. You may compare it visually:
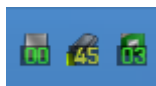
    Normal colors

    Gray-scale

    INFORMATION: A gray-scale color scheme may provide better visibility for some users.

- **Meter(s) update frequency**

    Determines the frequency with which this program will update its meter readings for CPU, RAM and disk drives usage.

    INFORMATION:
    (1) Supported values are: 50 milliseconds, 100 milliseconds (set by default), 200 milliseconds, 500 milliseconds, and 1 second. (FYI: 500 ms is half a second.)
    (2) On some older systems it may be recommended to change the update frequency to 200 ms, or even to 500 ms to minimize the impact of this program on the accuracy of the CPU reading.
    (3) If the program is running in the "smooth" meter reading mode (see above), it obtains the CPU, RAM and disk drive usage data every 5th time its icon is updated on the taskbar notification area (or in other words, it's done each 5th iteration.) In case the "smooth" meter reading mode is off, the CPU, RAM and disk drive usage data is obtained during each iteration, when the icons are updated.

- **Left clicks on meter icons**

  Specifies what to do when a user clicks one of the meter icons on the taskbar notification area using the left mouse button. The following options are available:

  - **Do not use** – not to perform any actions.

  - **Show context menu** – show the main context menu for this program.

  - **Show info window** – show the corresponding information window for the meter.

  - **Open drive** – in case of a disk drive meter, opens the root folder on that drive. For other meters this option does nothing.

- **Double-clicks on meter icons**

  Specifies what to do when a user double-clicks one of the meter icons on the taskbar notification area using the left mouse button. The following options are available:

  - **Do not use** – not to perform any actions.

  - **Show context menu** – show the main context menu for this program.

  - **Show info window** – show the corresponding information window for the meter.

  - **Open drive** – in case of a disk drive meter, opens the root folder on that drive. For other meters this option does nothing.

- **Autostart this program when current user logs in**

  When checked will place the link to this program in the Windows *auto-run*, that will allow it to start every time current Windows user logs in, or if computer is rebooted. If unchecked, the program will have to be started manually every time computer is rebooted or if the user logs out.

  INFORMATION: Due to often abuse of this option by malware, many anti-virus products prevent running software from placing itself in the Windows auto-run. If that is the case this program may display a pop-up warning when you OK the Settings window.

- **Do not show non-critical warning popup messages**

  When checked will prevent this program from displaying popup warning messages to the user. (It is not recommended to turn on this option.)

  INFORMATION: If this option is turned on and the warning situation happens, the program will play a warning beep instead.

- **OK** button

  Click it to save changes made in the Settings window.

- **Cancel** button

  Click it to discard changes made in the Setting window.

Additional Information

- This program was designed with the smallest impact on the system resources, that is needed to minimize its own influence on the accuracy of the CPU, RAM and disk drives usage readings.

- Due to the architecture of the older operating systems, such as Windows 95/98/Me and Windows 2000, this program is not supported on those operating systems. Support for Windows XP will be discontinued in the future versions.

<u>Contact</u>

Please submit bug reports at dennisbabkin.com

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