

# *TASK MANAGER IN WINDOWS*

by Francis Chao

fchao2@yahoo.com

**WINNERS**  
WINdows usERS

**TuCSon** COMPUTER SOCIETY

**GREATER SOUTH BAY PC USERS GROUP**



Web location for the slides of this presentation:

<http://aztcs.org>

Then click on  
“Meeting Notes”

# SUMMARY

The *Task Manager* in *Windows..* provides you with an under-the-hood view of the operating system, startup programs, and third-party software application programs, hardware utilization, and network bandwidth utilization. You can use the *Task Manager* to isolate and resolve problems in your *Windows..* computer.

# TOPICS

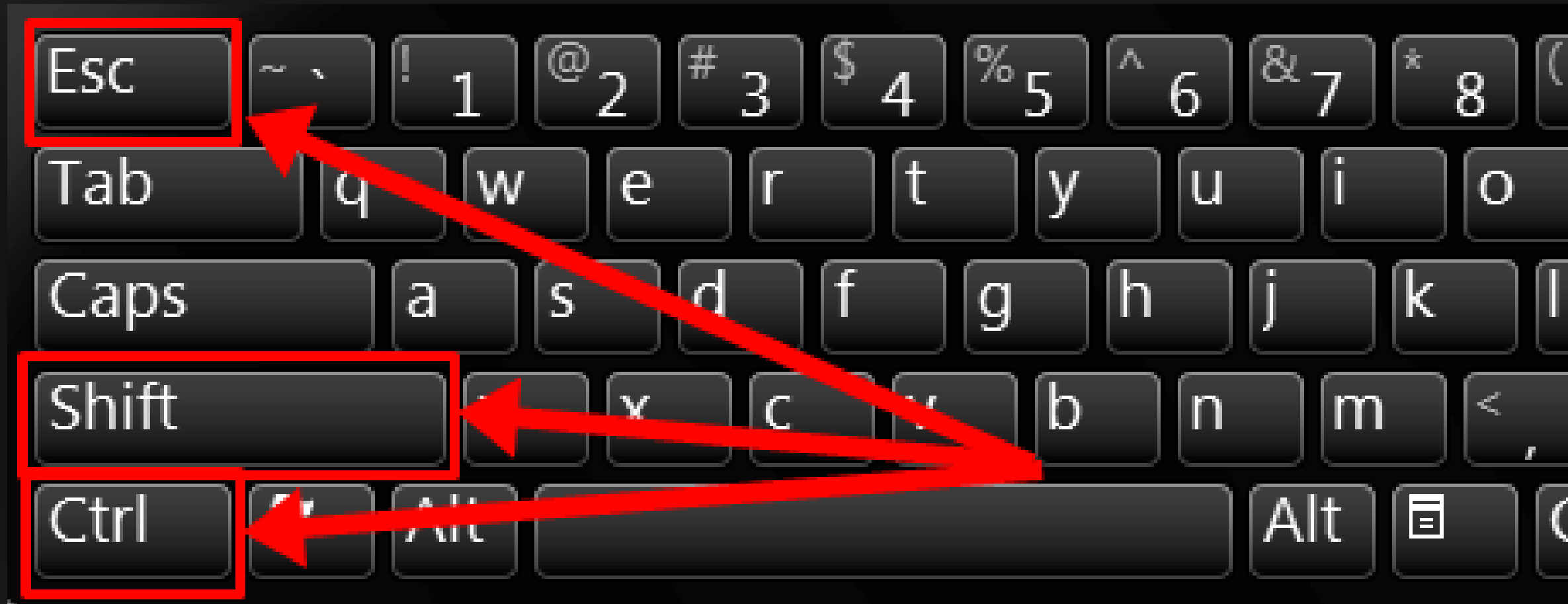
- Launching the *Task Manager*
- *Task Manager* Differences Between Windows 7/8/8.1/10
- Using the *Task Manager*
- Using the "Processes" Tab of the *Task Manager*
- Using the "Users" Tab of the *Task Manager*

# TOPICS (continued)

- Using the "Details" Tab of the *Task Manager*
- Using the "App History" Tab of the *Task Manager*
- Monitoring for a "Memory Leak"
- Using the "Startup" Tab of the *Task Manager*
- Using the "Services" Tab of the *Task Manager*

# LAUNCHING THE *TASK MANAGER*

- Six ways to start the *Task Manager* in "Windows..":
  - Method 1:  
Press Ctrl + Shift + Esc  
(This is the most reliable method of starting the *Task Manager* for "Windows 3.1", "Windows NT 4.0", "Windows 2000", "Windows XP", "Windows 7", "Windows 8.1", and "Windows 10")



# LAUNCHING THE *TASK MANAGER*

- Six ways to start the *Task Manager* in "Windows..":
  - Method 1 (continued):  
(Ctrl + Shift + Esc  
does not work for "Windows 95", "Windows 98",  
or "Windows ME".)



# LAUNCHING THE *TASK MANAGER*

- Six ways to start the *Task Manager* in "Windows..":
  - Method 1 (continued):  
For  
Ctrl + Shift + Esc  
to work to bring up the *Task Manager*  
the Esc key cannot be depressed before the  
Ctrl and Shift keys are depressed.

# LAUNCHING THE *TASK MANAGER* (continued)

- Method 2:  
Press Ctrl + Alt + Del  
Then click on *Task Manager*.  
(This method works for all versions of "Windows..".  
This method is the only way to bring up the *Task Manager* in "Windows 95", "Windows 98", and "Windows ME".)



→ Lock this computer

→ Switch User

→ Log off

→ Change a password...

→ Start Task Manager

Cancel

→ Lock this computer

→ Switch User

→ Log off

→ Change a password...

→ Start Task Manager

Cancel

# LAUNCHING THE *TASK MANAGER* (continued)

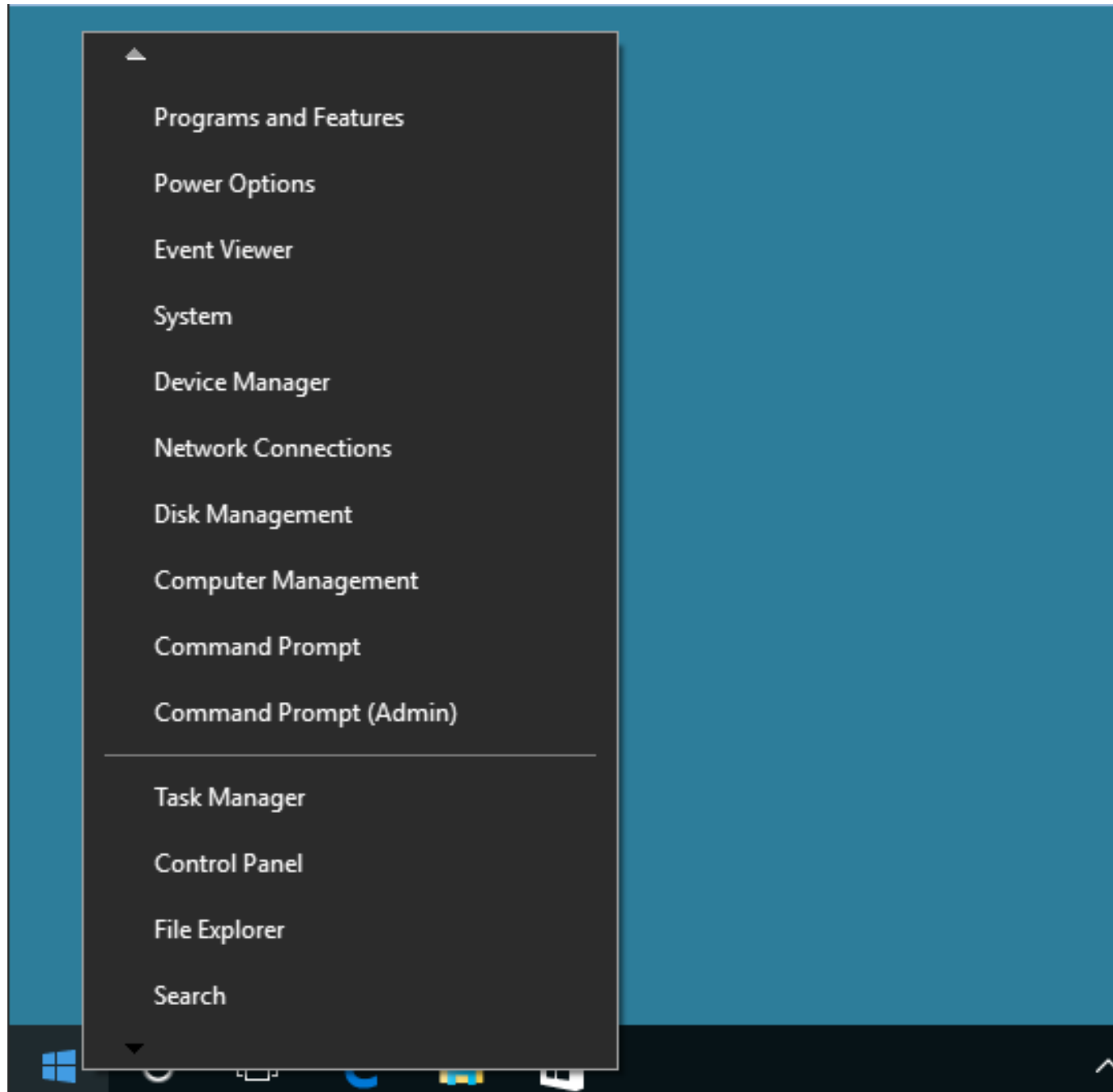
- Method 3:  
(For Win 8.1 or 10:)  
Right click on the "Start" button.  
A "Power Users Menu" will be displayed.  
Then click on *Task Manager* in the  
"Power Users Menu".

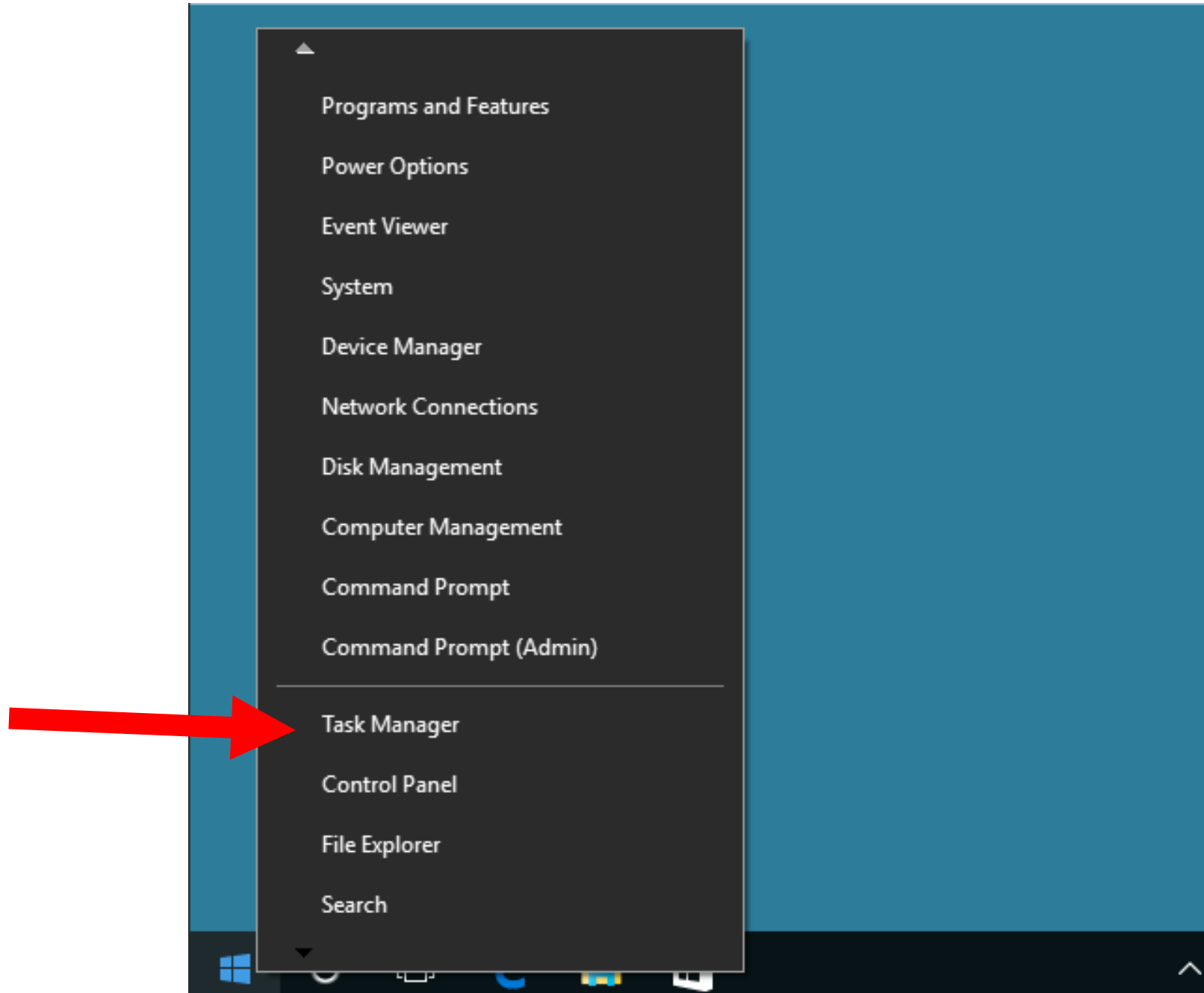


Windows taskbar showing icons for Start, Task View, Microsoft Edge, File Explorer, and Store. System tray includes a caret, display, volume, and notification icons. The system clock displays 9:35 PM on 5/2/2016.









Computer Management

Command Prompt

Command Prompt (Admin)

Task Manager

Control Panel

File Explorer

Search

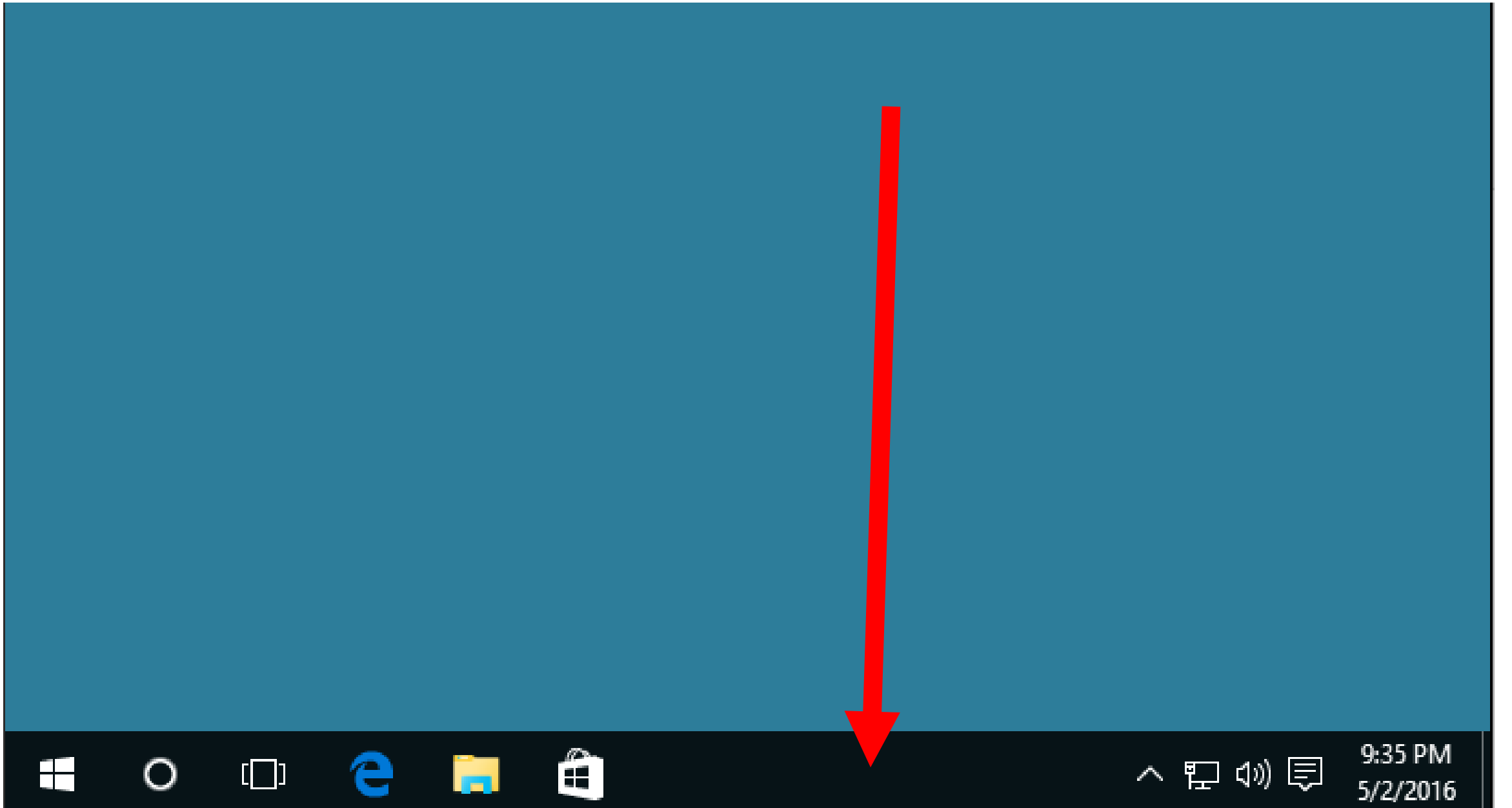


# LAUNCHING THE *TASK MANAGER* (continued)

- Method 3A:  
(For Win 8/8.1/10:)  
Use the keyboard and press  
"Windows key" + x  
Then click on *Task Manager* in the  
"Power Users Menu".

# LAUNCHING THE *TASK MANAGER* (continued)

- Method 4:  
(For Win 7/8/8.1/10:)  
Right-click on unused space on the  
Taskbar.  
Then click on *Task Manager* in the  
pop-up context menu.





Recycle Bin

- Toolbars >

---

- Cortana >
- Show Task View button
- Show touch keyboard button

---

- Cascade windows
- Show windows stacked
- Show windows side by side
- Show the desktop

---

- Task Manager

---

- Lock the taskbar
- Properties



9:46 PM  
5/2/2016



- Toolbars >

---

- Cortana >
- Show Task View button
- Show touch keyboard button

---

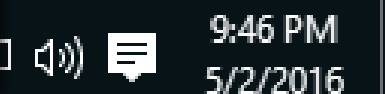
- Cascade windows
- Show windows stacked
- Show windows side by side
- Show the desktop

---

- Task Manager

---

- Lock the taskbar
- Properties





Cascade windows

Show windows stacked

Show windows side by side

Show the desktop

Task Manager

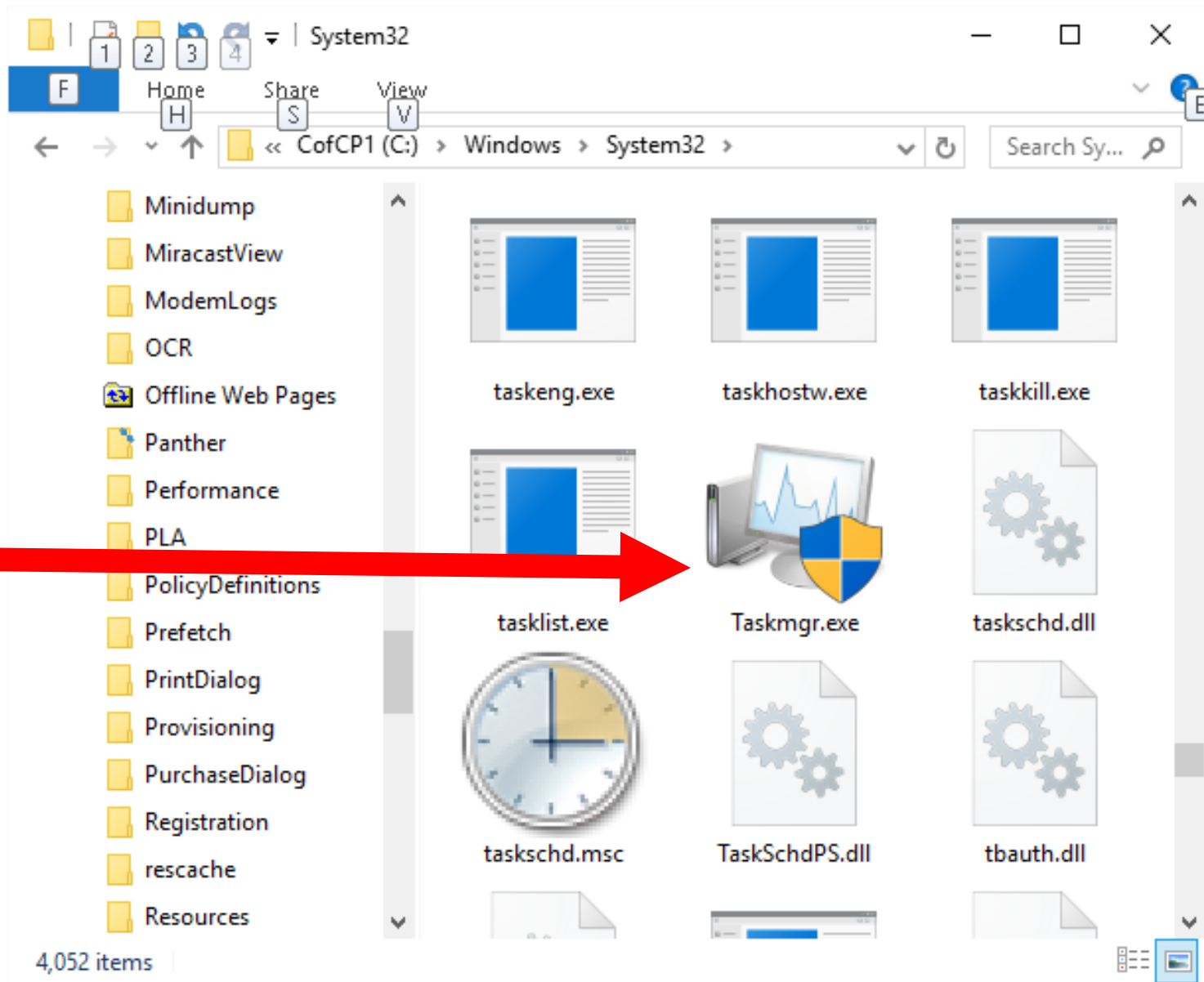
✓ Lock the taskbar

Properties



# LAUNCHING THE *TASK MANAGER* (continued)

- Method 5:  
Double-click on "Taskmgr.exe"  
inside C:\Windows\System32\  
(This rather cumbersome  
method works for all versions of  
"Windows..".)





Taskmgr.exe

# LAUNCHING THE *TASK MANAGER* (continued)

- Method 6:  
(For Win 8/8.1:)  
Go to the "Start" screen.  
Type in  
task  
using the keyboard.  
Then click on *Task Manager*.

# Start

testuser   

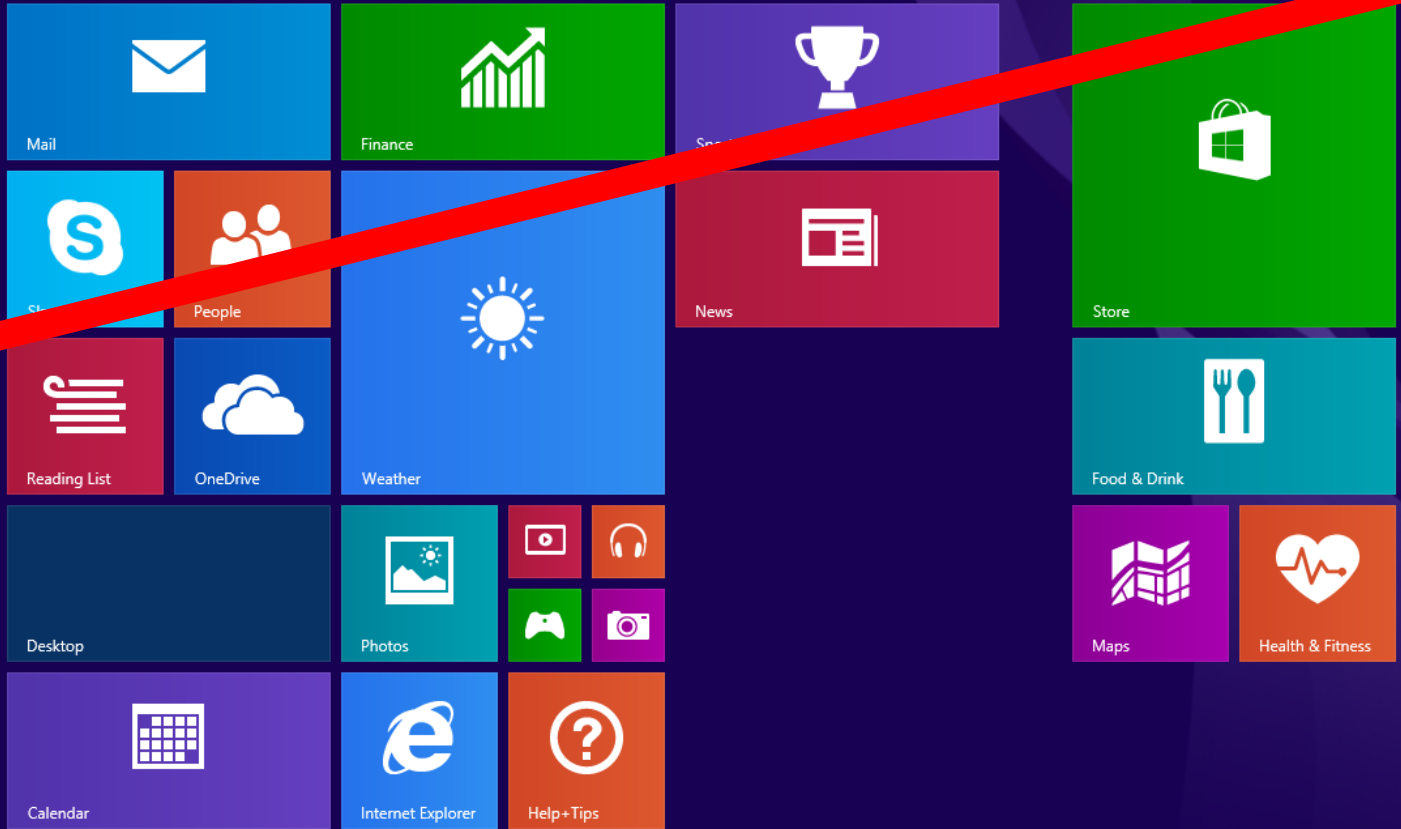


The Start menu displays a grid of application tiles. The tiles are arranged as follows:

- Row 1: Mail (blue), Finance (green), Sports (purple), Store (green)
- Row 2: Skype (light blue), People (orange), Weather (blue), News (red)
- Row 3: Reading List (red), OneDrive (blue), Food & Drink (teal)
- Row 4: Desktop (dark blue), Photos (teal), a group of four smaller tiles (Music, Photos, Gaming, Camera), Maps (purple), Health & Fitness (orange)
- Row 5: Calendar (purple), Internet Explorer (blue), Help+Tips (orange)



# Start



The Start menu features a grid of colorful tiles for various applications and services. The tiles are arranged as follows:

- Row 1: Mail (blue), Finance (green), Sports (purple), Store (green)
- Row 2: SkyDrive (light blue), People (orange), News (red), Food & Drink (teal)
- Row 3: Reading List (red), OneDrive (blue), Weather (blue)
- Row 4: Desktop (dark teal), Photos (teal), Video (red), Music (orange), Games (green), Photos (purple)
- Row 5: Calendar (purple), Internet Explorer (blue), Help+Tips (orange)

## Search

Everywhere ▾

task Manager

Task Manager

Change the background and colors on Start

Choose whether to show Windows Store apps on the task...

ta

# Search

Everywhere ▾

task Manager



Task Manager

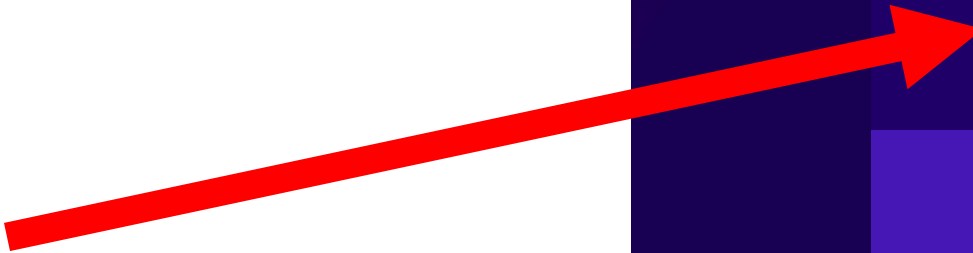


Change the background and colors on Start



Choose whether to show Windows Store apps on the task...

ta





# Search

Everywhere ▾

task Manager



Task Manager



Change the background and colors on Start

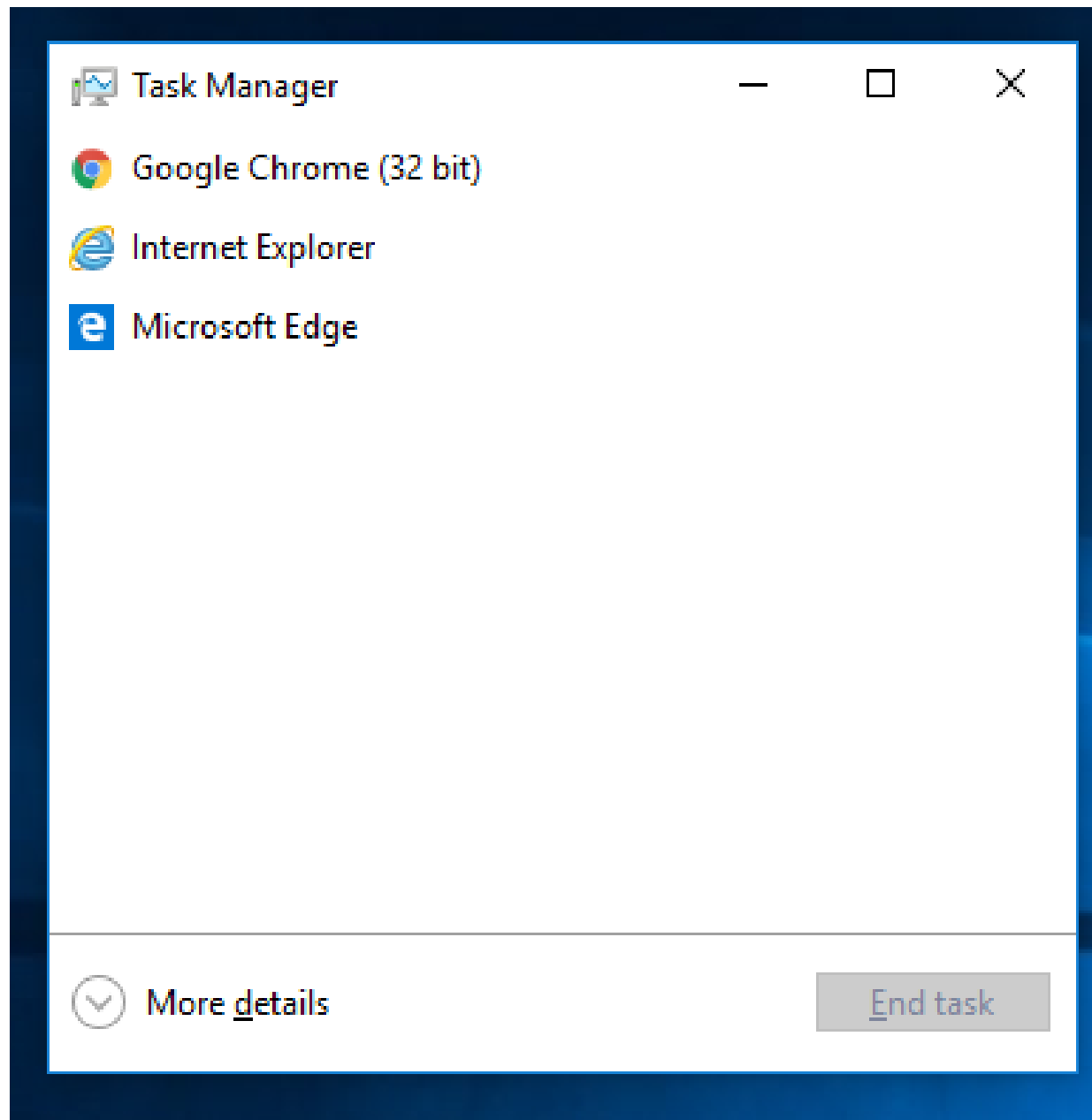


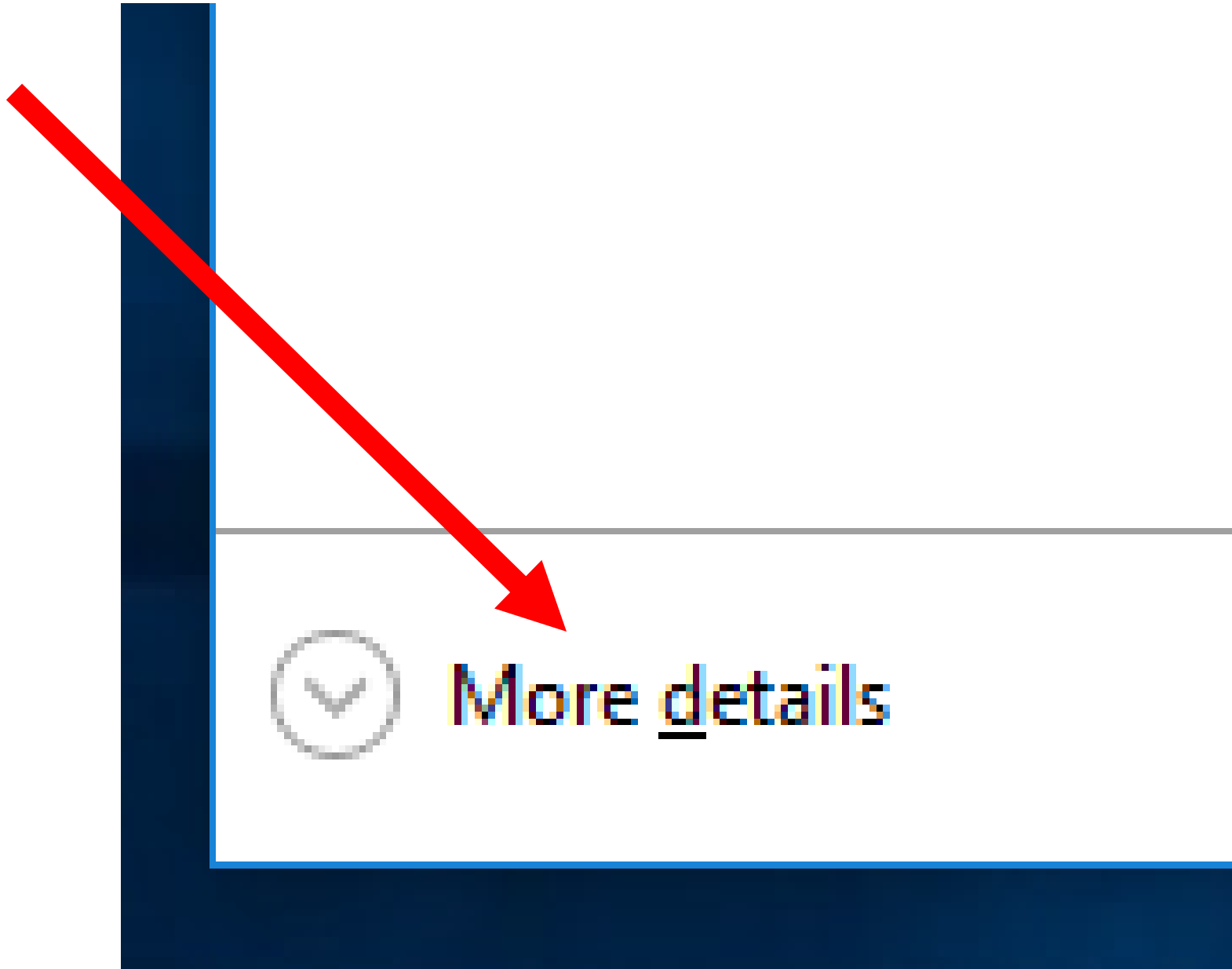
Choose whether to show Windows Store apps on the task...

ta

# LAUNCHING THE *TASK MANAGER* (continued)

- If you start up *Task Manager* and you see this simplified, default version of the *Task Manager*, click on "More Details" to get the full-featured version of the *Task Manager*:








Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	3% CPU	17% Memory	99% Disk	0% Network
<b>Apps (4)</b>				
> Google Chrome (32 bit)	0%	25.1 MB	0.1 MB/s	0 Mbps
> Internet Explorer	0%	64.7 MB	0 MB/s	0 Mbps
Microsoft Edge	0%	8.8 MB	0 MB/s	0 Mbps
> Task Manager	0%	8.3 MB	0 MB/s	0 Mbps
<b>Background processes (27)</b>				
Application Frame Host	0%	3.0 MB	0 MB/s	0 Mbps
Browser_Broker	0%	1.9 MB	0 MB/s	0 Mbps
Cortana	0%	26.7 MB	0 MB/s	0 Mbps
Device Association Framework ...	0%	2.7 MB	0 MB/s	0 Mbps
Dism Host Servicing Process	0%	1.5 MB	0 MB/s	0 Mbps
Google Chrome (32 bit)	0%	38.4 MB	0 MB/s	0 Mbps
Host Process for Windows Tasks	0%	0.8 MB	0 MB/s	0 Mbps
Host Process for Windows Tasks	0%	3.4 MB	0.1 MB/s	0 Mbps

^ Fewer details End task

Name	CPU	Memory
<b>Apps (4)</b>		
>  Google Chrome (32 bit)	0.3%	24.0 MB
>  Internet Explorer	0%	64.9 MB
 Microsoft Edge	0%	8.8 MB

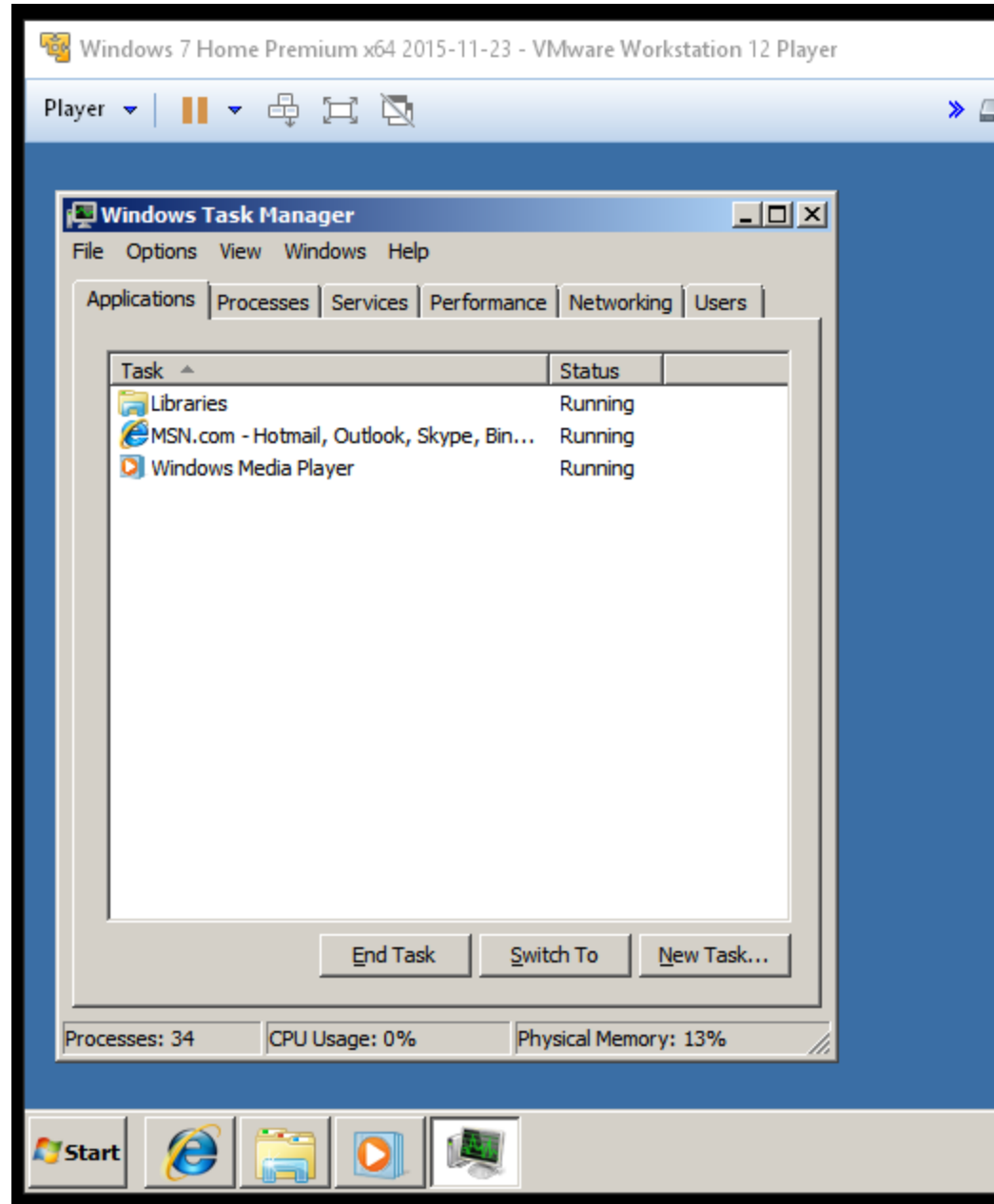
# ***TASK MANAGER DIFFERENCES BETWEEN "WINDOWS 7", "WINDOWS 8.1", AND "WINDOWS 10"***

- For each successive version of "Windows..", the *Task Manager* that is provided has more capabilities relative to the previous version of "Windows..":

# ***TASK MANAGER DIFFERENCES BETWEEN "WINDOWS 7", "WINDOWS 8.1", AND "WINDOWS 10" (continued)***

- The *Task Manager* in "Windows 7":





# ***TASK MANAGER DIFFERENCES*** **BETWEEN "WINDOWS 7", "WINDOWS** **8.1", AND "WINDOWS 10" (continued)**

- The *Task Manager* in "Windows 7" has the following 6 tabs:  
Applications, Processes, Services,  
Performance, Networking, and Users



### Windows Task Manager

File Options View Windows Help

Applications Processes Services Performance Networking Users

Task	Status
Libraries	Running
MSN.com - Hotmail, Outlook, Skype, Bin...	Running
Windows Media Player	Running

# ***TASK MANAGER DIFFERENCES BETWEEN "WINDOWS 7", "WINDOWS 8.1", AND "WINDOWS 10" (continued)***

- The *Task Manager* in "Windows 8.1":

Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	4% CPU	72% Memory	7% Disk	0% Network
<b>Apps (1)</b>					
▶ Task Manager		0%	7.1 MB	0.1 MB/s	0 Mbps
<b>Background processes (18)</b>					
▶ COM Surrogate		0%	2.5 MB	0 MB/s	0 Mbps
▶ COM Surrogate		0%	1.8 MB	0 MB/s	0 Mbps
▶ Device Association Framework ...		0%	2.1 MB	0 MB/s	0 Mbps
▶ Host Process for Windows Tasks		0%	1.7 MB	0 MB/s	0 Mbps
▶ Microsoft Distributed Transacti...		0%	1.7 MB	0 MB/s	0 Mbps
▶ Microsoft Windows Search Filte...		0%	0.7 MB	0 MB/s	0 Mbps
▶ Microsoft Windows Search Inde...		0%	4.1 MB	0 MB/s	0 Mbps
▶ Microsoft Windows Search Prot...		0%	0.8 MB	0 MB/s	0 Mbps
▶ Microsoft® Volume Shadow Co...		0%	1.1 MB	0 MB/s	0 Mbps
▶ Spooler SubSystem App		0%	2.3 MB	0 MB/s	0 Mbps
▶ VMware Activation Helper		0%	0.6 MB	0 MB/s	0 Mbps

^ Fewer details End task

# ***TASK MANAGER* DIFFERENCES BETWEEN "WINDOWS 7", "WINDOWS 8.1", AND "WINDOWS 10" (continued)**

- The *Task Manager* in "Windows 8.1" has the following 7 tabs:  
Processes (includes Applications),,  
Performance (includes Networking), App  
History (new), Startup (new), Users,  
Details (new), and Services



## Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	0% CPU	47% Memory	0% Disk	0% Network
Apps (1)					
▶  Task Manager		0%	7.5 MB	0 MB/s	0 Mbps

# ***TASK MANAGER* DIFFERENCES BETWEEN "WINDOWS 7", "WINDOWS 8.1", AND "WINDOWS 10" (continued)**

- The *Task Manager* in "Windows 10":



Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	1% CPU	17% Memory	0% Disk	0% Network
<b>Apps (4)</b>				
> Google Chrome (32 bit)	0%	24.4 MB	0.1 MB/s	0 Mbps
> Internet Explorer	0%	65.9 MB	0 MB/s	0 Mbps
Microsoft Edge	0%	8.8 MB	0 MB/s	0 Mbps
> Task Manager	0%	8.5 MB	0 MB/s	0 Mbps
<b>Background processes (20)</b>				
Application Frame Host	0%	3.0 MB	0 MB/s	0 Mbps
Browser_Broker	0%	1.9 MB	0 MB/s	0 Mbps
Cortana	0%	28.7 MB	0 MB/s	0 Mbps
Device Association Framework ...	0%	2.9 MB	0 MB/s	0 Mbps
Google Chrome (32 bit)	0%	39.1 MB	0 MB/s	0 Mbps
Host Process for Windows Tasks	0%	0.8 MB	0 MB/s	0 Mbps
Host Process for Windows Tasks	0%	3.5 MB	0 MB/s	0 Mbps
Microsoft Edge	0%	70.5 MB	0 MB/s	0 Mbps

^ Fewer details End task

# ***TASK MANAGER* DIFFERENCES BETWEEN "WINDOWS 7", "WINDOWS 8.1", AND "WINDOWS 10" (continued)**

- The *Task Manager* in "Windows 10" has the following tabs:  
Processes (includes Applications), Performance (includes Networking), App History, Startup, Users, Details, and Services

# Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	0% CPU	17% Memory	0% Disk	0% Network
------	-----------	---------------	------------	---------------

Apps (4)				
----------	--	--	--	--

# USING THE *TASK MANAGER*

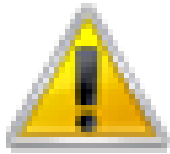
- The *Task Manager* gives you control over things that are happening in a "Windows.." computer that you otherwise would not have control over without dealing with more complexity: applications, toolbars, and drivers that are malfunctioning and malware instances:

# USING THE *TASK MANAGER* (continued)

- When your "Windows.." computer is low on available RAM and you are not running a software application program, "Windows.." will tell you with error messages such as this one:



Microsoft Windows



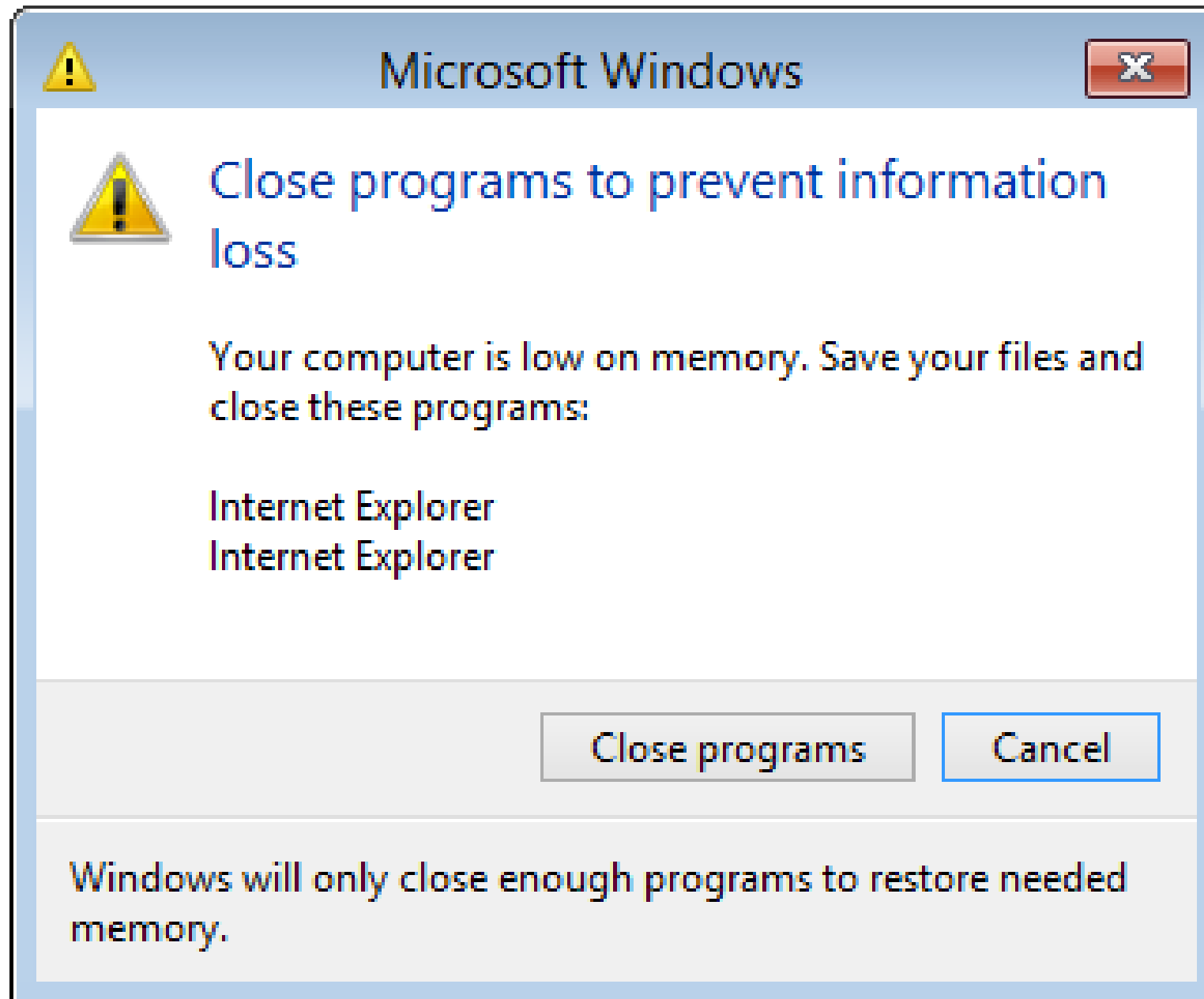
Your computer is low on memory

To restore enough memory for programs to work correctly, save your files and then close or restart all open programs.

OK

# USING THE *TASK MANAGER* (continued)

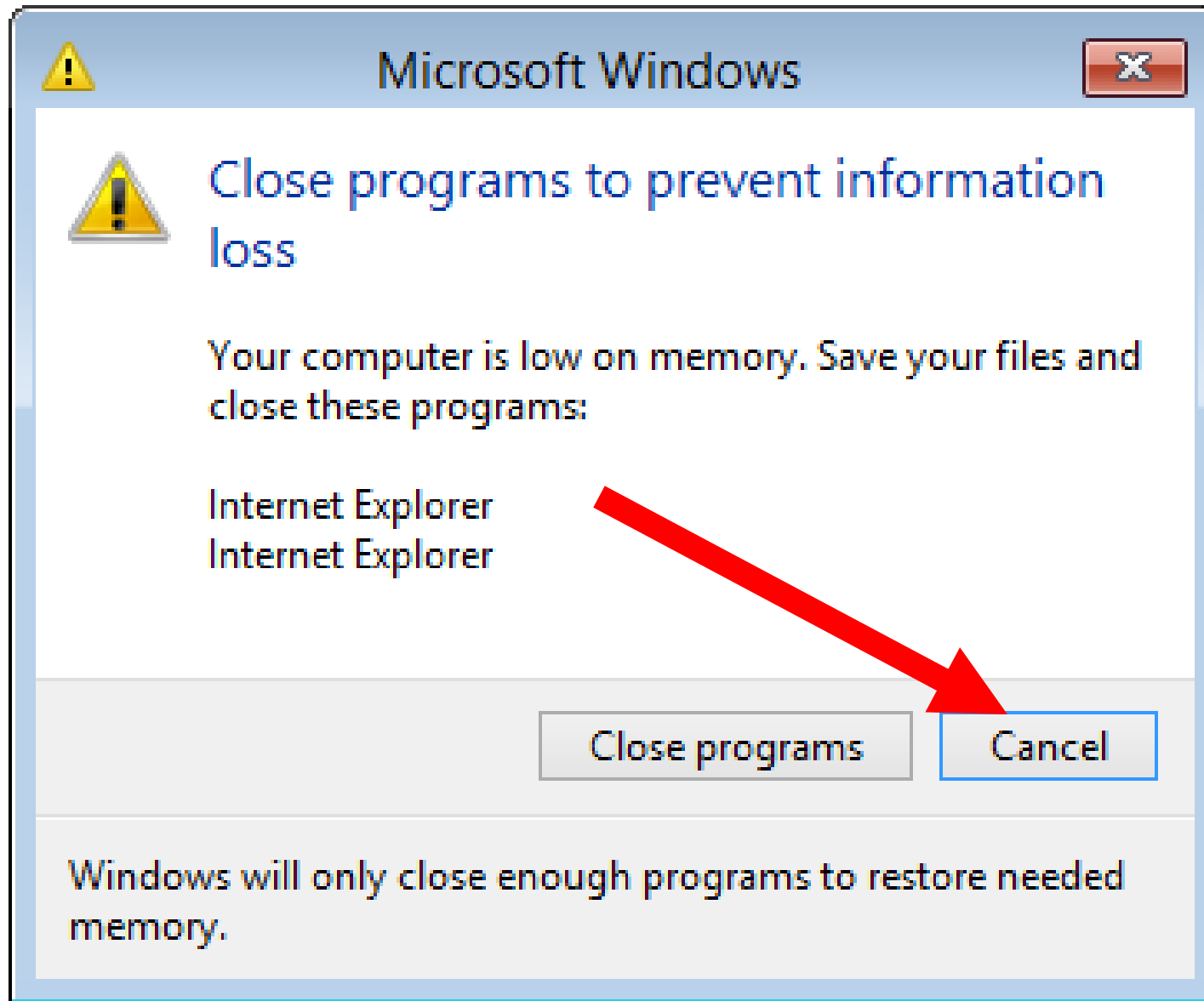
- When your "Windows.." computer is low on available RAM and you are running at least one software application program, it will pop up a slightly-fancier error message such as this one:





# USING THE *TASK MANAGER* (continued)

- Instead of clicking on "Close Programs", you can get more information and more control over the situation by clicking on "Cancel" and then using the *Task Manager* instead.

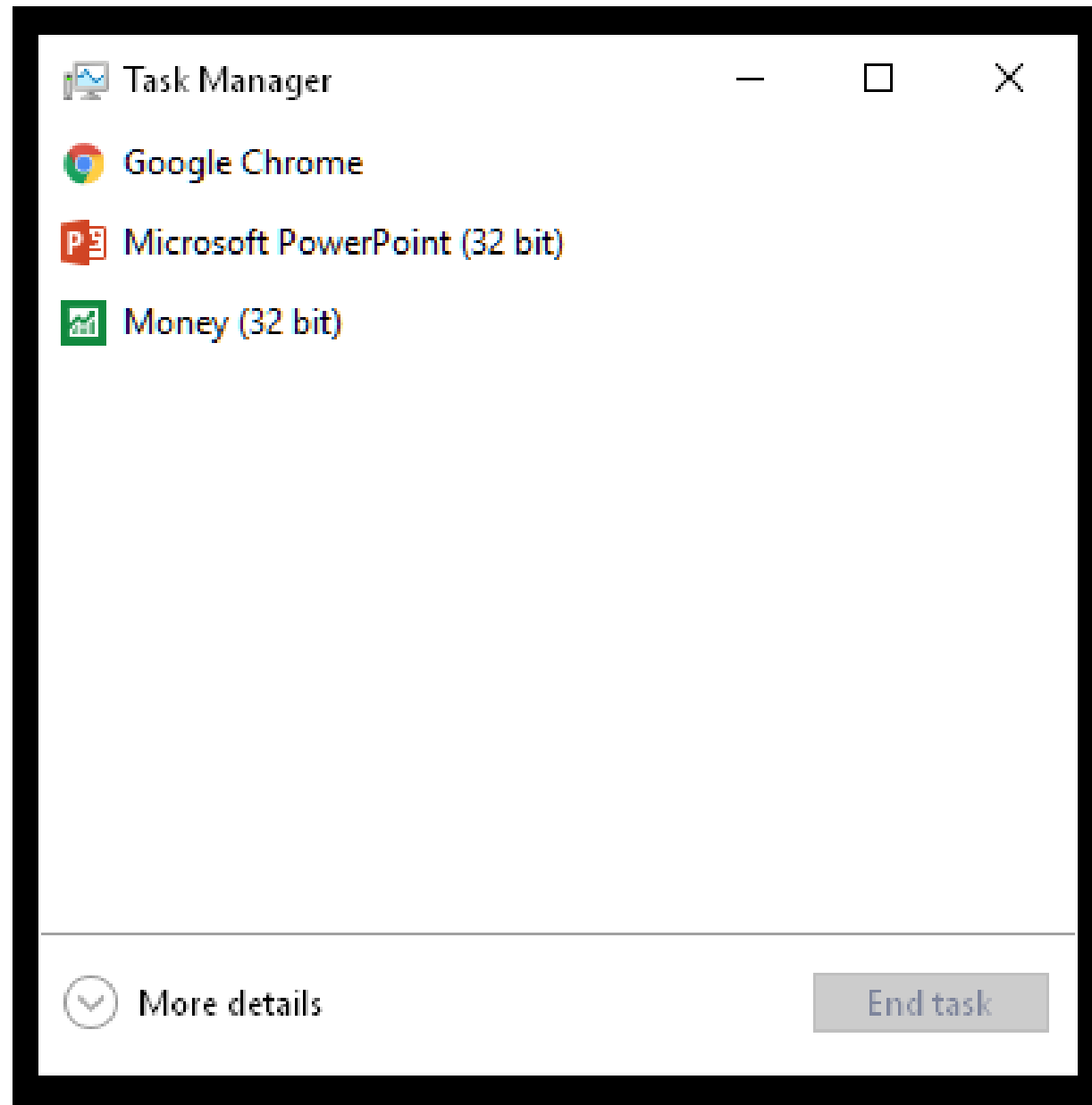


# USING THE *TASK MANAGER* (continued)

- Sometimes, your computer will be so desperately short on free RAM, that even the "Close Programs" and the "Cancel" buttons in the error messages fail.

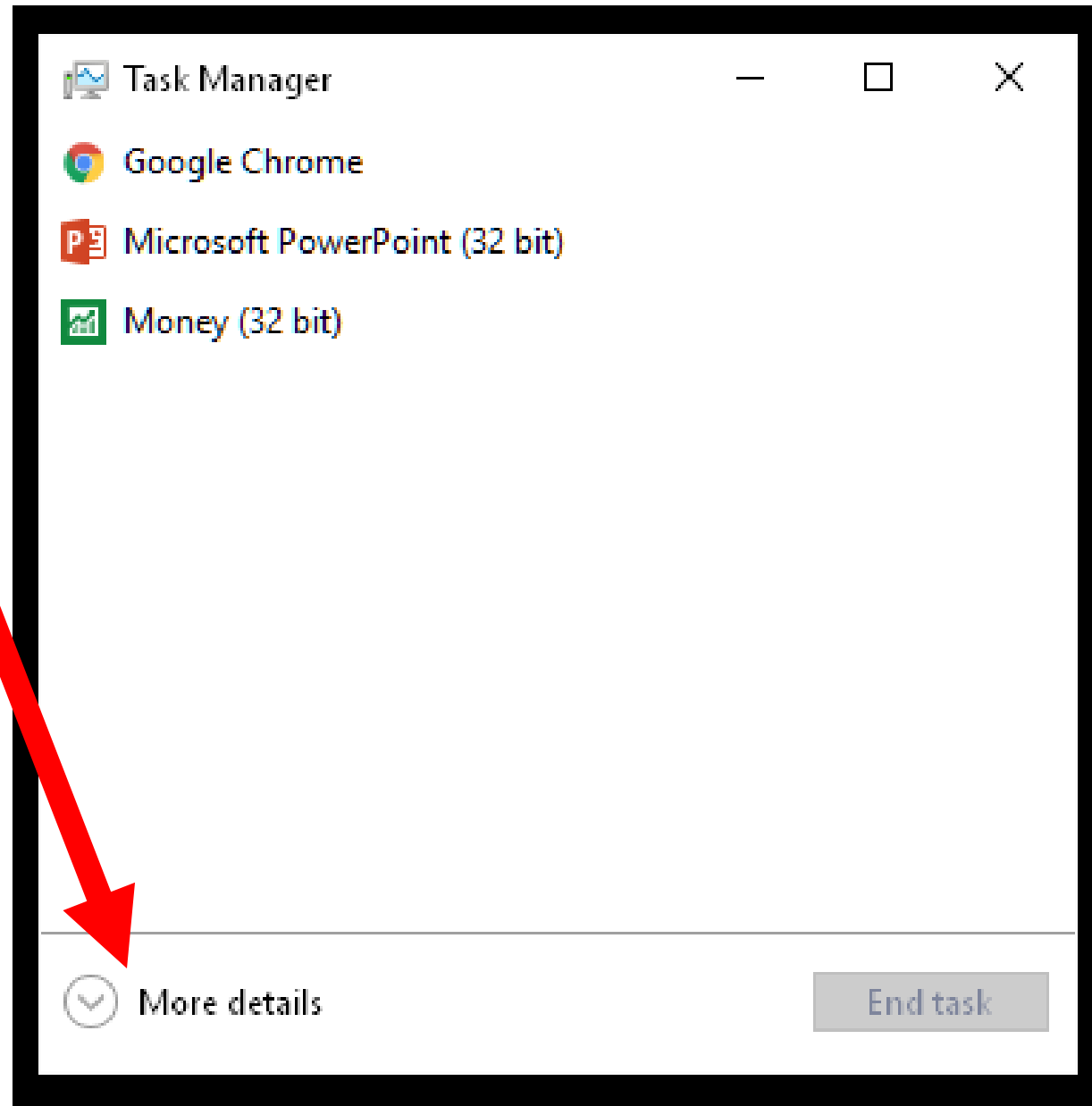
# USING THE *TASK MANAGER* (continued)

- In most cases, you can still bring up the *Task Manager* by pressing "Ctrl" + Shift" + "Esc" with the keyboard:



# USING THE *TASK MANAGER* (continued)

- If you see this simplified, default version of the *Task Manager*, click on "More Details" to get the full-featured version of the *Task Manager*:



# USING THE *TASK MANAGER* (continued)

- In Windows 8.1 and 10, the full-featured version has seven tabs for you to select between:



Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	99% CPU	88% Memory	1% Disk	0% Network
<b>Apps (2)</b>					
Internet Explorer (2)	Not responding	100.0%	142.3 MB	0 MB/s	0.1 Mbps
Task Manager		0%	7.5 MB	0 MB/s	0 Mbps
<b>Background processes (17)</b>					
Adobe® Flash® Player Utility		0%	1.4 MB	0 MB/s	0 Mbps
COM Surrogate		0%	1.6 MB	0 MB/s	0 Mbps
Device Association Framework Provider Host		0%	3.3 MB	0 MB/s	0 Mbps
Host Process for Windows Tasks		0%	7.0 MB	0.1 MB/s	0 Mbps
Internet Explorer (32 bit)		0%	3.8 MB	0 MB/s	0 Mbps
Microsoft Distributed Transaction Coordinator Service		0%	0.9 MB	0 MB/s	0 Mbps
Microsoft Windows Search Indexer		0%	3.8 MB	0.1 MB/s	0 Mbps
Runtime Broker		0%	0.9 MB	0 MB/s	0 Mbps
Spooler SubSystem App		0%	1.5 MB	0 MB/s	0 Mbps
VMware Activation Helper		0%	0.4 MB	0 MB/s	0 Mbps

^ Fewer details

End task

# USING THE "PROCESSES" TAB OF THE *TASK MANAGER*

- In Windows 8.1 and 10, the "Processes" tab has three sections:
  - Apps
  - Background Processes
  - Windows Processes

# USING THE "PROCESSES" TAB OF THE *TASK MANAGER* (continued)

- To do something to a process, right-click on it and you will get a pop-up context menu:

Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	99% CPU	88% Memory	1% Disk	0% Network
<b>Apps (2)</b>					
Internet Explorer (2)	Not responding	100.0%	142.3 MB	0 MB/s	0.1 Mbps
Task Manager		0%	7.5 MB	0 MB/s	0 Mbps
<b>Background processes (17)</b>					
Adobe® Flash® Player Utility		0%	1.4 MB	0 MB/s	0 Mbps
COM Surrogate		0%	1.6 MB	0 MB/s	0 Mbps
Device Association Framework Provider Host		0%	3.3 MB	0 MB/s	0 Mbps
Host Process for Windows Tasks		0%	7.0 MB	0.1 MB/s	0 Mbps
Internet Explorer (32 bit)		0%	3.8 MB	0 MB/s	0 Mbps
Microsoft Distributed Transaction Coordinator Service		0%	0.9 MB	0 MB/s	0 Mbps
Microsoft Windows Search Indexer		0%	3.8 MB	0.1 MB/s	0 Mbps
Runtime Broker		0%	0.9 MB	0 MB/s	0 Mbps
Spooler SubSystem App		0%	1.5 MB	0 MB/s	0 Mbps
VMware Activation Helper		0%	0.4 MB	0 MB/s	0 Mbps

^ Fewer details

End task

# Task Manager

File Options View

Processes Performance App history Startup Users Details Services


Name

Status

99%  
CPU

88%  
Memory

Apps (2)

▶  Internet Explorer (2)

Not responding

100.0%

142.3 MB

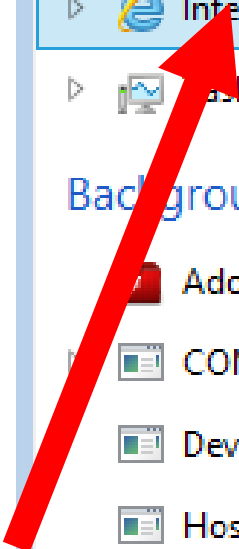
▶  Task Manager

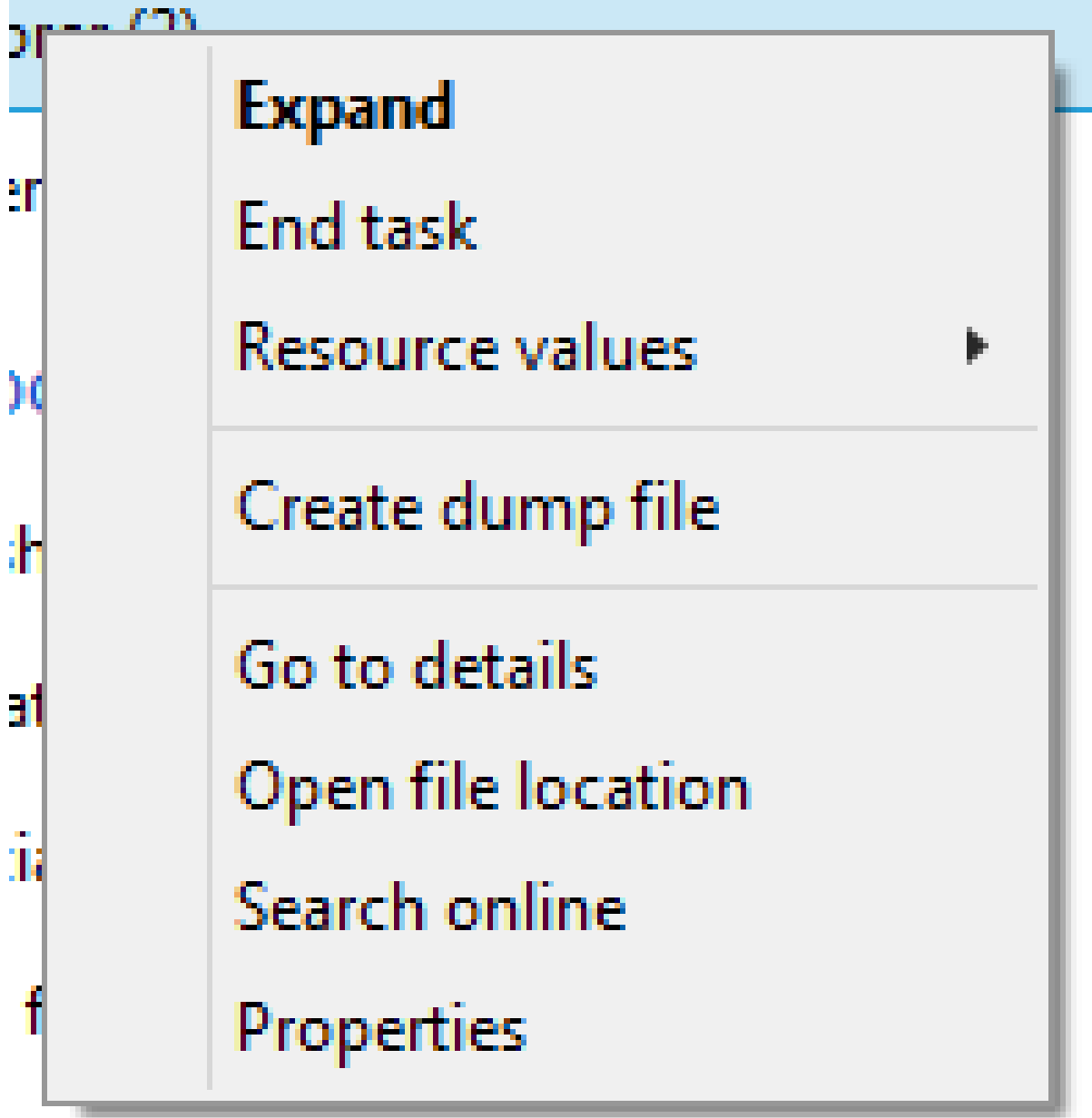
0%

7.5 MB

Name	Status	99% CPU	88% Memory
<b>Apps (2)</b>			
▶  Internet Explorer (32 bit)	Not responding	100.0%	141.8 MB
▶  Task Manager		0%	7.5 MB
<b>Background processes</b>			
Adobe® Flash Player		0%	1.4 MB
COM Surrogate		0%	1.6 MB
Device Association		0%	3.3 MB
Host Process for		0%	6.7 MB
Internet Explorer (32 bit)		0%	3.4 MB

- Expand
- End task
- Resource values ▶
- Create dump file
- Go to details
- Open file location
- Search online
- Properties





# USING THE "PROCESSES" TAB OF THE *TASK MANAGER* (continued)

- Click on "End task" to get the problematic program to close:



explorer (7) Not re

- Expand
- End task
- Resource values ▶

---

- Create dump file

---

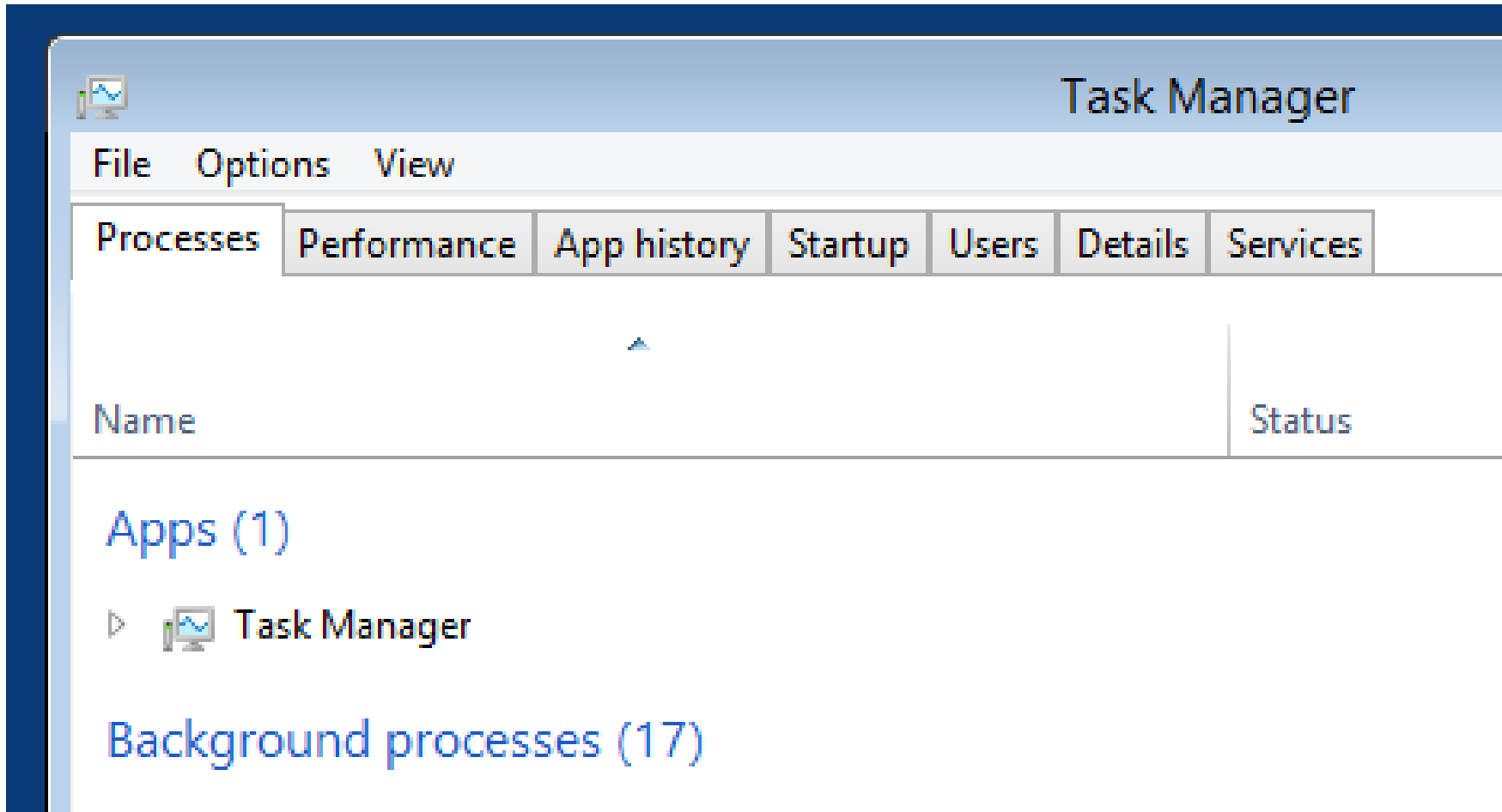
- Go to details
- Open file location
- Search online
- Properties



: Distributed Transaction Coordinator Service

# USING THE "PROCESSES" TAB OF THE *TASK MANAGER* (continued)

- The problematic program will then disappear from the "Processes" tab:



# USING THE "PROCESSES" TAB OF THE *TASK MANAGER* (continued)

- If the mouse is not working, you can do the following:  
Press Ctrl + Shift + Esc to bring up the *Task Manager*.  
Use the arrow keys to highlight the problematic program.  
Press the Delete key to stop the problematic program.

# USING THE "PROCESSES" TAB OF THE *TASK MANAGER* (continued)

- Never perform an "End task" or an "End Process Tree" on "Windows Explorer" or "explorer.exe" from anywhere inside the *Task Manager*. Doing so will result in a "black screen of death" that requires a reboot.

# USING THE "PROCESSES" TAB OF THE *TASK MANAGER* (continued)

- The "Processes" tab lets you close any Web browser or pop-up ads in a way that minimizes your chances of being infected by malware:  
It lets you close Web pages and Web-based pop-ups without running the mouse pointer over any potentially-malignant hyperlinks in potentially harmful Web page content such as:

### Confirm Navigation

Whoa! Hold on there Foolish investor...

You are about to navigate away and miss the presentation.

Press OK to continue.

Or press Cancel to read the transcript.

It could be the most profitable decision you have ever made!

Are you sure you want to leave this page?

Leave this Page

Stay on this Page

## Confirm Navigation



Whoa! Hold on there Foolish investor...

You are about to navigate away and miss the presentation.

Press OK to continue.

Or press Cancel to read the transcript.

It could be the most profitable decision you have ever made!

Are you sure you want to leave this page?

**Leave this Page**

Stay on this Page





Are you sure you want to leave this page?

Message from webpage:

\*\*\*\*\*

WAIT BEFORE YOU GO!

CLICK THE \*CANCEL\* BUTTON RIGHT NOW

No Speakers? NO PROBLEM!

Read This Letter To Solve Your

Erectile Dysfunction FOR GOOD!

**\*\*CLICK CANCEL\*\* TO GET The Information You NEED.**

\*\*\*\*\*

→ Leave this page

→ Stay on this page



# Antivirus XP 2008



This Computer is infected with spyware and adware

**ALERT**

Spyware programs install keyloggers, steal credit card numbers and bank information details. This computer can be used for sending spam and you will get popups with adult content. If your homepage was changed or you have strange popups- this is a sure that your computer is infected



Registration

**REGISTER**

We are strongly recommend you to register Antivirus XP 2008  
You will get friendly 24/7/365 premium support, frequent updates and individual fixed from all known viruses!



Virus Protection

**NOT ACTIVE**

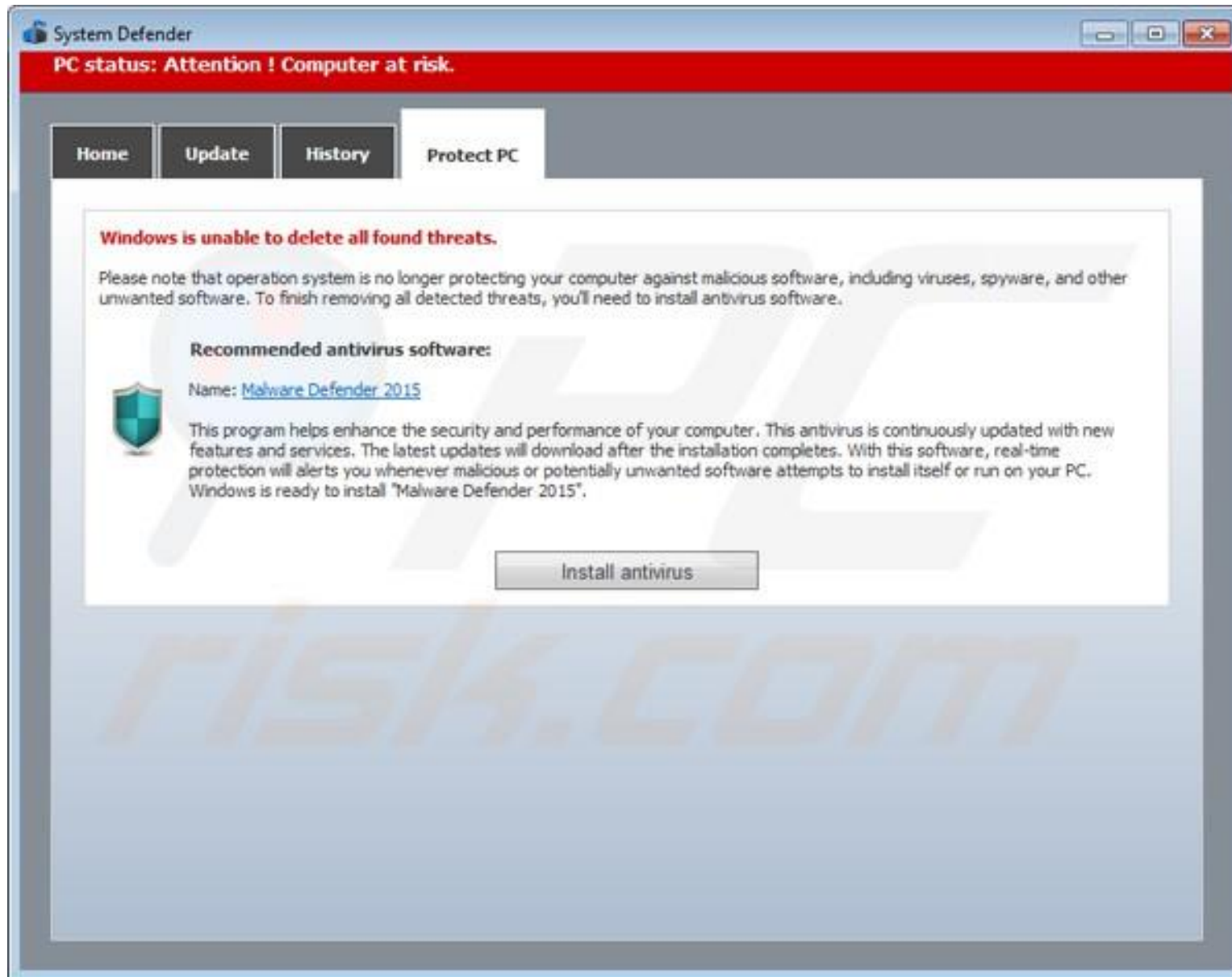
Windows did not find any registered Antivirus XP 2008 software on this computer. Antivirus XP 2008 helps protect your computer against viruses and other security threats. Click Recommendations for suggested actions you can take.

[Recommendations](#)

Antivirus XP 2008

Continue unprotected

[Click here to switch to the Full Mode.](#)



CoreGuard Antivirus 2009

**UNREGISTERED COPY**

Update Register Help & Support

### CoreGuard Antivirus 2009

Help protect your computer

- Security status
- System scan
- Firewall
- Advanced cleaner
- Check for updates
- Settings

### System monitor

Runtime system protection status monitoring. Be sure all the tools marked green.

Firewall protection (DEMO)	Disable
Antivirus protection (DEMO)	Disable
Spyware protection (DEMO)	Disable
Automatic updates	Enable
Scheduled scans	Enable
RAM protection	Enable

**System summary:**  
**Running insecure state, several vulnerabilities are detected**  
Last antivirus scan: 29.04.2009 15:50  
Last update: never  
Last scan results: 3 infected objects found, 0 removed.

**Security Alert**  
ANTIVIRUS IS RUN IN DEMO MODE. ACTIVATE YOUR ANTIVIRUS OTHERWISE ALL THE DATA WILL BE LOST OR DAMAGED!

Unlock full version!  
Easy one-click registration

Trial version! Click here to register





# Internet Security 2010

Update

Register

Help and Support

- Security status
- System scan**
- Firewall
- Email protection
- Check for updates
- Settings

## System Scan

Scan all hard drives on your computer



Scan type:  Normal  Quick



Start

Stop

Pause

#	Vendor	Type	Location	Threat level	Description
<input checked="" type="checkbox"/>	1 Trojan-Clicker....	Trojan Programs	C:\WINDOWS\s...	Low Risk	This Trojan opens w..
<input checked="" type="checkbox"/>	1 Trojan-PSW.Wi...	Trojan Programs	C:\WINDOWS\s...	Middle Risk	This Trojan is design..
<input checked="" type="checkbox"/>	1 Trojan-Spy.Win...	Trojan Programs	C:\WINDOWS\s...	High Risk	This Trojan logs the ..
<input checked="" type="checkbox"/>	1 Trojan-Downloa...	Trojan Programs	C:\WINDOWS\s...	Middle Risk	This Trojan downloa..
<input checked="" type="checkbox"/>	1 Trojan-Dropper...	Trojan Programs	C:\WINDOWS\s...	Middle Risk	Checkin is a "downlo..
<input checked="" type="checkbox"/>	1 Email-Worm.BA...	Network Worms	C:\WINDOWS\s...	High Risk	This worm spreads vi.
<input checked="" type="checkbox"/>	1 Trojan-Dropper...	Highjack	C:\WINDOWS\s...	Middle risk	This type of trojan c..
<input checked="" type="checkbox"/>	1 D...H...Win??	Trojan Programs	C:\WINDOWS\s...	High Risk	This Trojan marks fr..

C:\WINDOWS\system32\wiadefui.dll

Objects scanned: 2777

Threats detected: 24

Fixed: 0

Removed: 0

Remove threats

**TRIAL VERSION**  
**UNLOCK FULL VERSION!**  
 easy one-click registration



The site

Attackers  
dangerous  
informatio  
informatio

The page at myfavoritesweeps-ipadair-winner2.com says:

Critical programming error alert

The web site you were attempting to access ahead is infected with malware.

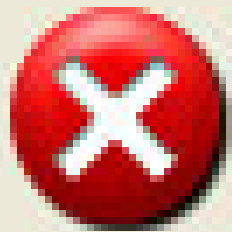
Unknown users on your computer are attempting to install harmful software and programs which will allow them to steal or delete information. This is including but not limited to photographs, user passwords, instant messages, and credit card numbers.

We strongly advise that you dial the number for customer care at (855) 484-5213 this very moment for technical support.

OK Cancel

install  
te your  
private

# Task Manager



Task Manager has been disabled by your administrator.

OK

# USING THE "PROCESSES" TAB OF THE *TASK MANAGER* (continued)

- The resource utilization values on the right portion of the "Processes" tab is color-coded from light yellow to dark orange. The relative amount of resource utilization is color-coded with light yellow being "very low" and dark orange being "very high":



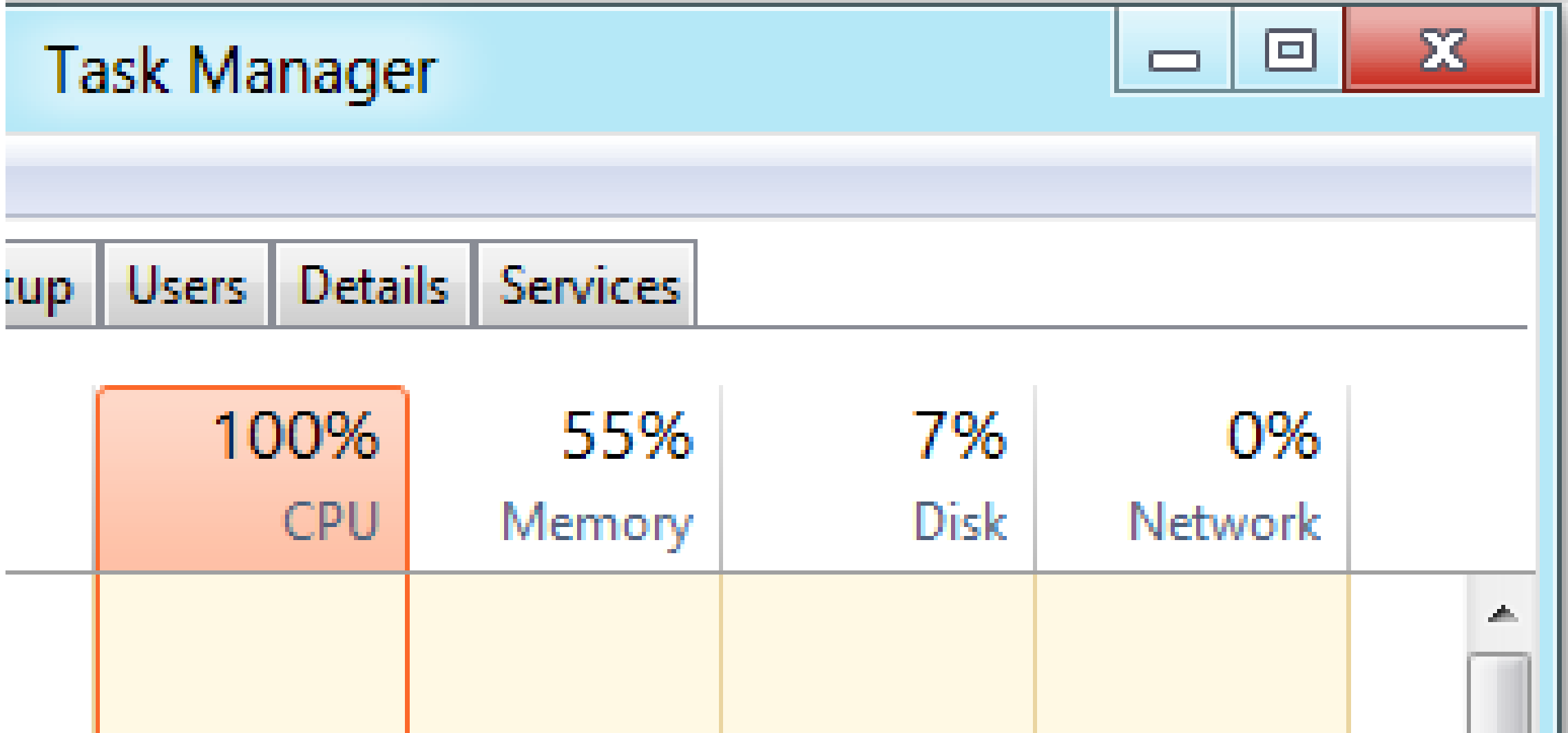
Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	100% CPU	55% Memory	7% Disk	0% Network
<b>Apps (16)</b>					
Ashampoo ImageFX		0%	0.9 MB	0 MB/s	0 Mbps
Cookbook By Bewise		0%	16.6 MB	0 MB/s	0 Mbps
Dropbox		0%	15.8 MB	0.1 MB/s	0 Mbps
Grantophone		0%	5.1 MB	0 MB/s	0 Mbps
▷  Internet Explorer		5.8%	2.3 MB	0.1 MB/s	0 Mbps
Kobo		0%	1.1 MB	0 MB/s	0 Mbps
Mail		0%	4.6 MB	0 MB/s	0 Mbps
News Republic		0%	33.9 MB	0 MB/s	0 Mbps
Photos		0%	21.0 MB	0 MB/s	0 Mbps
Pirates Love Daisies		0%	62.1 MB	0 MB/s	0 Mbps
▷  Resource and Performanc...		7.3%	13.0 MB	0 MB/s	0 Mbps
SlapDash Podcasts		0%	32.4 MB	0 MB/s	0 Mbps

^ Fewer details End task



# USING THE "PROCESSES" TAB OF THE *TASK MANAGER* (continued)

- You can expand an app to see if the app has multiple windows:

Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	100% CPU	55% Memory	7% Disk	0% Network
<b>Apps (16)</b>					
Ashampoo ImageFX		0%	0.9 MB	0 MB/s	0 Mbps
Cookbook By Bewise		0%	16.6 MB	0 MB/s	0 Mbps
Dropbox		0%	15.8 MB	0.1 MB/s	0 Mbps
Grantophone		0%	5.1 MB	0 MB/s	0 Mbps
▶  Internet Explorer		5.8%	2.3 MB	0.1 MB/s	0 Mbps
Kobo		0%	1.1 MB	0 MB/s	0 Mbps
Mail		0%	4.6 MB	0 MB/s	0 Mbps
News Republic		0%	33.9 MB	0 MB/s	0 Mbps
Photos		0%	21.0 MB	0 MB/s	0 Mbps
Pirates Love Daisies		0%	62.1 MB	0 MB/s	0 Mbps
▶  Resource and Performanc...		7.3%	13.0 MB	0 MB/s	0 Mbps
SlapDash Podcasts		0%	32.4 MB	0 MB/s	0 Mbps

^ Fewer details End task

Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	100% CPU	59% Memory	28% Disk	0% Network
<b>Apps (19)</b>					
Ashampoo ImageFX		0%	0.9 MB	0 MB/s	0 Mbps
Cookbook By Bewise		0%	12.0 MB	0 MB/s	0 Mbps
Dropbox		0%	15.3 MB	0 MB/s	0 Mbps
Grantophone		0%	5.1 MB	0 MB/s	0 Mbps
Internet Explorer (3)		40.8%	65.5 MB	0.2 MB/s	0.2 Mbps
Google - Windows Inter...					
How-To Geek - Comput...					
MSN Canada - The hom...					
Kobo		0%	1.1 MB	0 MB/s	0 Mbps
LiveComm		0%	5.4 MB	0 MB/s	0 Mbps
Mail		0%	3.9 MB	0 MB/s	0 Mbps
Microsoft Management C...		0.5%	4.1 MB	0 MB/s	0 Mbps

^ Fewer details

End task

# USING THE "PROCESSES" TAB OF THE *TASK MANAGER* (continued)

- When you are experiencing possibly unsafe hyperlinks at a Web site, mousing over or clicking over an active hyperlink could possibly download malware into your computer. Using Ctrl + Shift + Esc to bring up a Task Manager and then closing the "Process" is safer than using the mouse inside possibly dangerous Web-based content.

# USING THE "PROCESSES" TAB OF THE *TASK MANAGER* (continued)

- When you are viewing your email at a secure Web site (= "Webmail"), your e-mail provider has already used an anti-virus/anti-malware server to scan the contents of the e-mail message that they are displaying for you so your chances of mousing over or clicking on a hyperlink that downloads malware is almost non-existent.

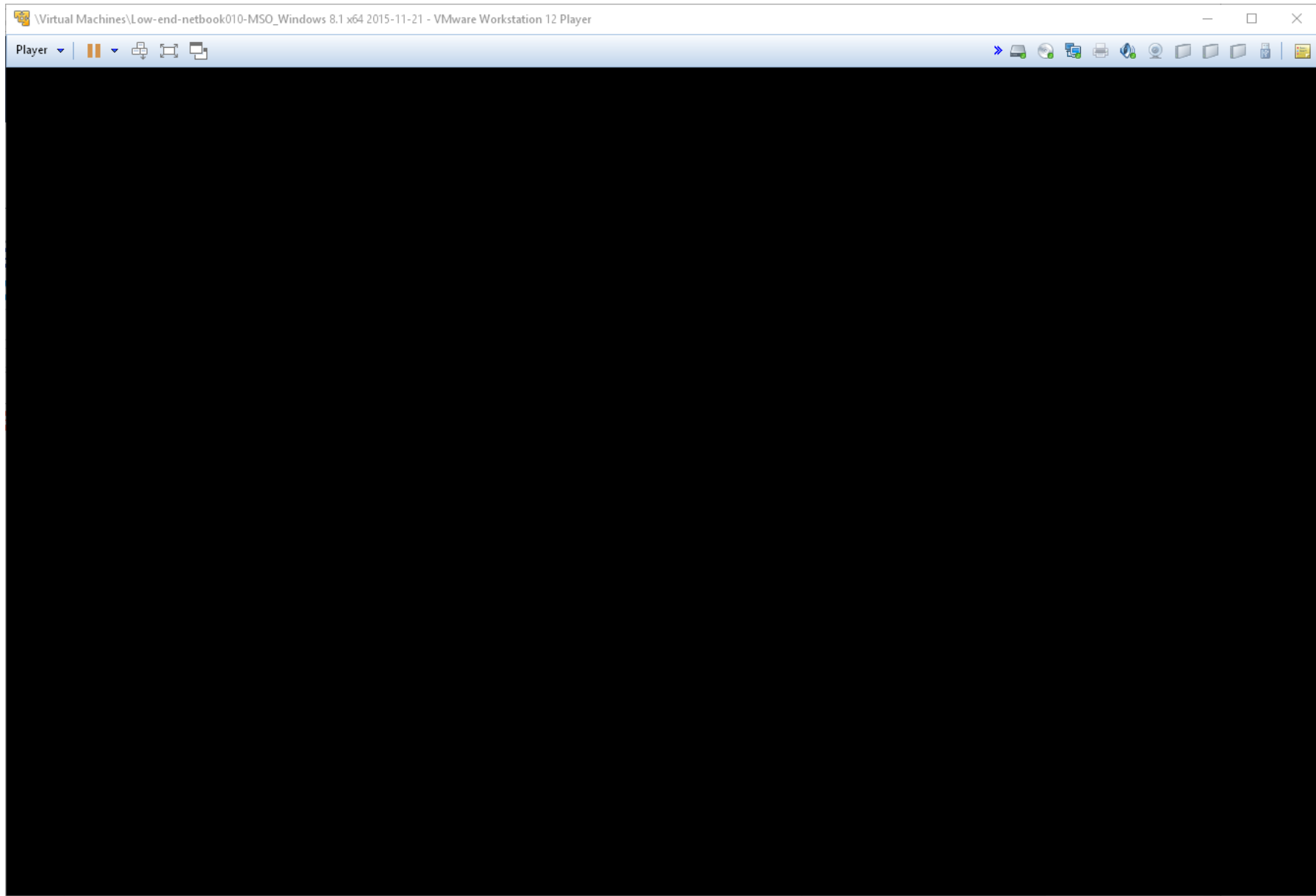
# WHEN THE *TASK MANAGER* FAILS TO START UP

- When you cannot bring up a *Task Manager* window, hold down the "Power" button of your computer until your computer shuts down. This is called a "hard shutdown".



# USING THE "USERS" TAB OF THE *TASK MANAGER*

- When all else fails and you cannot get anything inside a "Windows.." computer to work (even after shutting down some or all of your application programs)  
OR if your monitor goes black, you can use the "Users" tab of the *Task Manager* to shut down your computer:



# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- Start the *Task Manager* by pressing  
Ctrl + Shift + Esc:

Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	0% CPU	65% Memory	0% Disk	0% Network
<b>Apps (1)</b>					
▶ Task Manager		0%	7.2 MB	0 MB/s	0 Mbps
<b>Background processes (16)</b>					
▶ COM Surrogate		0%	1.1 MB	0 MB/s	0 Mbps
▶ COM Surrogate		0%	0.7 MB	0 MB/s	0 Mbps
▶ Device Association Framework Provider Host		0%	0.7 MB	0 MB/s	0 Mbps
▶ Host Process for Windows Tasks		0%	0.9 MB	0 MB/s	0 Mbps
▶ Internet Low-Mic Utility Tool (32 bit)		0%	0.3 MB	0 MB/s	0 Mbps
▶ Microsoft Distributed Transaction Coordinator Service		0%	0.2 MB	0 MB/s	0 Mbps
▶ Microsoft Windows Search Indexer		0%	3.0 MB	0 MB/s	0 Mbps
▶ Spooler SubSystem App		0%	1.1 MB	0 MB/s	0 Mbps
▶ VMware Activation Helper		0%	0.2 MB	0 MB/s	0 Mbps
▶ VMware Guest Authentication Service		0%	0.2 MB	0 MB/s	0 Mbps
▶ VMware Tools Core Service		0%	9.4 MB	0 MB/s	0 Mbps

^ Fewer details

End task

# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- Click on the "Users" tab:

Task Manager


File Options View

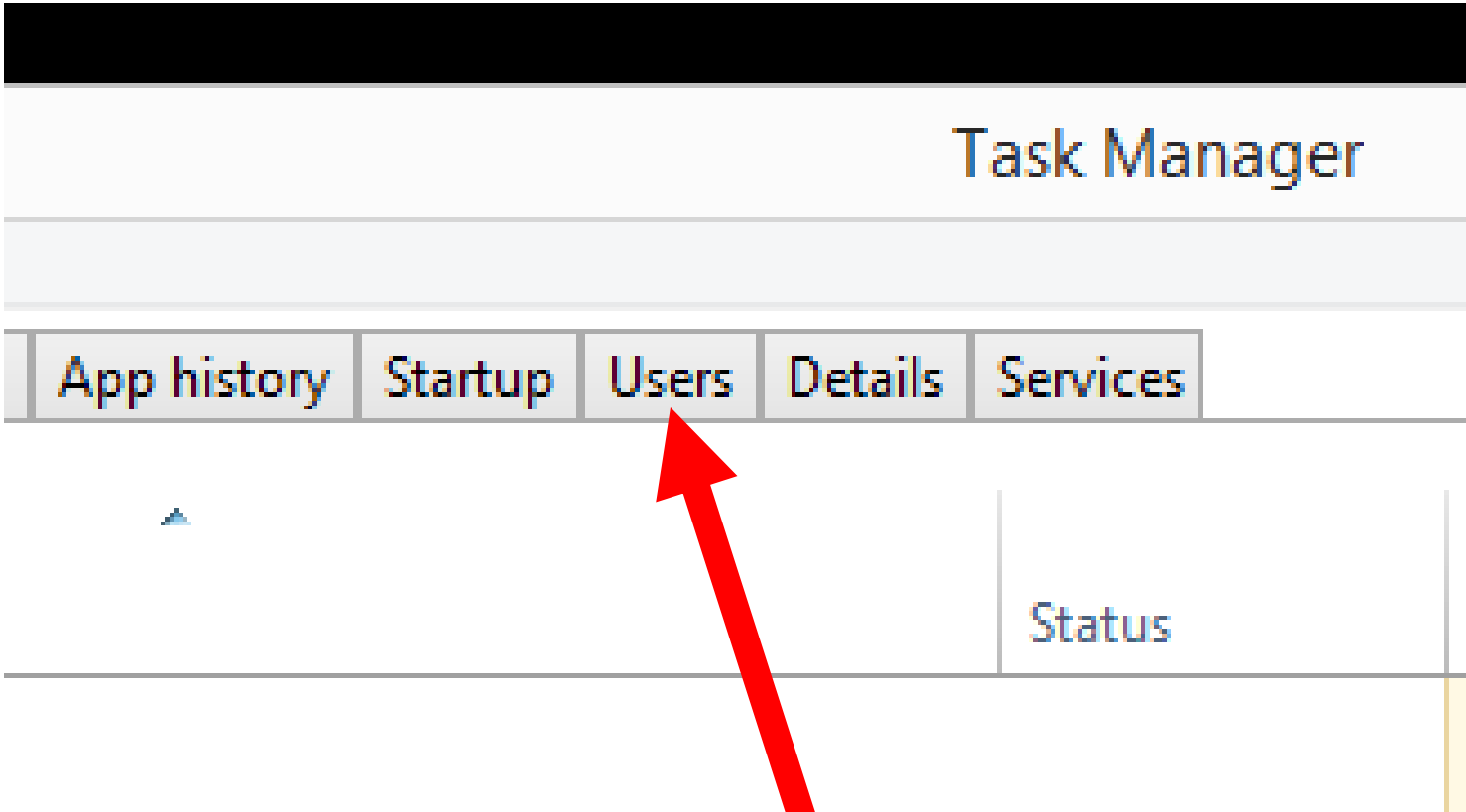
Processes Performance App history Startup Users Details Services

Name	Status	0% CPU	65% Memory	0% Disk	0% Network
<b>Apps (1)</b>					
Task Manager		0%	7.2 MB	0 MB/s	0 Mbps
<b>Background processes (16)</b>					
COM Surrogate		0%	1.1 MB	0 MB/s	0 Mbps
COM Surrogate		0%	0.7 MB	0 MB/s	0 Mbps
Device Association Framework Provider Host		0%	0.7 MB	0 MB/s	0 Mbps
Host Process for Windows Tasks		0%	0.9 MB	0 MB/s	0 Mbps
Internet Low-Mic Utility Tool (32 bit)		0%	0.3 MB	0 MB/s	0 Mbps
Microsoft Distributed Transaction Coordinator Service		0%	0.2 MB	0 MB/s	0 Mbps
Microsoft Windows Search Indexer		0%	3.0 MB	0 MB/s	0 Mbps
Spooler SubSystem App		0%	1.1 MB	0 MB/s	0 Mbps
VMware Activation Helper		0%	0.2 MB	0 MB/s	0 Mbps
VMware Guest Authentication Service		0%	0.2 MB	0 MB/s	0 Mbps
VMware Tools Core Service		0%	9.4 MB	0 MB/s	0 Mbps

^ Fewer details

End task





# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- Right-click on your user account:



Task Manager

File Options View

Processes Performance App history Startup Users Details Services

User	Status	CPU	Memory	Disk	Network
testuser (8)		0%	40.3 MB	0 MB/s	0 Mbps

^ Fewer details

Disconnect

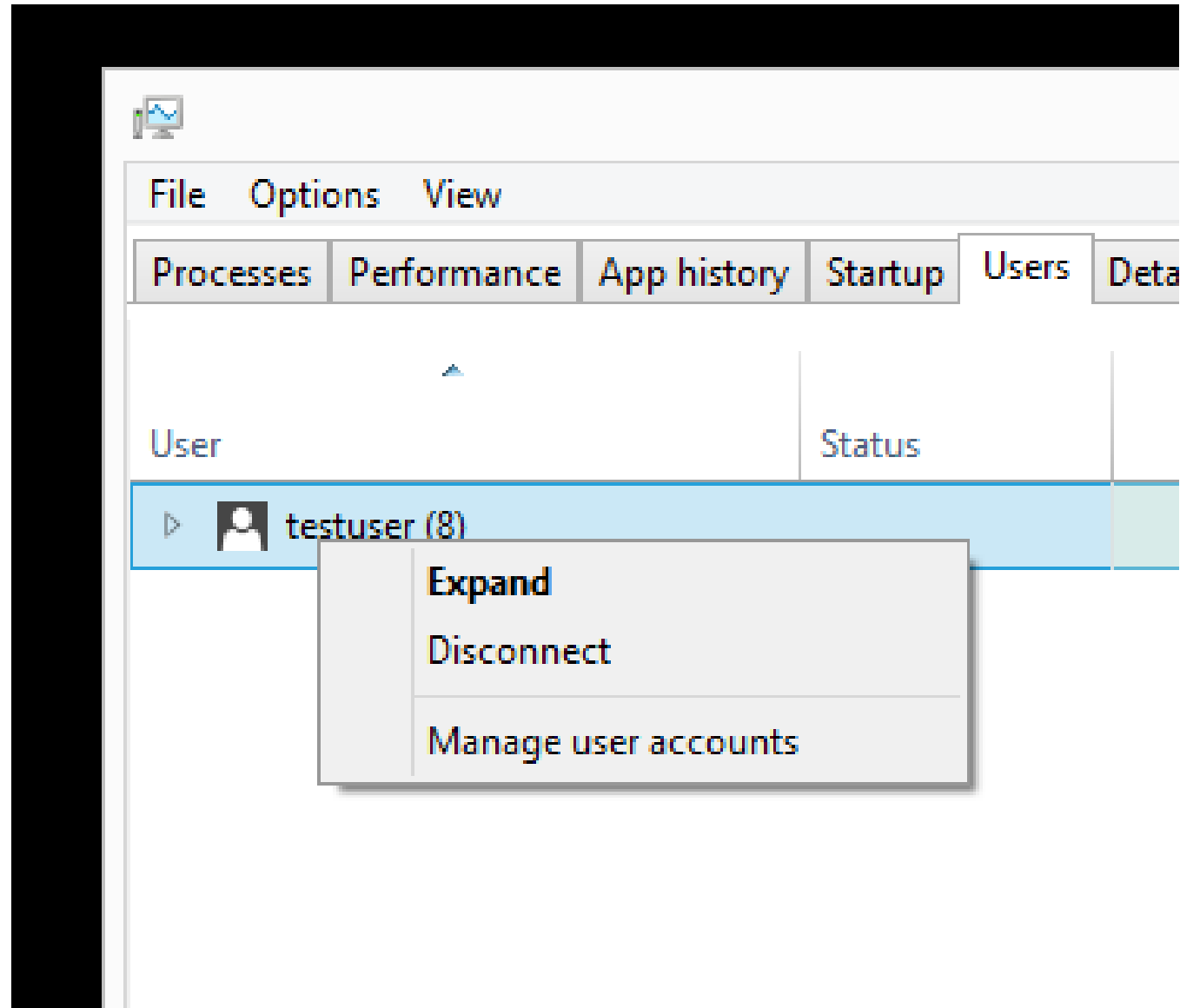
The screenshot shows the Windows Task Manager application with the 'Users' tab selected. The window title is 'Task Manager'. The menu bar includes 'File', 'Options', and 'View'. The tabs are 'Processes', 'Performance', 'App history', 'Startup', 'Users', 'Details', and 'Services'. The 'Users' tab displays a table with the following columns: 'User', 'Status', 'CPU', 'Memory', 'Disk', and 'Network'. The table contains one entry for the user 'testuser (8)'. A red arrow points to the user name.

User	Status	CPU	Memory	Disk	Network
testuser (8)		0%	40.3 MB	0 MB/s	0 Mbps

At the bottom left, there is a button labeled 'Fewer details' with an upward arrow icon. At the bottom right, there is a button labeled 'Disconnect'.

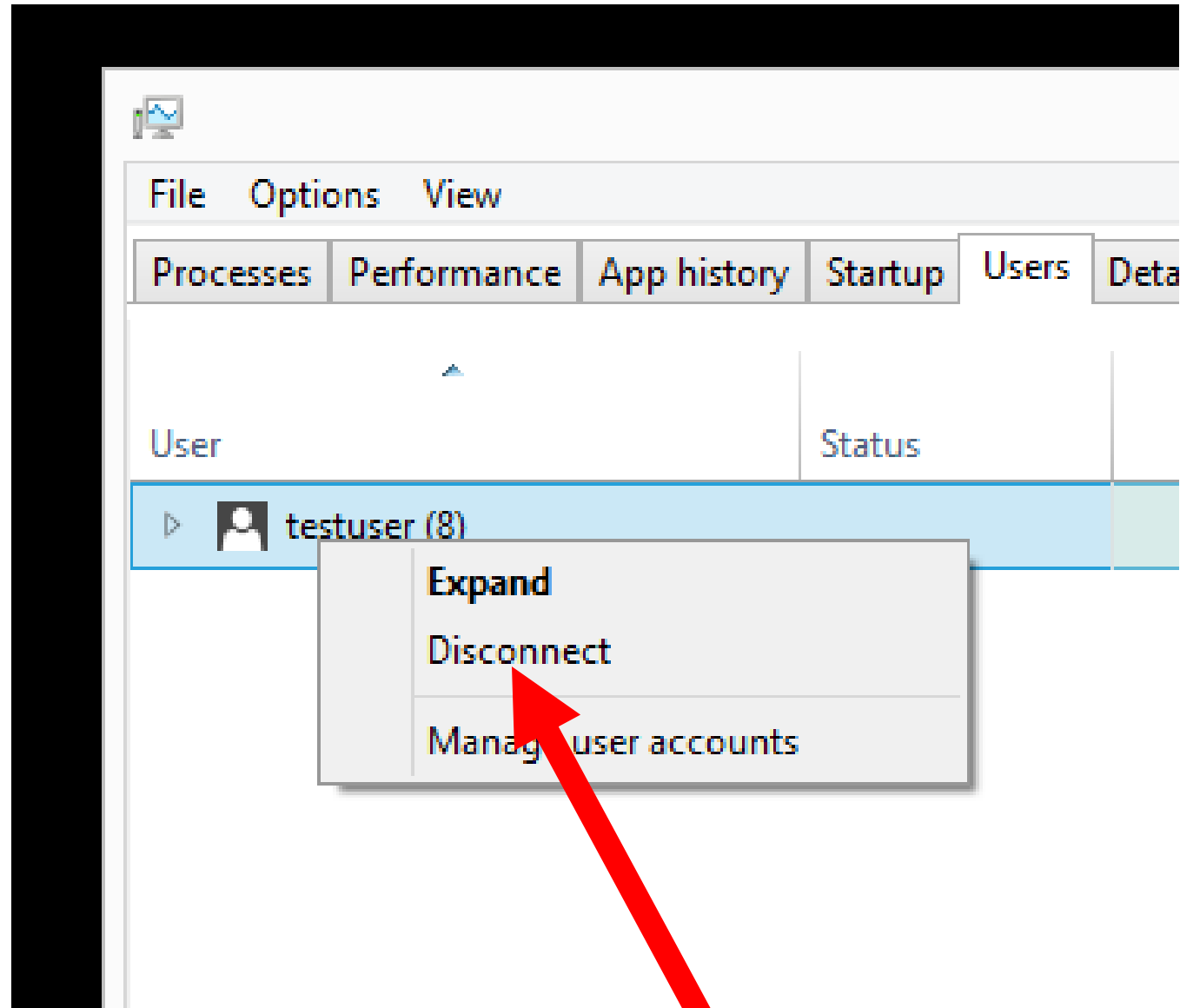
# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- A pop-up context menu will be displayed:



# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- Click on "Disconnect" in the pop-up context menu:



# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- Click on "Disconnect user":

## Task Manager



Are you sure you want to disconnect the selected user(s)?

Disconnect user

Cancel



## Task Manager



Are you sure you want to disconnect the selected user(s)?

Disconnect user

Cancel



# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- A "lock screen" will be displayed:



6:41

Monday, November 23



# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- Click anywhere on the "lock screen":





6:41

Monday, November 23



# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- A "Sign in" screen will be displayed:



testuser

Signed in

 →

# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- Click on the "Power" icon in the lower-right corner of the "Sign in" screen:

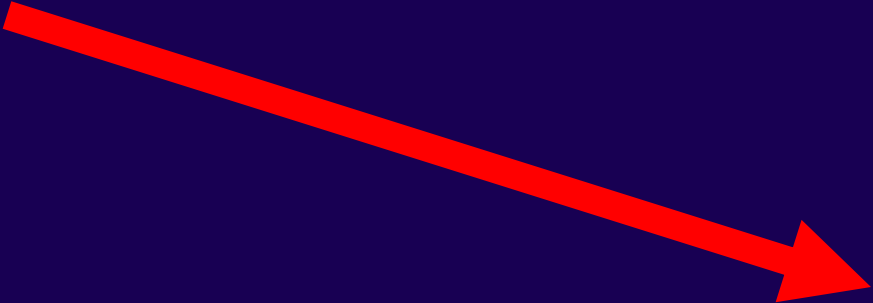


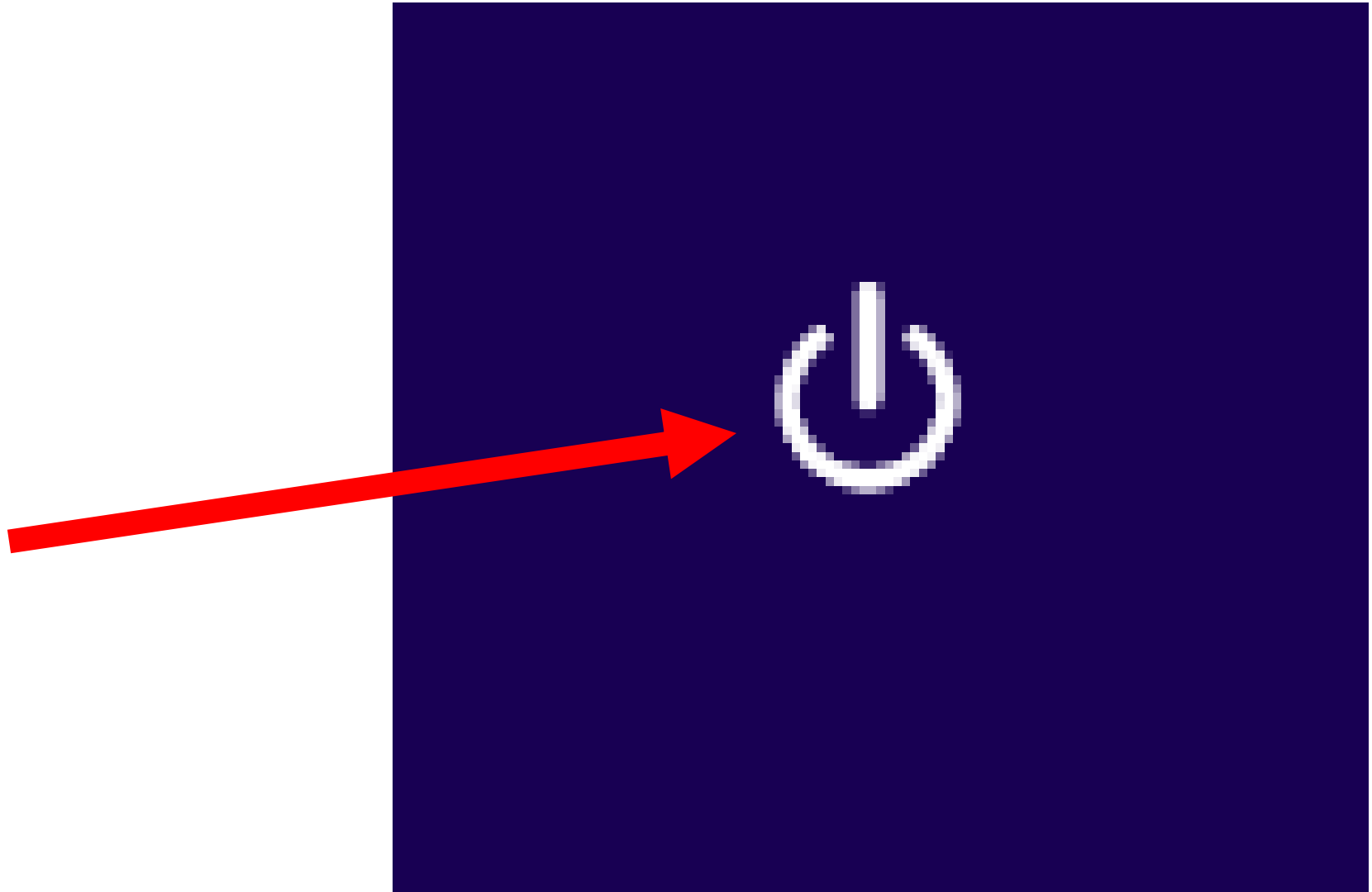


testuser

Signed in

password





# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- A pop-up context menu will be displayed:

Sleep

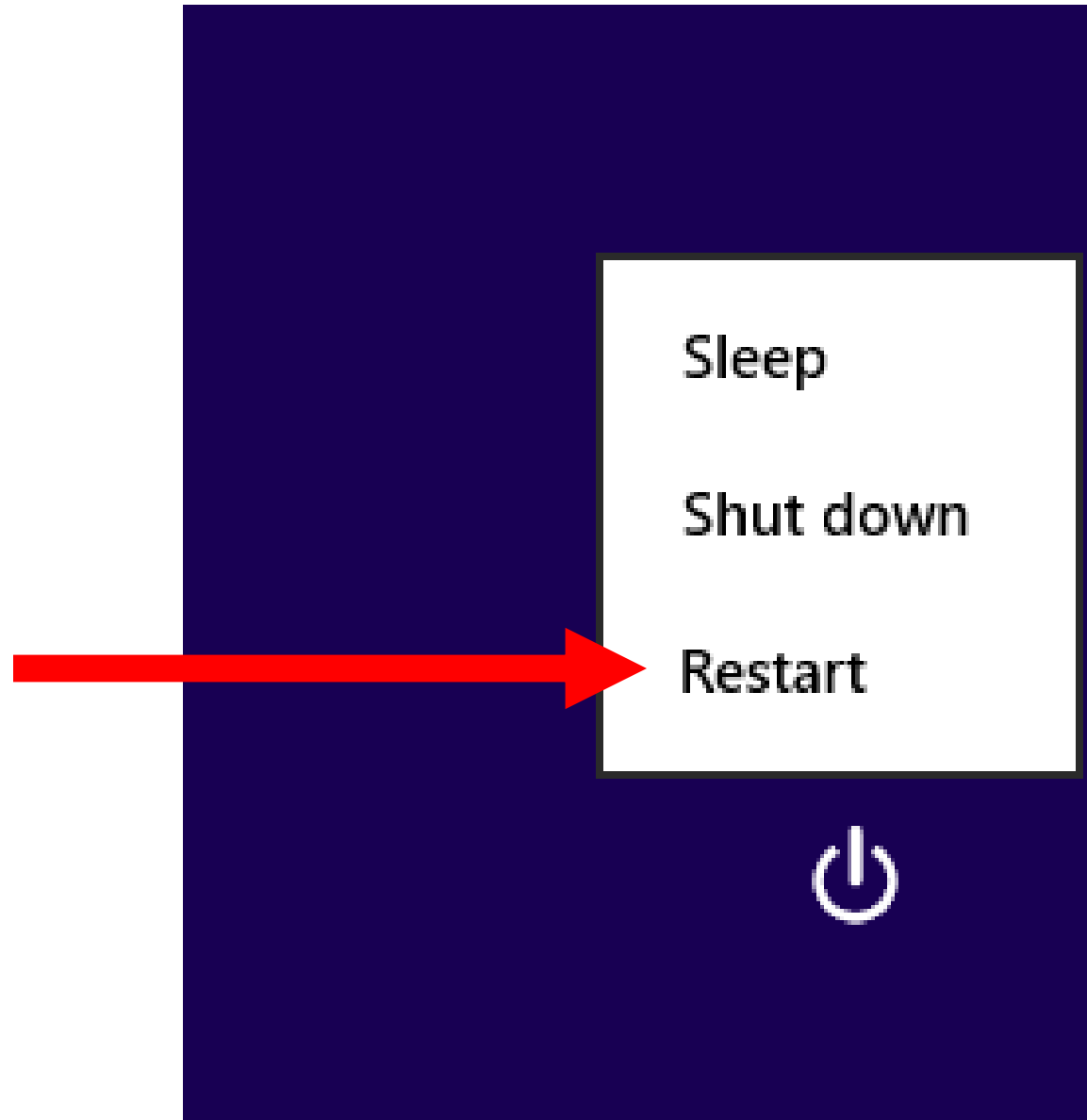
Shut down

Restart



# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- Click on "Restart":



# USING THE "USERS" TAB OF THE *TASK MANAGER* (continued)

- Click on "Restart anyway":

If you restart now, you and any other people using this PC could lose unsaved work.

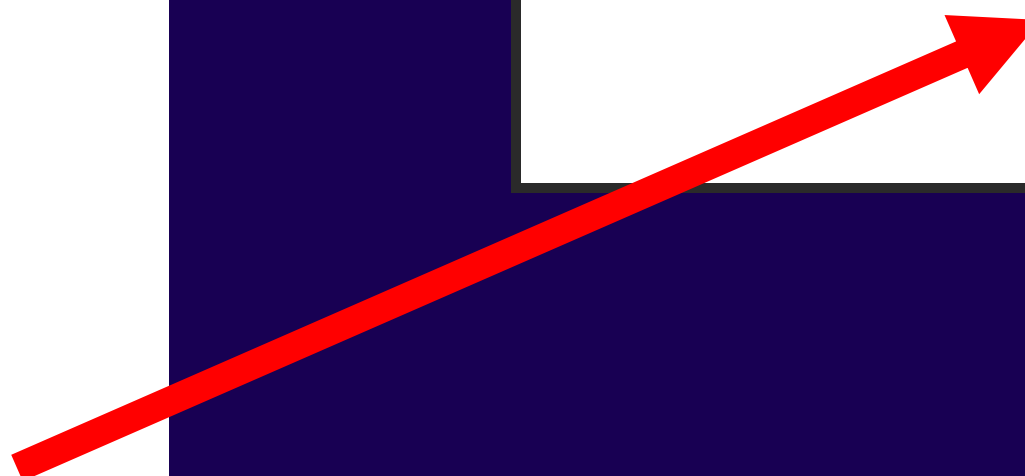
**Restart anyway**





If you restart now, you and any other people using this PC could lose unsaved work.

**Restart anyway**



# USING THE "DETAILS" TAB OF THE *TASK MANAGER*

- In "Windows 7", when you are very short on available RAM and you try to start up the *Task Manager*, it just fails to start up. This dramatically reduces the usefulness of the *Task Manager* whenever you are short of available RAM in "Windows 7".

# USING THE "DETAILS" TAB OF THE *TASK MANAGER* (continued)

- In "Windows 8.1, and "Windows 10", when your computer is real short on free RAM and you bring up the *Task Manager*, you will usually get the "Details" tab only.  
When this happens, you can use the "Details" tab instead of the "Processes" tab to analyze and possibly resolve the situation.

Task Manager

File Options View

Details

Name	PID	Status	User name	CPU	Memory (p...	Description
audiodg.exe	2884	Running	LOCAL SE...	00	880 K	Windows Audio Device Graph Isolation
csrss.exe	420	Running	SYSTEM	00	992 K	Client Server Runtime Process
csrss.exe	3064	Running	SYSTEM	00	5,508 K	Client Server Runtime Process
dasHost.exe	1252	Running	LOCAL SE...	00	3,600 K	Device Association Framework Provider Host
dllhost.exe	1904	Running	SYSTEM	00	1,660 K	COM Surrogate
explorer.exe	3100	Running	testuser	00	10,388 K	Windows Explorer
FlashUtil_ActiveX.exe	2864	Running	testuser	00	1,428 K	Adobe® Flash® Player Utility
iexplore.exe	628	Running	testuser	00	4,696 K	Internet Explorer
iexplore.exe	3288	Running	testuser	00	46,112 K	Internet Explorer
iexplore.exe	3992	Running	testuser	99	63,512 K	Internet Explorer
lsass.exe	596	Running	SYSTEM	00	2,732 K	Local Security Authority Process
msdtc.exe	2472	Running	NETWORK...	00	872 K	Microsoft Distributed Transaction Coordinator S...
MsMpEng.exe	1388	Running	SYSTEM	00	800 K	Antimalware Service Executable
RuntimeBroker.exe	124	Running	testuser	00	692 K	Runtime Broker
SearchIndexer.exe	1664	Running	SYSTEM	00	3,892 K	Microsoft Windows Search Indexer
services.exe	588	Running	SYSTEM	00	1,676 K	Services and Controller app
smss.exe	304	Running	SYSTEM	00	240 K	Windows Session Manager
spoolsv.exe	700	Running	SYSTEM	00	1,512 K	Spooler SubSystem App
svchost.exe	648	Running	SYSTEM	00	2,512 K	Host Process for Windows Services
svchost.exe	688	Running	NETWORK...	00	2,304 K	Host Process for Windows Services
svchost.exe	868	Running	LOCAL SE...	00	11,716 K	Host Process for Windows Services
svchost.exe	900	Running	SYSTEM	00	8,520 K	Host Process for Windows Services
svchost.exe	936	Running	LOCAL SE	00	2,912 K	Host Process for Windows Services

End task

The image shows a screenshot of the Windows Task Manager application. The title bar reads "Task Manager". Below the title bar is a menu bar with "File", "Options", and "View". The "Details" tab is selected, displaying a table of running processes. The table has columns for Name, PID, Status, User name, CPU, and Memory. The visible rows are:

Name	PID	Status	User name	CPU	Me
csrss.exe	420	Running	SYSTEM	00	
csrss.exe	3064	Running	SYSTEM	00	
dasHost.exe	1252	Running	LOCAL SE...	00	
dllhost.exe	1904	Running	SYSTEM	00	

# USING THE "DETAILS" TAB OF THE *TASK MANAGER* (continued)

- The "Details" tab gives you information about all of the "processes" and all of the "services" in your "Windows.." computer, in a single tab instead of two separate tabs.

# USING THE "DETAILS" TAB OF THE *TASK MANAGER* (continued)

- The "Details" tab gives you more information about all of the "processes" and all of the "services" in your "Windows.." computer, relative to the amount of information in the "Processes" tab and the "Services" tab

# USING THE "DETAILS" TAB OF THE *TASK MANAGER* (continued)

- "PID" = "Process Identifier"  
= a number that uniquely identifies a process when it runs
- Both "processes" and "services" have PIDs

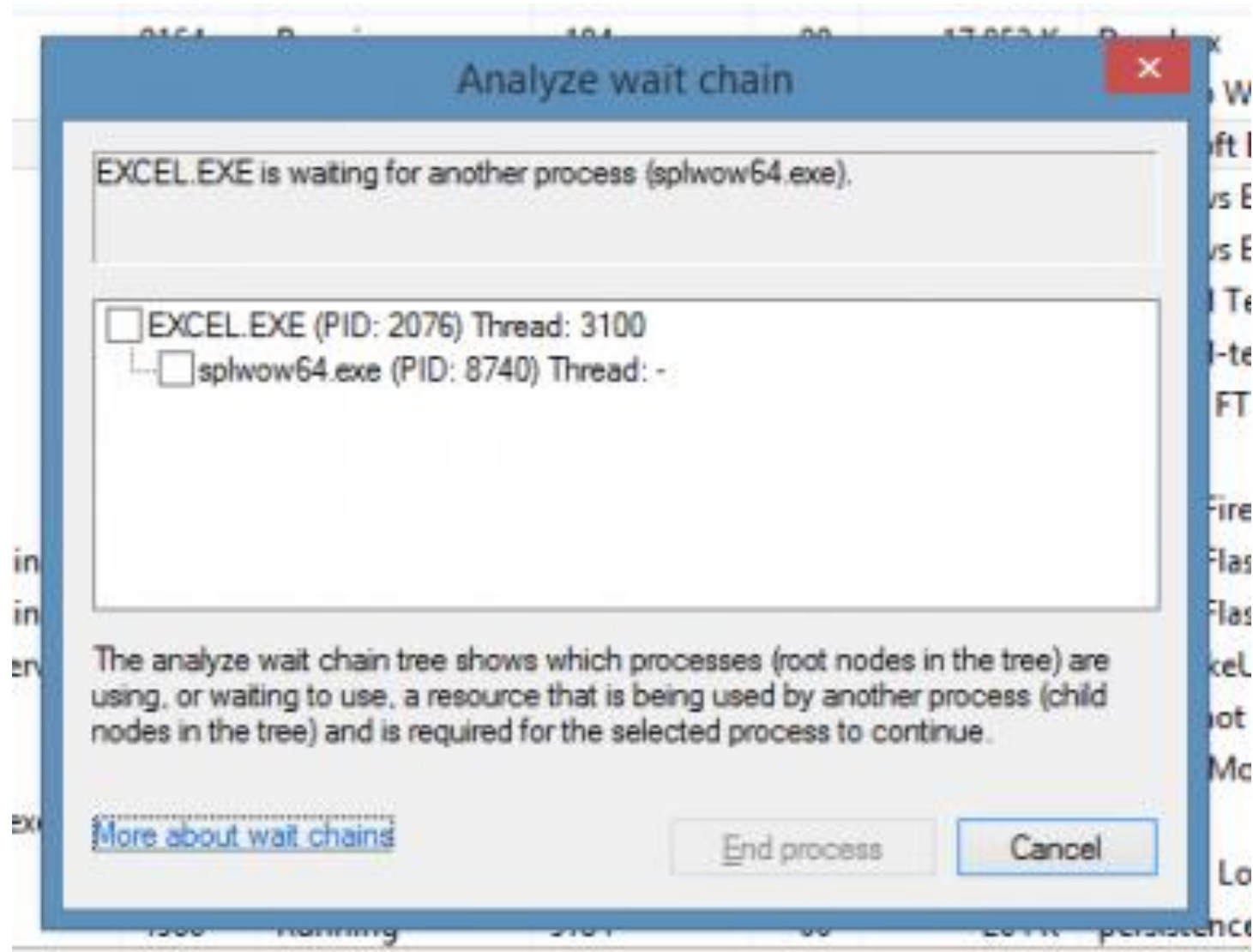


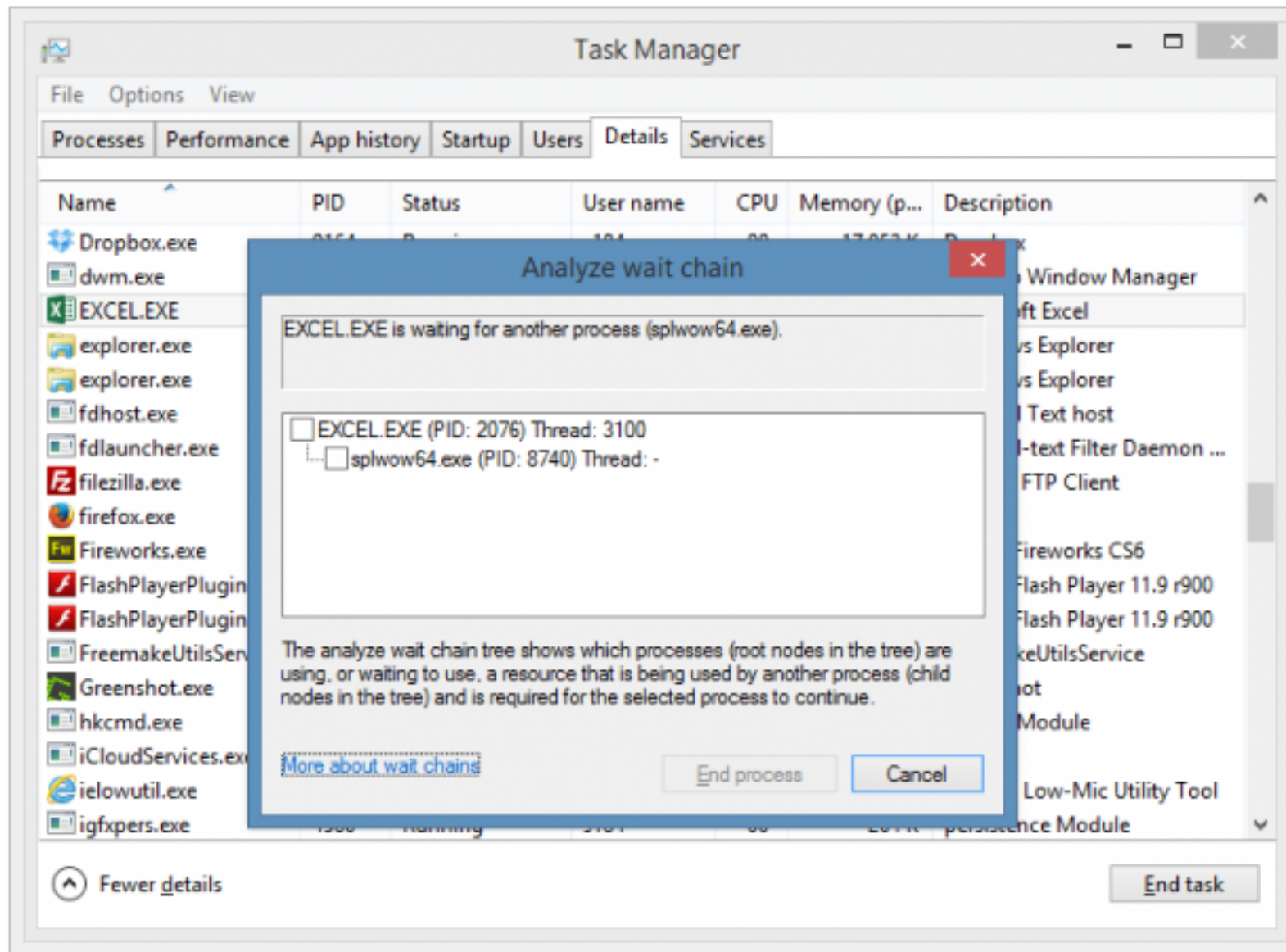
# USING THE "DETAILS" TAB OF THE *TASK MANAGER* (continued)

- If a application, an app, a process, or a service will not start up (either automatically or when you manually try to start it up), right click on it from inside the "Details" tab and then click on "Analyze wait chain" to see if some other process or service is not running and the cause of the failure to start up.

# USING THE "DETAILS" TAB OF THE *TASK MANAGER* (continued)

- In this example, a critical module inside "Windows.." called "splwow64.exe" is failing to start up and it is causing "Excel" to fail to start up:





# USING THE "APP HISTORY" TAB OF THE *TASK MANAGER*

- In "Windows 7", when you to start up the *Task Manager*, it just shows you what is happening at the current, specific instant in time. This dramatically reduces the usefulness of the *Task Manager* whenever you have intermittently-occurring problems.

# USING THE "APP HISTORY" TAB OF THE *TASK MANAGER* (continued)

- In "Windows 8.1, and "Windows 10", the *Task Manager* has an "App History" tab that you can use to analyze intermittently-happening events:


Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	34% CPU	90% Memory	23% Disk	0% Network
<b>Apps (2)</b>				
> Task Manager	0%	7.4 MB	0 MB/s	0 Mbps
> Firefox (32 bit)	2.2%	83.6 MB	0.1 MB/s	0 Mbps
<b>Background processes (26)</b>				
WMI Provider Host	0%	12.6 MB	0 MB/s	0 Mbps
WMI Provider Host	1.1%	2.9 MB	0 MB/s	0 Mbps
> WMI Performance Reverse A...	0%	0.7 MB	0 MB/s	0 Mbps
Windows Shell Experience Host	0%	12.6 MB	0 MB/s	0 Mbps
Windows Driver Foundation - U...	0%	1.0 MB	0 MB/s	0 Mbps
> VMware Tools Core Service	1.1%	4.0 MB	0 MB/s	0 Mbps
VMware Tools Core Service	0%	8.3 MB	0 MB/s	0 Mbps
> VMware Guest Authentication S...	0%	2.8 MB	0 MB/s	0 Mbps
> VMware Activation Helper	0%	0.6 MB	0 MB/s	0 Mbps
> Spooler SubSystem App	0%	3.8 MB	0 MB/s	0 Mbps

^ Fewer details End task



Task Manager

File Options View

Processes Performance **App history** Startup Users Details Services

Resource usage since 11/12/2015 for current user account.  
[Delete usage history](#)

Name	CPU time	Network	Metered network	Tile updates
3D Builder	0:00:00	0 MB	0 MB	0 MB
Alarms & Clock	0:00:00	0 MB	0 MB	0 MB
Calculator	0:00:00	0 MB	0 MB	0 MB
Camera	0:00:00	0 MB	0 MB	0 MB
Candy Crush Soda Saga	0:00:00	0 MB	0 MB	0 MB
Contact Support	0:00:00	0 MB	0 MB	0 MB
Cortana	0:01:05	2.8 MB	0 MB	0 MB
Get Office	0:00:00	0 MB	0 MB	0 MB
Get Skype	0:00:00	0 MB	0 MB	0 MB
Get Started	0:00:00	0 MB	0 MB	0 MB
Groove Music	0:00:00	0 MB	0 MB	0 MB
> Mail and Calendar (2)	0:00:00	0 MB	0 MB	0 MB
Maps	0:00:00	0 MB	0 MB	0 MB
Microsoft Store (2)	0:00:01	0.1 MB	0 MB	0 MB

^ Fewer details



# USING THE "APP HISTORY" TAB OF THE *TASK MANAGER* (continued)

- By default, the "App History" tab only shows the history of "Apps" (= "Metro Style Apps" = "Universal Apps" = "Windows Store Apps) which is not useful for most troubleshooting situations:

# USING THE "APP HISTORY" TAB OF THE *TASK MANAGER* (continued)

- To make the "App History" tab show the history of all processes including traditional desktop programs, click on "Options" in the menu bar. Then click on click on "Show history of all processes" to put a checkmark next to it:

The screenshot shows the Windows Task Manager application with the Performance tab selected. The Performance tab is highlighted in blue, and a red arrow points to it from the left. The Performance section shows the following resource usage:

- CPU: 4%
- Memory: 66%
- Disk: 96% (highlighted in red)
- Network: 0%

The Processes tab is also visible, showing a list of running applications and background processes. The list is organized into two sections: "Apps (1)" and "Background processes (16)".

Name	Status	CPU	Memory	Disk	Network
<b>Apps (1)</b>					
Task Manager		0%	7.7 MB	0 MB/s	0 Mbps
<b>Background processes (16)</b>					
VM Surrogate		0%	1.7 MB	0 MB/s	0 Mbps
Device Association Framework ...		0%	2.3 MB	0 MB/s	0 Mbps
Host Process for Windows Tasks		0%	1.2 MB	0 MB/s	0 Mbps
Microsoft Distributed Transacti...		0%	0.8 MB	0 MB/s	0 Mbps
Microsoft Windows Search Inde...		0%	3.5 MB	0 MB/s	0 Mbps
Spooler SubSystem App		0%	1.4 MB	0 MB/s	0 Mbps
Store Broker		0%	3.9 MB	0 MB/s	0 Mbps
VMware Activation Helper		0%	0.4 MB	0 MB/s	0 Mbps
VMware Guest Authentication S...		0%	0.6 MB	0 MB/s	0 Mbps
VMware Tools Core Service		0%	3.0 MB	0.1 MB/s	0 Mbps
VMware Tools Core Service		0%	3.9 MB	0 MB/s	0 Mbps

At the bottom of the Performance tab, there is a "Fewer details" button on the left and an "End task" button on the right.

Task Manager

File Options View

Processes Performance **App history** Startup Users Details Services

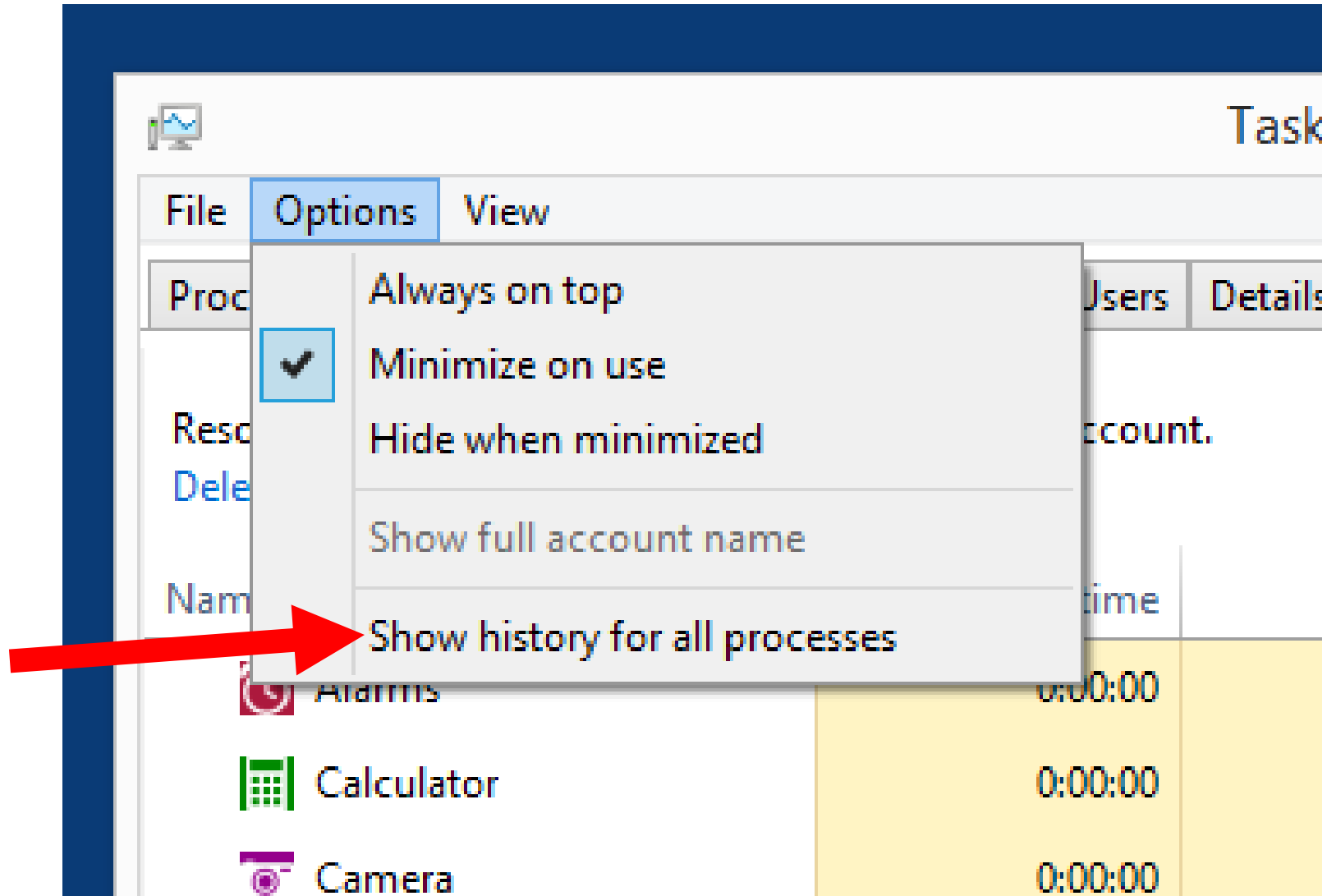
Resource usage since 11/25/2015 for current user and system accounts.  
[Delete usage history](#)

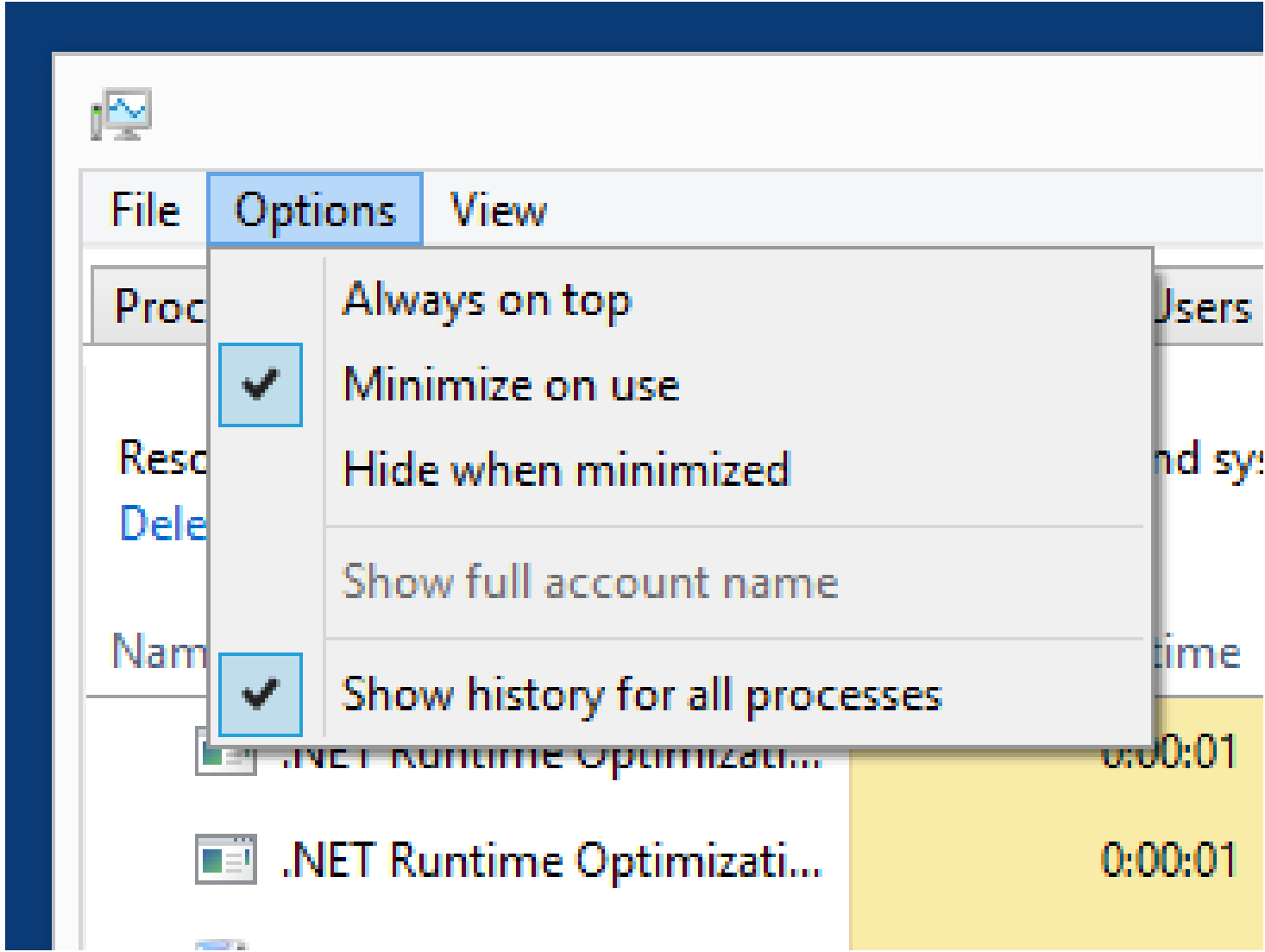
Name	CPU time	Network	Metered network	Tile updates
.NET Runtime Optimizati...	0:00:01	0 MB	0 MB	0 MB
.NET Runtime Optimizati...	0:00:01	0 MB	0 MB	0 MB
7z Setup SFX	0:00:01	0 MB	0 MB	0 MB
Alarms	0:00:00	0 MB	0 MB	0 MB
Antimalware Service Exe...	0:00:47	0 MB	0 MB	0 MB
Application Impact Tele...	0:00:01	0 MB	0 MB	0 MB
AppX Deployment Bytec...	0:00:01	0 MB	0 MB	0 MB
AppX Deployment Bytec...	0:00:03	0 MB	0 MB	0 MB
Calculator	0:00:00	0 MB	0 MB	0 MB
Camera	0:00:00	0 MB	0 MB	0 MB
Client Server Runtime Pr...	0:00:03	0 MB	0 MB	0 MB
COM Surrogate	0:00:01	0 MB	0 MB	0 MB
COM Surrogate	0:01:23	0 MB	0 MB	0 MB
COM Surrogate	0:00:01	0 MB	0 MB	0 MB

^ Fewer details

The screenshot shows the Windows Task Manager window with the 'Performance' tab selected. A red arrow points to the 'Options' menu. The main area displays a table of resource usage for various processes since 11/25/2015. The table has columns for Name, CPU time, Network, Metered network, and Tile updates. The processes listed include .NET Runtime Optimizati..., 7z Setup SFX, Alarms, Antimalware Service Exe..., Application Impact Tele..., AppX Deployment Bytec..., Calculator, Camera, Client Server Runtime Pr..., COM Surrogate, and COM Surrogate.

Name	CPU time	Network	Metered network	Tile updates
.NET Runtime Optimizati...	0:00:01	0 MB	0 MB	0 MB
.NET Runtime Optimizati...	0:00:01	0 MB	0 MB	0 MB
7z Setup SFX	0:00:01	0 MB	0 MB	0 MB
Alarms	0:00:00	0 MB	0 MB	0 MB
Antimalware Service Exe...	0:00:47	0 MB	0 MB	0 MB
Application Impact Tele...	0:00:01	0 MB	0 MB	0 MB
AppX Deployment Bytec...	0:00:01	0 MB	0 MB	0 MB
AppX Deployment Bytec...	0:00:03	0 MB	0 MB	0 MB
Calculator	0:00:00	0 MB	0 MB	0 MB
Camera	0:00:00	0 MB	0 MB	0 MB
Client Server Runtime Pr...	0:00:03	0 MB	0 MB	0 MB
COM Surrogate	0:00:01	0 MB	0 MB	0 MB
COM Surrogate	0:01:23	0 MB	0 MB	0 MB





# MONITORING FOR A "MEMORY LEAK"

- A "memory leak" is a situation where RAM that is no longer used is not freed up for re-use.
- Poorly-written drivers, poorly-written software application programs or apps, and poorly-written background processes can cause a "memory leak".



# MONITORING FOR A "MEMORY LEAK" (continued)

- Click on "Performance".  
Click on "Memory".  
Start an software application program.  
See if the memory usage keeps creeping up.  
After a few hours, close the software application and start another one.

Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	0% CPU	10% Memory	0% Disk	0% Network
<b>Apps (4)</b>				
> Google Chrome (32 bit)	0%	42.5 MB	0 MB/s	0 Mbps
> Microsoft PowerPoint (32 bit)	0%	155.0 MB	0 MB/s	0 Mbps
> Task Manager	0.2%	9.9 MB	0 MB/s	0 Mbps
> Windows Explorer	0%	70.6 MB	0 MB/s	0 Mbps
<b>Background processes (34)</b>				
AMD External Events Client Module	0%	1.5 MB	0 MB/s	0 Mbps
> AMD External Events Service Module	0%	0.8 MB	0 MB/s	0 Mbps
Application Frame Host	0%	9.8 MB	0 MB/s	0 Mbps
Cortana	0%	33.4 MB	0 MB/s	0 Mbps
Device Association Framework Provider Host	0%	4.7 MB	0 MB/s	0 Mbps
> Epson Scanner Service (64bit)	0%	1.0 MB	0 MB/s	0 Mbps
Free Alarm Clock (32 bit)	0%	4.0 MB	0 MB/s	0 Mbps
Google Chrome (32 bit)	0%	72.9 MB	0 MB/s	0 Mbps
Google Chrome (32 bit)	0%	39.0 MB	0 MB/s	0 Mbps
Google Chrome (32 bit)	0%	0.9 MB	0 MB/s	0 Mbps
Google Crash Handler	0%	0.3 MB	0 MB/s	0 Mbps

^ Fewer details

End task

Task Manager

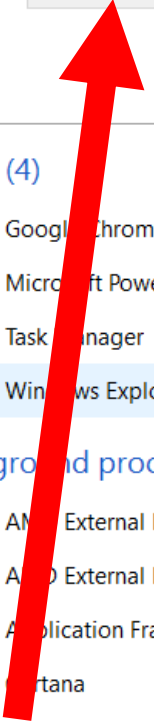
File Options View

Processes Performance App history Startup Users Details Services

Name	0% CPU	10% Memory	0% Disk	0% Network
<b>Apps (4)</b>				
> Google Chrome (32 bit)	0%	42.5 MB	0 MB/s	0 Mbps
> Microsoft PowerPoint (32 bit)	0%	155.0 MB	0 MB/s	0 Mbps
> Task Manager	0.2%	9.9 MB	0 MB/s	0 Mbps
> Windows Explorer	0%	70.6 MB	0 MB/s	0 Mbps
<b>Background processes (34)</b>				
AM External Events Client Module	0%	1.5 MB	0 MB/s	0 Mbps
> AM External Events Service Module	0%	0.8 MB	0 MB/s	0 Mbps
Application Frame Host	0%	9.8 MB	0 MB/s	0 Mbps
Cortana	0%	33.4 MB	0 MB/s	0 Mbps
Device Association Framework Provider Host	0%	4.7 MB	0 MB/s	0 Mbps
> Epson Scanner Service (64bit)	0%	1.0 MB	0 MB/s	0 Mbps
Free Alarm Clock (32 bit)	0%	4.0 MB	0 MB/s	0 Mbps
Google Chrome (32 bit)	0%	72.9 MB	0 MB/s	0 Mbps
Google Chrome (32 bit)	0%	39.0 MB	0 MB/s	0 Mbps
Google Chrome (32 bit)	0%	0.9 MB	0 MB/s	0 Mbps
Google Crash Handler	0%	0.3 MB	0 MB/s	0 Mbps

^ Fewer details

End task



Task Manager

File Options View

Processes Performance App history Startup Users Details Services

**CPU** Intel(R) Core(TM) i7-4790 CPU @ 3.60GHz

0% 0.79 GHz

**Memory** 3.3/31.9 GB (10%)

Disk 0 (C:) 0%

Disk 1 (E:) 0%

Disk 4 (L:) 0%

Ethernet S: 8.0 R: 8.0 Kbps

Ethernet S: 0 R: 0 Kbps

Ethernet S: 0 R: 0 Kbps

**CPU** % Utilization 100%

60 seconds 0

Utilization	Speed	Maximum speed:	3.60 GHz
0%	0.79 GHz	Sockets:	1
		Cores:	4
Processes	Threads	Handles	Logical processors: 8
66	1194	32940	Virtualization: Enabled
Up time		L1 cache:	256 KB
0:21:20:43		L2 cache:	1.0 MB
		L3 cache:	8.0 MB

Fewer details | Open Resource Monitor



Task Manager

File Options View

Processes Performance App history Startup Users Details Services

CPU  
1% 0.94 GHz

**Memory**  
3.3/31.9 GB (10%)

Disk 0 (C:)  
0%

Disk 1 (E:)  
0%

Disk 4 (L:)  
0%

Ethernet  
S: 0 R: 0 Kbps

Ethernet  
S: 0 R: 0 Kbps

Ethernet  
S: 0 R: 0 Kbps

## Memory

32.0 GB DDR3

Memory usage 31.9 GB

60 seconds

Memory composition

In use	Available	Speed:	1600 MHz
3.0 GB	28.5 GB	Slots used:	4 of 4
Committed	Cached	Form factor:	DIMM
3/423 GB	9.8 GB	Hardware reserved:	142 MB
Paged pool	Non-paged pool		
543 MB	323 MB		

Fewer details | Open Resource Monitor

# USING THE "STARTUP" TAB OF THE *TASK MANAGER*

- The "Startup" tab lets you disable and re-enable "Startup Programs" without having to edit the Windows "Registry"
- By disabling unneeded "Startup Programs" you can speed up both the initial bootup process AND the overall speed of a "Windows.." computer

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- Press  
Ctrl + Shift + Esc  
to bring up the *Task Manager*:

Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	0% CPU	13% Memory	1% Disk	0% Network
<b>Apps (1)</b>					
▶ Task Manager		0%	7.5 MB	0 MB/s	0 Mbps
<b>Background processes (21)</b>					
⚠ AcroTray (32 bit)		0%	0.7 MB	0 MB/s	0 Mbps
📄 Adobe Acrobat SpeedLauncher ...		0%	0.7 MB	0 MB/s	0 Mbps
🌐 Applian Replay Telecorder (32 bit)		0%	4.5 MB	0 MB/s	0 Mbps
▶ 📄 COM Surrogate		0%	2.7 MB	0 MB/s	0 Mbps
📄 Device Association Framework ...		0%	0.7 MB	0 MB/s	0 Mbps
🛡 Google Crash Handler		0%	0.5 MB	0 MB/s	0 Mbps
🛡 Google Crash Handler (32 bit)		0%	0.5 MB	0 MB/s	0 Mbps

⬆ Fewer details

End task



# **USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)**

- Click on the "Startup" tab:

The screenshot shows the Windows Task Manager application with the 'Startup' tab selected. A red arrow points to the 'Startup' tab in the navigation bar. The main area displays a list of startup applications with columns for Name, Status, CPU, Memory, Disk, and Network. The 'Task Manager' process is listed under 'Apps (1)' and is currently running. Under 'Background processes (21)', several applications are listed, including AcroTray, Adobe Acrobat SpeedLauncher, Applian Replay Telecorder, COM Surrogate, Device Association Framework, Google Crash Handler, and Google Crash Handler (32 bit).

Name	Status	CPU	Memory	Disk	Network
<b>Apps (1)</b>					
Task Manager	Running	0%	7.5 MB	0 MB/s	0 Mbps
<b>Background processes (21)</b>					
AcroTray (32 bit)	Running	0%	0.7 MB	0 MB/s	0 Mbps
Adobe Acrobat SpeedLauncher ...	Running	0%	0.7 MB	0 MB/s	0 Mbps
Applian Replay Telecorder (32 bit)	Running	0%	4.5 MB	0 MB/s	0 Mbps
COM Surrogate	Running	0%	2.7 MB	0 MB/s	0 Mbps
Device Association Framework ...	Running	0%	0.7 MB	0 MB/s	0 Mbps
Google Crash Handler	Running	0%	0.5 MB	0 MB/s	0 Mbps
Google Crash Handler (32 bit)	Running	0%	0.5 MB	0 MB/s	0 Mbps

# Task Manager

App history

Startup

Users

Details

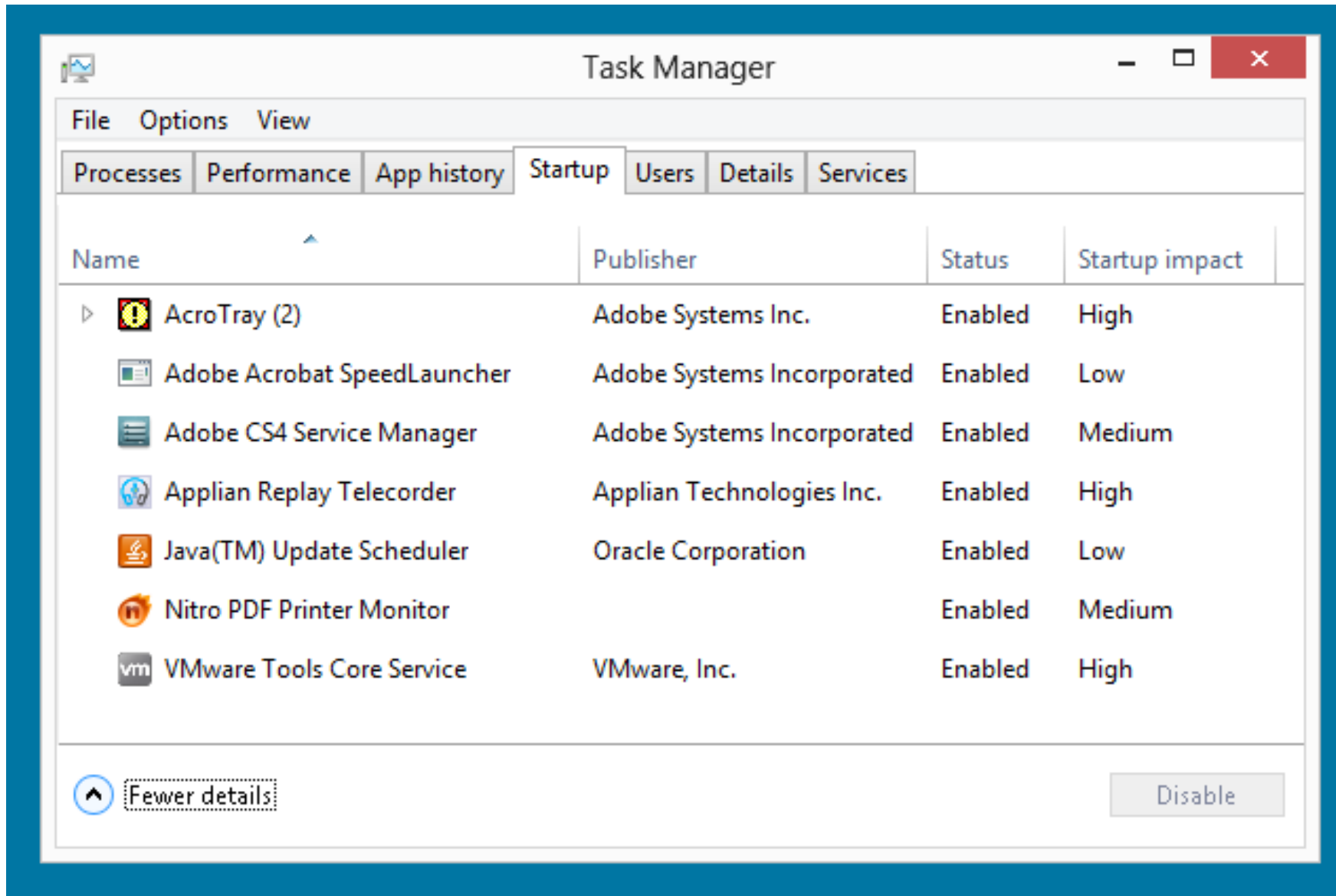
Services

Status

1%  
CPU

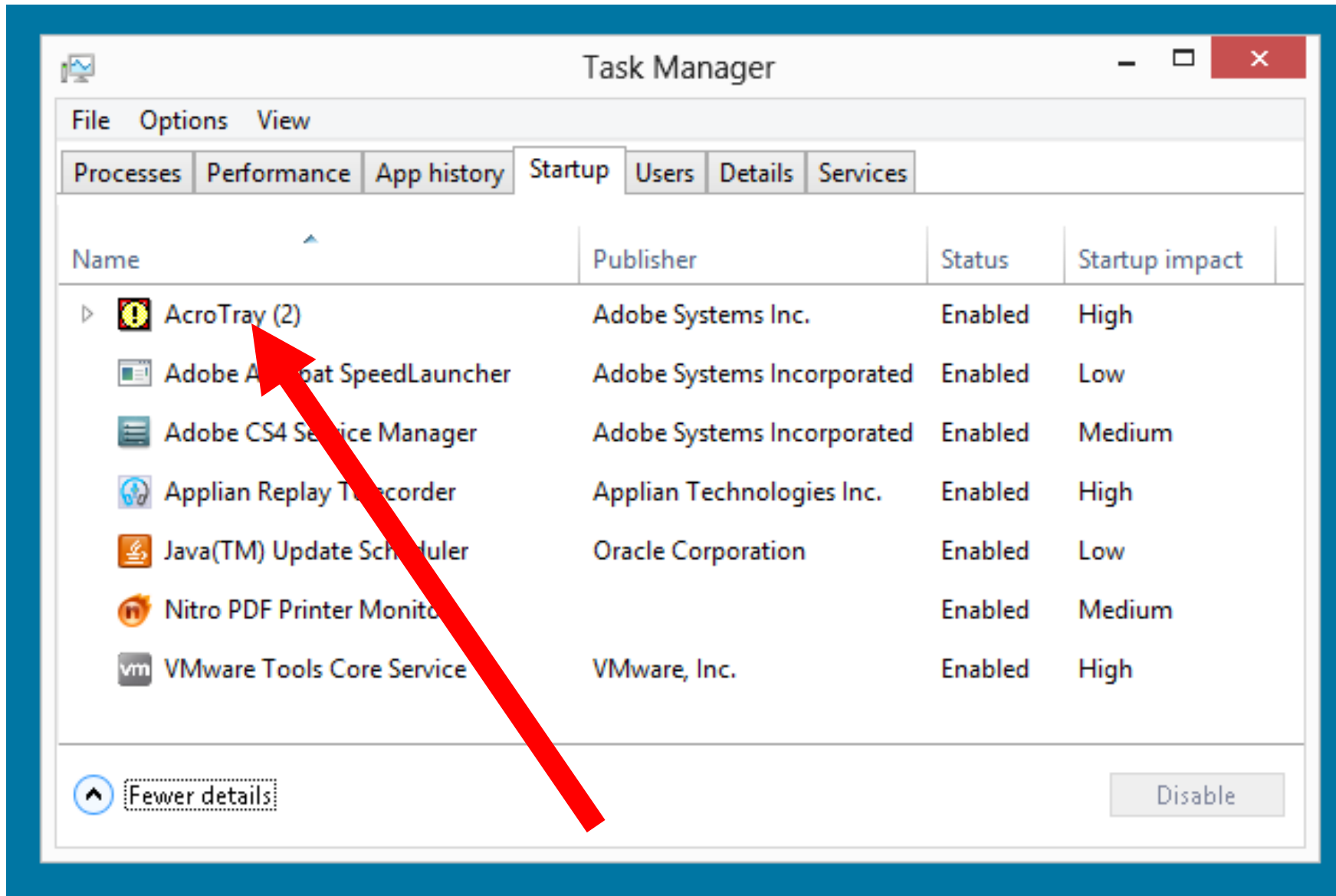
# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- The "Startup" items will be displayed with each "Startup" item having a name, a publisher, a status, and a "startup impact":



# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)







- To research, enable, or disable any startup item, right-click on it:



# **USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)**

- A pop-up context menu will be displayed:



Name	Publis
 AcroTray (2)	Adobe
 Ado	Adobe
 Ado	Adobe
 App	Applia
 Java	Oracle
 Nitro PDF Printer Monitor	

- Expand**
- Disable
- Open file location
- Search online
- Properties

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- Click on "Open file location" to find out where the executable file for the "Startup Item" is located.

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- Click on "Properties" to find out more about the "Startup Item":

# **USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)**

- Click on "Search online" to search the Internet to find out more about the "Startup Item". This selection will take you to the default search page of your default Web browser:

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- You can also use any Web browser to go to <http://www.bleepingcomputer.com/startups/> to learn more about any "Startup Item".

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- You can click on "Disable" (if it is available) to permanently disable any "Startup" item
- You can click on "Enable" (if it is available) to permanently enable any "Startup" item.

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- Both the "Disable" and the "Enable" options are reversible.

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- Do Not Use "msconfig.exe" to Turn Off Startup Programs!

See

<http://forums.majorgeeks.com/showthread.php?t=149804>

and

<http://www.bleepingcomputer.com/forums/t/87058/slow-computerbrowser-checkhere-first;-it-may-not-be-malware/>



# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- Many people use msconfig as a long term solution to control startup processes and services. You will also see many websites condoning use of msconfig and teaching you how to use it for controlling startups. This is a very bad idea for many reasons.

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- msconfig was designed to be used only as a temporary debugging/troubleshooting tool. It was not meant to be used as long term solutions.

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- msconfig does not show all startups anyway.
- If you uninstall programs while they are being disabled with msconfig, they will not be uninstalled properly and you will have to resort to manual registry editing to properly get everything removed.

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- msconfig will leave orphan entries if/when installed software is uninstalled while under the control of msconfig . When/if msconfig is turned back to normal startup, it will give errors on boot due to those orphan entries.

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- If you uninstall programs while you have some of the programs services being controlled with msconfig, the programs will not be uninstall properly and you will have to resort to manual registry editing to get everything properly removed.

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- When you uncheck a service in msconfig, you completely disable it. If you uncheck the wrong one, you may not be able to restart your computer.

# USING THE "STARTUP" TAB OF THE *TASK MANAGER* (continued)

- You can lock malware items into your registry that you may not see anymore until some point in time where you switch back to Normal Startup mode and now you can cause total reinfection of your PC with the malware. You need to remove the malware not mask it.

# USING THE "SERVICES" TAB OF THE *TASK MANAGER*

- The "Services" tab lets you disable and re-enable "services" without having to edit the Windows "Registry"
- While "services" do not (by themselves) use up much CPU cycles, RAM, and network bandwidth, they control process that can use up large amounts of these resources.



# USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)

- Press  
Ctrl + Shift + Esc  
to bring up the *Task Manager*:

Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	0% CPU	13% Memory	1% Disk	0% Network
<b>Apps (1)</b>					
▶ Task Manager		0%	7.5 MB	0 MB/s	0 Mbps
<b>Background processes (21)</b>					
⚠ AcroTray (32 bit)		0%	0.7 MB	0 MB/s	0 Mbps
📄 Adobe Acrobat SpeedLauncher ...		0%	0.7 MB	0 MB/s	0 Mbps
🌐 Applian Replay Telecorder (32 bit)		0%	4.5 MB	0 MB/s	0 Mbps
▶ 📄 COM Surrogate		0%	2.7 MB	0 MB/s	0 Mbps
📄 Device Association Framework ...		0%	0.7 MB	0 MB/s	0 Mbps
🛡 Google Crash Handler		0%	0.5 MB	0 MB/s	0 Mbps
🛡 Google Crash Handler (32 bit)		0%	0.5 MB	0 MB/s	0 Mbps

⬆ Fewer details

End task

# **USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)**

- Click on the "Services" tab:

Task Manager

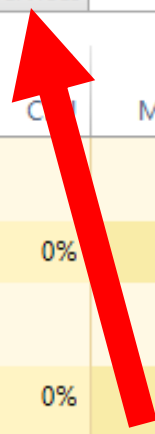
File Options View

Processes Performance App history Startup Users Details Services

Name	Status	CPU	Memory	Disk	Network
<b>Apps (1)</b>					
Task Manager		0%	7.5 MB	0 MB/s	0 Mbps
<b>Background processes (21)</b>					
AcroTray (32 bit)		0%	0.7 MB	0 MB/s	0 Mbps
Adobe Acrobat SpeedLauncher ...		0%	0.7 MB	0 MB/s	0 Mbps
Applian Replay Telecorder (32 bit)		0%	4.5 MB	0 MB/s	0 Mbps
COM Surrogate		0%	2.7 MB	0 MB/s	0 Mbps
Device Association Framework ...		0%	0.7 MB	0 MB/s	0 Mbps
Google Crash Handler		0%	0.5 MB	0 MB/s	0 Mbps
Google Crash Handler (32 bit)		0%	0.5 MB	0 MB/s	0 Mbps

^ Fewer details

End task



# Task Manager

App history

Startup

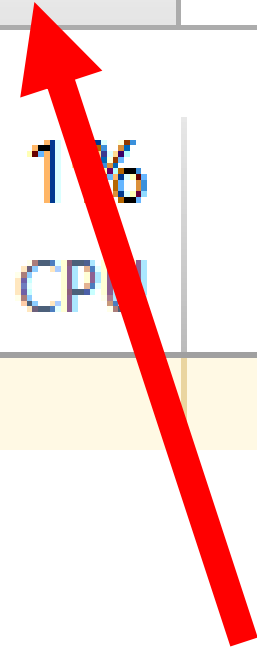
Users

Details

Services

Status

1%  
CPU



# USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)

- The "Services" will be displayed with each "Service" item having a name, a PID, a description, a status, and a "group":

Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	PID	Description	Status	Group
AeLookupSvc		Application Experience	Stopped	netsvcs
ALG		Application Layer Gateway Service	Stopped	
AllUserInstallAgent		Windows All-User Install Agent	Stopped	LocalSystemN...
AppIDSvc		Application Identity	Stopped	LocalServiceN...
Appinfo	840	Application Information	Running	netsvcs
AppMgmt		Application Management	Stopped	netsvcs
AudioEndpointBuilder	964	Windows Audio Endpoint Builder	Running	LocalSystemN...
Audiosrv	772	Windows Audio	Running	LocalServiceN...
AxInstSV		ActiveX Installer (AxInstSV)	Stopped	AxInstSVGroup
BDESVC		BitLocker Drive Encryption Service	Stopped	netsvcs
BFE	1164	Base Filtering Engine	Running	LocalServiceN...
BITS	840	Background Intelligent Transfer Service	Running	netsvcs

Fewer details | Open Services

The image shows a screenshot of the Windows Task Manager application, specifically the Services tab. The window title is "Task Manager". The menu bar includes "File", "Options", and "View". The navigation tabs are "Processes", "Performance", "App history", "Startup", "Users", "Details", and "Services". The Services tab is active, displaying a table of services. The table has five columns: Name, PID, Description, Status, and Group. Two services are visible: AeLookupSvc and ALG, both of which are stopped.

Name	PID	Description	Status	Group
AeLookupSvc		Application Experience	Stopped	netsvcs
ALG		Application Layer Gateway Service	Stopped	



# USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)

- "PID" = "Process Identifier"
  - = a number that uniquely identifies a process when it runs
- (Both "services" and "processes" have PIDs)













# **USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)**



- To research, enable, or disable any startup item, right-click on it:

Task Manager

File Options View










Processes Performance App history Startup Users Details Services

Name	PID	Description	Status	Group
 AeLookupSvc		Application Experience	Stopped	netsvcs
 ALG		Application Layer Gateway Service	Stopped	
 AllUserInstAgent		Windows All-User Install Agent	Stopped	LocalSystemN...
 AppIDSvc		Application Identity	Stopped	LocalServiceN...
 Appinfo	840	Application Information	Running	netsvcs
 AppMgmt		Application Management	Stopped	netsvcs
 AudioEndpointBuilder	964	Windows Audio Endpoint Builder	Running	LocalSystemN...
 Audiosrv	772	Windows Audio	Running	LocalServiceN...
 AxInstSV		ActiveX Installer (AxInstSV)	Stopped	AxInstSVGroup
 BDESVC		BitLocker Drive Encryption Service	Stopped	netsvcs
 BFE	1164	Base Filtering Engine	Running	LocalServiceN...
 BITS	840	Background Intelligent Transfer Service	Running	netsvcs

 Fewer details |  Open Services

# **USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)**

- A pop-up context menu will be displayed:

Name	PID	De
 AeLookupSvc		Ap
 ALG	Start	Ap
 AllUs	Stop	Wi
 ApplD	Restart	Ap
 Appin		Ap
 AppM	Open Services	Ap
 Audio	Search online	Wi
 Audio	Go to details	Wi
 AxInstSV		Ac

# USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)

- Click on "Search online" to search the Internet to find out more about the "Service" item.  
This selection will take you to the default search page of your default Web browser:

# USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)

- You can click on "Start" (if it is available) to start up any "Startup" item
- You can click on "Stop" (if it is available) to stop any "Startup" item.










# USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)

- You can click on "Restart" (if it is available) to restart any "Startup" item



# USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)

- To permanently disable a "Service" item, click on "Open Services" to go to the "Services" console:

Name	PID	De
 AeLookupSvc		Ap
 ALG	Start	Ap
 AllUs	Stop	Wi
 ApplD	Restart	Ap
 Appin		Ap
 AppM	Open Services	Ap
 Audio	Search online	Wi
 Audio	Go to details	Wi
 AxInstSV		Ac



# USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)

- When you click on "Open Services", a new window called "Services" will open. It is part of the "Microsoft Management Console" system for managing the "Windows.." operating system:

Services

File Action View Help

Services (Local)

Services (Local)

**Application Experience**

[Start](#) the service

Description:  
Processes application compatibility cache requests for applications as they are launched

Name	Description	Status	Startup Type	Log On As
ActiveX Installer (AxInstSV)	Provides User Account Control ...		Manual	Local System
Application Experience	Processes application compatib...		Manual (Trigger Start)	Local System
Application Identity	Determines and verifies the iden...		Manual (Trigger Start)	Local Service
Application Information	Facilitates the running of intera...	Running	Manual	Local System
Application Layer Gateway ...	Provides support for 3rd party p...		Manual	Local Service
Application Management	Processes installation, removal, ...		Manual	Local System
Background Intelligent Tran...	Transfers files in the backgroun...	Running	Automatic (Delayed Start)	Local System
Background Tasks Infrastru...	Windows infrastructure service t...	Running	Automatic	Local System
Base Filtering Engine	The Base Filtering Engine (BFE) i...	Running	Automatic	Local Service
BitLocker Drive Encryption ...	BDESVC hosts the BitLocker Driv...		Manual (Trigger Start)	Local System
Block Level Backup Engine ...	The WBENGINE service is used ...		Manual	Local System
Bluetooth Support Service	The Bluetooth service supports ...		Manual (Trigger Start)	Local Service
BranchCache	This service caches network con...		Manual	Network Service
Certificate Propagation	Copies user certificates and root...		Manual	Local System
CNG Key Isolation	The CNG key isolation service is...		Manual (Trigger Start)	Local System
COM+ Event System	Supports System Event Notificat...	Running	Automatic	Local Service
COM+ System Application	Manages the configuration and ...		Manual	Local System
Computer Browser	Maintains an updated list of co...	Running	Manual (Trigger Start)	Local System
Credential Manager	Provides secure storage and retr...		Manual	Local System
Cryptographic Services	Provides three management ser...	Running	Automatic	Network Service

Extended Standard

# USING THE "SERVICES" TAB OF THE *TASK MANAGER* (continued)

- The "Services" Microsoft Management Console window is one of the most powerful tools for improving the reliability and speed of the "Windows.." operating system.

# DETERMINING AVAILABLE MEMORY SLOTS ON THE MOTHERBOARD

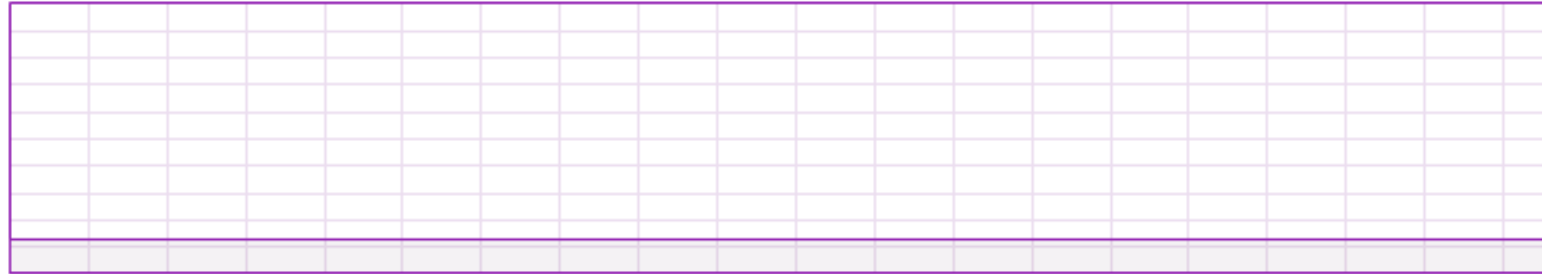
- In *Task Manager* running in "Windows 8.1" or "Windows 10":  
Click on "Performance".  
Then, click on "Memory"

# Memory

32.0 GB DDR3

Memory usage

31.9 GB



60 seconds

0

Memory composition



In use

Available

3.9 GB

27.8 GB

Speed:

1600 MHz

Slots used:

4 of 4

Form factor:

DIMM

Hardware reserved:

142 MB

Committed

Cached

4/716 GB

5.5 GB

Paged pool

Non-paged pool

333 MB

387 MB



Speed: 1600 MHz

Slots used:

4 of 4



Form factor:

DIMM

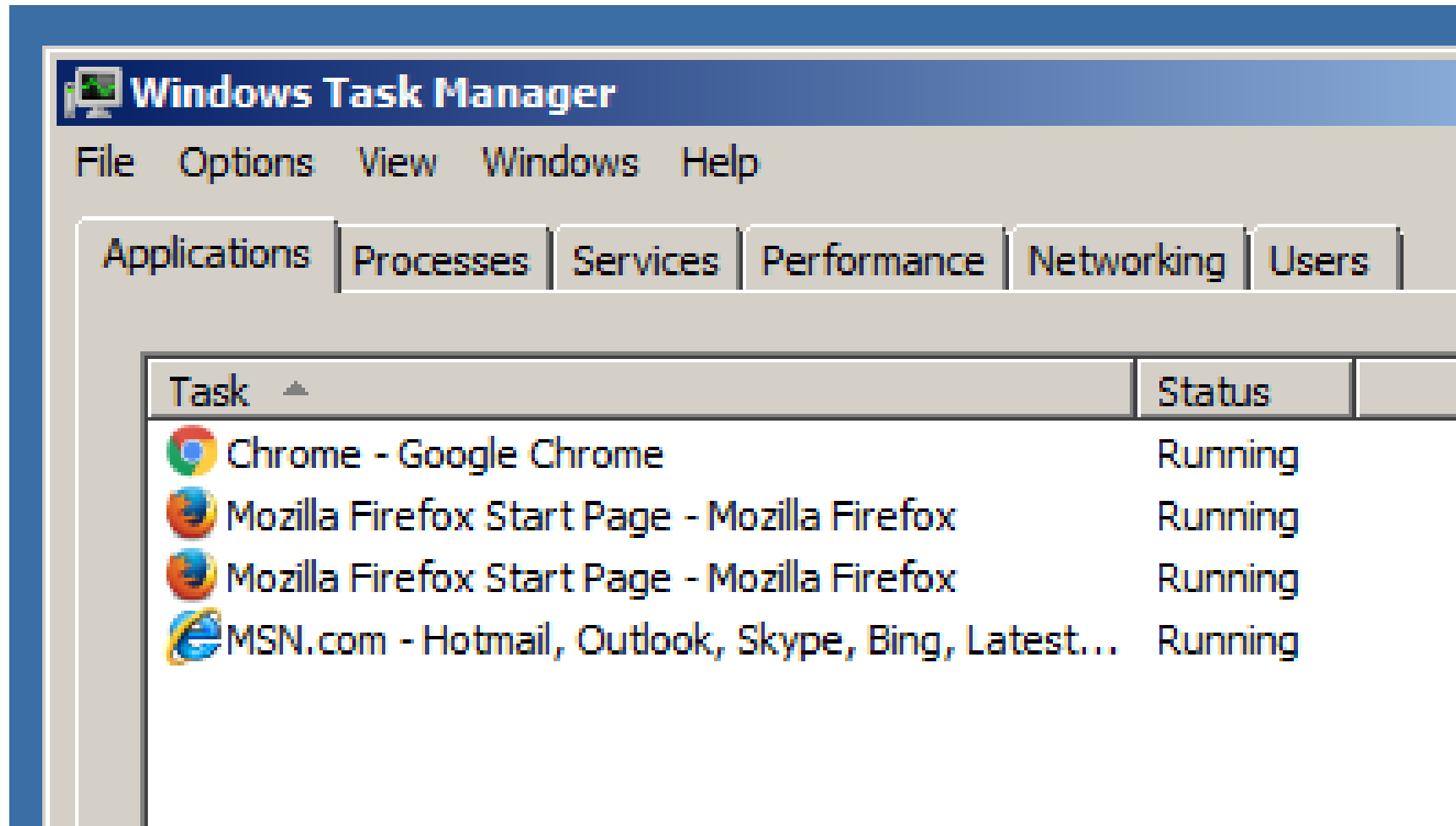
Hardware reserved:

142 MB



# COMPARISON OF THREE WEB BROWSERS IN "WINDOWS 7"

- For "Windows 7", "Google Chrome" uses less RAM relative to "Firefox" and "Internet Explorer 8"



# Windows Task Manager

File Options View Help

Applications

Processes

Services

Performance


Networking

Users

Image Name ▲	User Name	CPU	Memory ...	Description
chrome.exe *32	testuser	00	2,584 K	Google Chrome
chrome.exe *32	testuser	03	4,512 K	Google Chrome
chrome.exe *32	testuser	00	1,584 K	Google Chrome
chrome.exe *32	testuser	00	12,900 K	Google Chrome
chrome.exe *32	testuser	00	6,944 K	Google Chrome
csrss.exe		00	4,024 K	
dfsvc.exe	testuser	00	3,008 K	dfsvc.exe
dwm.exe	testuser	00	308 K	Desktop Window Manager
explorer.exe	testuser	00	5,972 K	Windows Explorer
firefox.exe *32	testuser	00	74,924 K	Firefox
iexplore.exe *32	testuser	00	3,128 K	Internet Explorer
iexplore.exe *32	testuser	00	42,660 K	Internet Explorer





# COMPARISON OF THREE WEB BROWSERS IN "WINDOWS 8.1"





- For "Windows 8.1", "Google Chrome" also uses less RAM relative to "Firefox" and "Internet Explorer 8":

 **Task Manager**

File Options View

Processes Performance App history Startup Users Details Services

Name	Status	CPU	Memory
<b>Apps (5)</b>			
▶  AVG User Interface (32 bit)		0%	6.9 MB
▶  Firefox (32 bit)		0%	121.8 MB
▶  Google Chrome (32 bit)		0%	23.3 MB
▶  Internet Explorer		0.3%	82.8 MB

Name	Status	6% CPU	32% Memory
<b>Apps (5)</b>			
▷  AVG User Interface (32 bit)		0%	6.9 MB
▷  Firefox (32 bit)		0%	121.8 MB
▷  Google Chrome (32 bit)		0%	23.3 MB
▷  Internet Explorer		0.3%	82.8 MB





# COMPARISON OF FOUR WEB BROWSERS IN "WINDOWS 10"

- In "Windows 10", the new "Microsoft Edge" browser uses less RAM compared to "Internet Explorer 11", "Google Chrome", and "FireFox":





# Task Manager

File Options View

Processes Performance App history Startup Users Details Services

Name	12% CPU	19% Memory
<b>Apps (5)</b>		
>  Firefox (32 bit)	0.6%	147.3 MB
>  Google Chrome (32 bit)	0.9%	34.2 MB
>  Internet Explorer	0.1%	63.1 MB
 Microsoft Edge	0%	10.5 MB



Name	57% CPU	29% Memory
<b>Apps (5)</b>		
>  Firefox (32 bit)	0%	132.3 MB
>  Google Chrome (32 bit)	1.5%	36.1 MB
>  Internet Explorer	0%	61.6 MB
 Microsoft Edge	0%	8.1 MB

# Questions ?

Francis Chao

*TASK MANAGER IN WINDOWS..*

Winners Windows Users, Tucson Computer Society, Greater South Bay PC Users Group



Web location for this presentation:

<http://aztcs.org>, then click on "Meeting Notes"

fchao2@yahoo.com



An International  
Association of Technology  
& Computer User Groups