TECHNICAL NOTE		
Maple Model(s)	**Title**	**TN1141**
Industrial PCs	Gathering Diagnostic Data from Industrial PCs	

P/N: 0907-1141
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Summary

Diagnostic data is critical for troubleshooting and resolving issues on any computer hardware system. This Technical Note describes how to gather relevant troubleshooting data from Maple Systems Industrial PCs with a Windows operating system. Sharing this data with our Technical Support Engineers may reduce the time-to-resolution for issues such as those outlined in the "Scope" section below.

Scope

The diagnostic steps outlined in the "Solutions" section below are most likely to pertain to you if you have observed one or more of the following behaviors or 'symptoms' in your Industrial PC product:

- Intermittent reboots, freezing, "hangs", or "lock ups"
- A BSOD ("Blue Screen of Death")
- Failure to load system libraries, DLL files, or system modules
- Errors reading/writing data to hard drives (HDD) or solid-state drives (SSD)
- Markedly slower performance during boot up or normal task execution
- Higher than normal resource utilization (CPU, Memory, Disk)

NOTE: The diagnostic tests and utilities outlined in this Technical Note are not intended to be used for Performance Tuning.

NOTE: If your Industrial PC does not power on, or if it cannot boot into either Safe Mode or Normal Mode, then most likely it will need to be repaired. To request an RMA or Repair, contact our Technical Support team through our website, maplesystems.com.

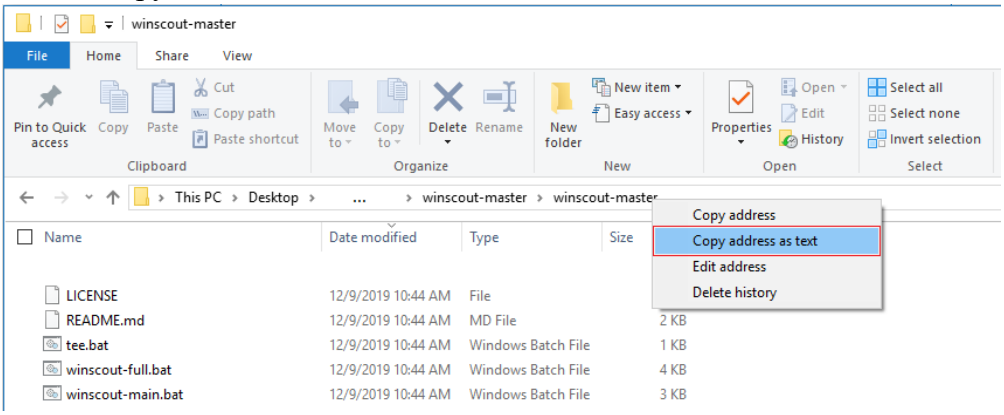
Solutions

Solution #1: Download and run *Winscout*, our free Windows Diagnostic Utility

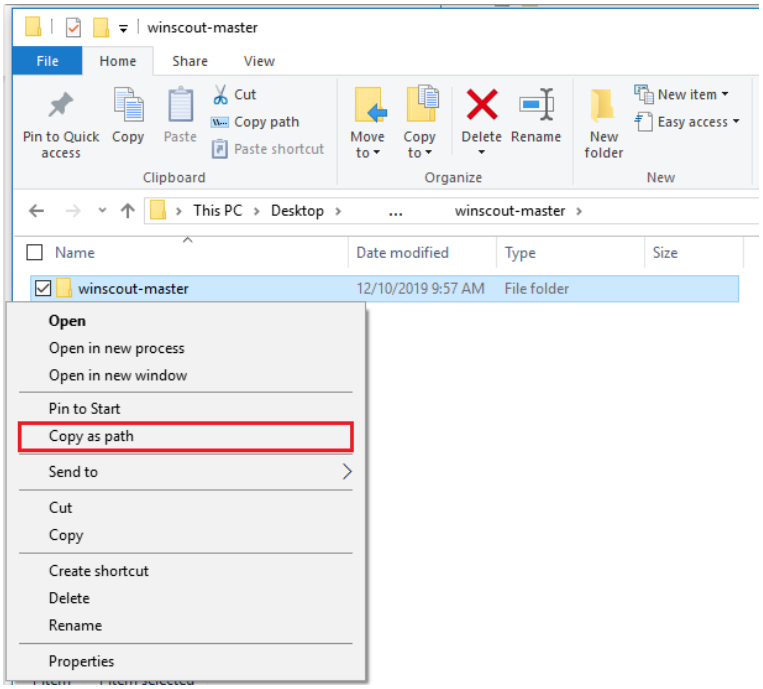
Maple Systems Winscout is a non-invasive diagnostic script that gathers all the most relevant data for troubleshooting. The results are saved in plain-text format in the same folder in which you run the script. Please email or share the results (.txt file) with your Tech Support Representative, along with a brief description of the issues you've observed, in order to assist in the troubleshooting process.

Instructions for running *Winscout*:

1. Download the compressed .ZIP file containing the diagnostic script using the link below:
    - Download: https://github.com/maplesystemsinc/winscout/archive/master.zip
2. Navigate to the folder where you downloaded the .ZIP file. Right-Click on it and select 'Extract All'.
3. Within the uncompressed Folder, locate the diagnostic script and helper files, named 'winscout-full.bat', 'winscout-main.bat', and 'tee.bat'.
4. Copy the `PATH` to the Folder containing these diagnostic script files (files listed above):
    - Method #1:
        i. Right-Click on the Folder in the Address Bar in Windows Explorer
        ii. Select 'Copy address as text'

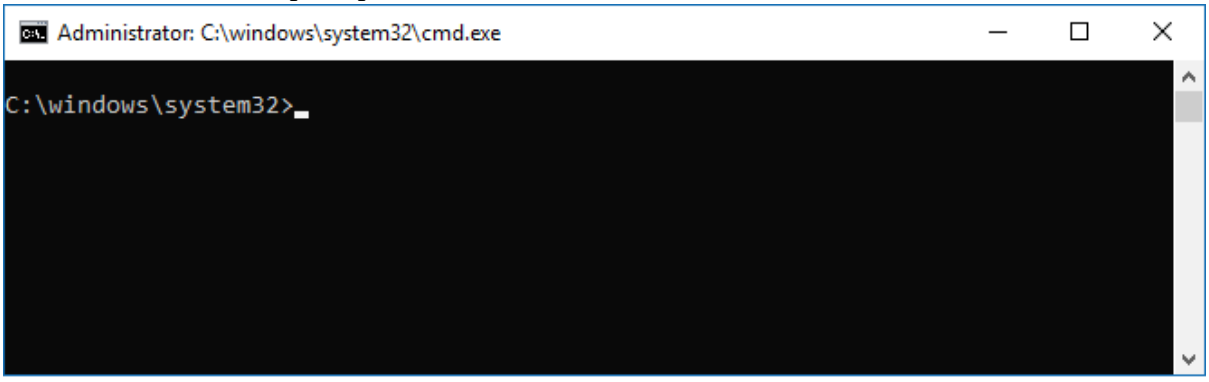


    - Method #2:
        i. Navigate up one level to show only the Folder itself in Windows Explorer
        ii. While holding down the `SHIFT` key, Right-Click on the Folder
        iii. Select 'Copy as path'



    - Example PATH: *`C:\Users\user\Downloads\winscout-master\winscout-master`*

5. Run CMD (Windows Command Prompt) as an Administrator:
    - Method #1:
        i. On your keyboard, hit: WINDOWS-KEY+R
        ii. Type: “cmd”
        iii. Hit: CTRL+SHIFT+ENTER
    - Method #2:
        i. On your keyboard, hit: WINDOWS-KEY
        ii. Type: “cmd”
        iii. Right-Click on “Command Prompt” and select “Run as administrator”
    - You should now see a prompt that looks like that shown in the screenshot below:

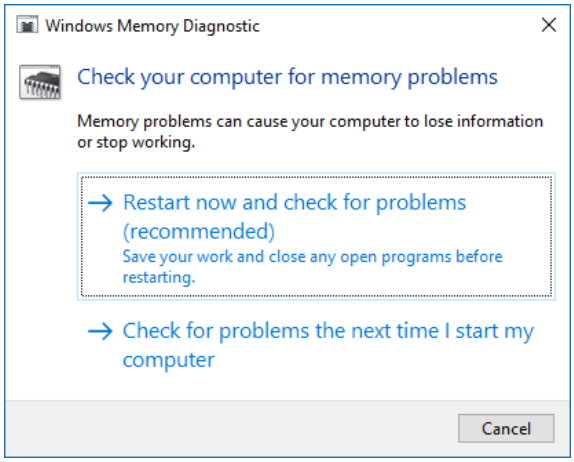


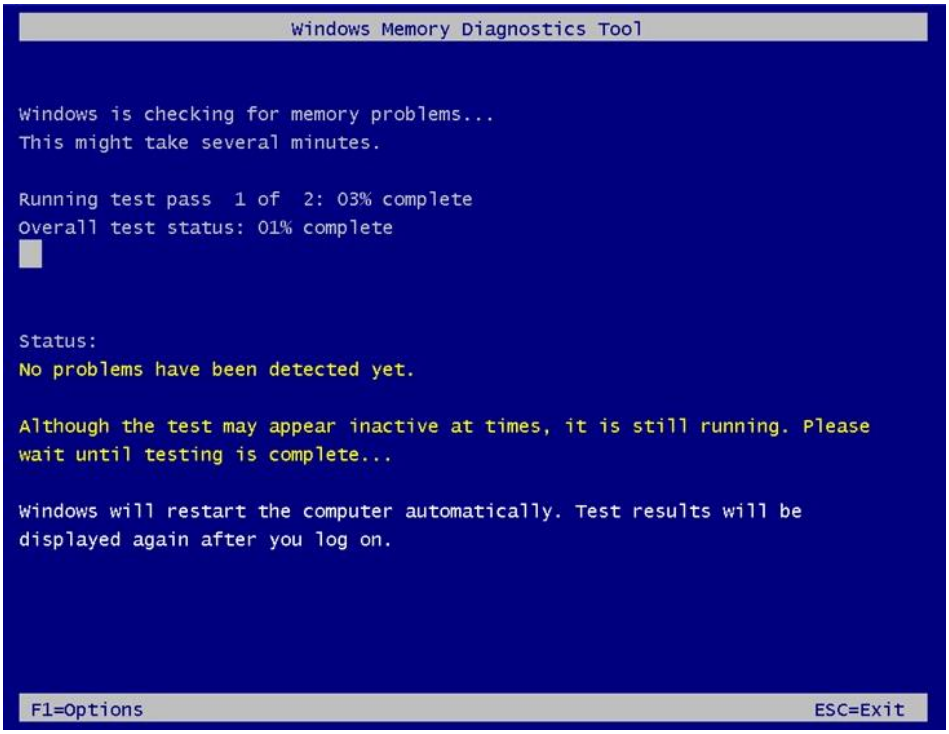
6. Use the cd command (Change Directory) to navigate to the Folder PATH copied in Step 4 (above):
    - Type: “cd”, followed by a SPACE
    - Right-Click on the black area of the Command Prompt window to paste in the Folder PATH
    - Hit: ENTER
    - Your Command Prompt should now include the full PATH
    - Example prompt: **C:\Users\user\Downloads\winscout-master\winscout-master>**
7. Run the ***Winscout*** Diagnostic Utility:
    - Type **winscout-full.bat** and hit ENTER
    - Read the *End-User License Agreement*. Type Y and hit ENTER to agree and run the script.
    - Allow the script to run to completion. Example of script running:

```
################################################################################
################################################################################
WINSCOUT DIAGNOSTIC SCAN
SCAN START TIME: 20191209_121245
################################################################################
################################################################################

Checking system information...
--------------------------------------------------------------------------------
SYSTEM INFO
--------------------------------------------------------------------------------
MAC ADDRESSES
Physical Address. . . . . . . . . : 03-18-4D-5E-72-9C
```

- There are two *optional* tests which the script will prompt you to either *Run* (Y) or *Skip* (N):
    i. System File Check: `sfc /verifynow`
        1. This verifies the integrity of system files, modules, and libraries.
        2. NOTE: May take some time to run.
    ii. Memory Check: `mdsched.exe`
        1. This performs a RAM memory check.
        2. NOTE: Requires a reboot. If you opt to *Run* (Y) the memory check, you will be prompted to reboot and begin the test as shown at right:
        3. While the test is running you will see a screen as in that shown below:





8. Save and share the results:
    - Once complete, the script will save all diagnostic outputs to a plain-text file in the same folder from which the utility was run. You will be notified when it has run to completion.
        i. Example notification upon successful completion:

```
Diagnostic results saved to disk.
LOCATION: "C:\Users\users\winscout-master\winscout-master"
FILENAME: "ws-results-20191209_121245.txt"
```

    - Attach this file to your email or Tech Support Request and provide a brief description of the issues you've observed.

Solution #2: Run Individual Diagnostic Tests Separately

If you feel you already have an idea of what the problem may be, or you wish to run tests one at a time for some other reason, you can select from any of the recommended tests listed below.

Disk Drive Tests:

- Fragmentation Check: `defrag C: /A`
- Check Disk (CHKDSK): `chkdsk /scan`
- S.M.A.R.T. Failure Prediction Check:
  `wmic /namespace:\\root\wmi path MSStorageDriver_FailurePredictStatus`

System File Tests:

- System File Check [Verify Only]: `sfc /verifyonly`
- System File Check [Scan & Attempt Repair]: `sfc /scannow`
- Create a copy of SFC Scan logs in case of any Errors or Warnings occurring during scans (saved to current user's Desktop):
  `findstr /c:"[SR]" %windir%\Logs\CBS\CBS.log > "%userprofile%\Desktop\sfcdetails.txt"`

System Event Logs:

- System Event Logs [Critical]:
  `WEVTUtil qe System /c:10 /rd:true /f:text /q:"Event[System[(Level=1)]]"`
- System Event Logs [Error]:
  `WEVTUtil qe System /c:10 /rd:true /f:text /q:"Event[System[(Level=2)]]"`

Windows Memory Diagnostics:

- Memory Check [Reboot Required]: `mdsched.exe`
- Check Windows Memory Diagnostic Results:
  `WEVTUtil qe System /c:10 /rd:true /f:text /q:"Event[System[Provider[@Name='Microsoft-Windows-MemoryDiagnostics-Results']]]"`

Network Interfaces: Ping, Tracert, Latency Tests:

- List All Network Interfaces: `ipconfig /all`
- Ping & Trace Route to Google (5 Hops Max., 5 Pings Max.): `pathping /h 5 google.com /q 5`