

Knowledge Base

How to perform clean-boot troubleshooting for Windows 2000

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The information in this article applies to:

- Microsoft Windows 2000 Server
 - Microsoft Windows 2000 Advanced Server
 - Microsoft Windows 2000 Professional
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SUMMARY

Many issues that are experienced while running the Windows operating system occur because of the use of an incompatible or corrupt program that you are running simultaneously. To help determine if this is the case, you have to either perform a "clean boot", or restart Windows without these programs starting.

This article describes how to perform clean-boot troubleshooting to determine if the problem in question is with the core operating system or with a program loading in the Windows environment.

MORE INFORMATION

To perform clean-boot troubleshooting, it is necessary to make changes and restart the computer several times to determine if the problem is with something in the operating system environment and, if this is the case, what specific component.

The overall structure of clean-boot troubleshooting that is presented in this article is categorized in the following way:

1. Safe Mode or Safe Mode with Networking Support
2. Removing Registry Entries
3. Testing User Profiles
4. Disabling Third-Party Services
5. Uninstalling Programs

Safe Mode or Safe Mode with Networking Support

The first step to troubleshoot potential environmental issues is to start in Safe mode or in Safe mode with networking support. If the issue is with a program that does not depend on network connectivity, Safe mode is appropriate. If the issue is with a network program, and you are using a network adapter to connect to a network, Safe mode with networking support may let you test the networking program, including browser issues.

Note You cannot use Safe mode with networking support when you use a modem or PC Card connection to a network, because modem drivers and PC Card drivers do not load in Safe mode or in Safe mode with networking support.

To start in Safe mode, follow these steps:

1. Click **Start**, and then click **Shut Down**.
2. Click **Restart**, and then click **OK**.
3. As the computer restarts, press F8.
4. Select **Safe Mode** or **Safe Mode with Networking**, and then press ENTER.

If you start in Safe mode or in Safe mode with networking support, and you can perform an operation normally, one with which you were previously experiencing issues, the issue is most likely due to an issue with the environment. Refer to the "Removing Registry Entries" section in this article for information about how to determine what program components may be causing the issue.

Note: You may not be able to test some operations in Safe mode because not all services and devices load in

Safe mode or Safe mode with networking support. For example, you cannot test multimedia issues that involve sound, or suspend or hibernate issues in Safe mode. Also, any network programs that rely on the Remote Procedure Call Subsystem (RpcSS) do not work because the RpcSS service does not load in Safe mode with networking support.

If you boot into Safe mode or Safe mode with networking support and the issue still occurs, there may still be an environmental issue; many Function or Filter drivers installed by third-party software may still load in Safe mode.

Therefore, it may be necessary to take an additional step to test and remove third-party drivers in Safe mode.

Removing Registry Entries

If you no longer encounter problems running programs in Safe mode, the issue is mostly likely due to programs that are loading while the Windows 2000 computer is booting.

Programs that are a part of the boot process for Windows 2000 are generally added to one of the following locations:

- The Startup folder under the **Programs** menu.
- The Run line for all users in the registry.
- The Run line for particular users in the registry.
- The "load" entry for all users in the registry.

Note: Because the registry is the location for all computer and program settings for Windows 2000, it is necessary to make a backup of the registry and particular registry entries in case you are no longer able to boot after editing the registry.

To back up the Windows 2000 registry:

1. Click **Start**, point to **Programs**, point to **Accessories**, point to **System Tools**, and then click **Backup**.
2. On the **General** tab, click **Emergency Repair Disk** and follow the provided directions.

The Startup folder icons are loaded from two locations. To remove these entries:

1. Click **Start**, point to **Settings**, and then click **Taskbar and Start Menu Properties**.
2. On the **Advanced** tab, click **Advanced**.
3. Open the Startup folder for the user account with which you logged on, and then click **Cut** on the **Edit** menu.
4. Create a SysDriversBak folder, create a UserStartup folder under the folder, open the UserStartup folder, and then click **Paste**.
5. Repeat steps 1 through 2 and navigate to the All Users\Start Menu\Programs\Startup folder.
6. Click **Cut** on the **Edit** menu, navigate to the SysDriversBak folder, create an AllUsersStartup folder, and then click **Paste**.

To remove values for the Run line in the registry for all users:

1. Click **Start**, click **Run**, type `regedit`, and then click **OK**.
2. Navigate to the following registry key:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run
3. Open the Run key and note the entries on the right pane.
4. For each value except for the Default value, click the value, click **Export Registry File** on the **Registry** menu, navigate to the SysDriversBak folder, and then save the file using the following naming convention
HKLMRun_(*valuename*)
where (*valuename*) is the name of the value that you are exporting.
5. Click **Delete** on the **Edit** menu.
6. Repeat these steps for each value under the Run key.
7. Check the related RunOnce and RunOnceEx keys to see if a program was not completely installed and repeat steps 3 through 5, except that you need to change the naming convention to reflect RunOnce or RunOnceEx.

To remove values for the Run line in the registry for the user account with which you are logged on as:

1. Click **Start**, click **Run**, type `regedit`, and then click **OK**.

2. Navigate to the following registry key:
HKEY_CURRENT_USER\SOFTWARE\Microsoft\Windows\CurrentVersion\Run
3. Open the Run key.
4. Highlight the first value below **Default (value not set)**, click the value, click **Export Registry File** on the **Registry** menu, navigate to the SysDriversBak folder, and then save the file using the following naming convention:
HKCURun_(*valuenam*e)
where (*valuenam*e) is the name of the value that you are exporting.
5. Click **Delete** on the **Edit** menu.
6. Repeat these steps for each value under the Run key.
7. Check the related RunOnce key to see if a program was not completely installed and repeat steps 3 through 5, except that you need to change the naming convention to reflect RunOnce.

To remove value data under "load":

1. Click **Start**, click **Run**, type `regedit`, and then click **OK**.
2. Navigate to the following registry key:
HKEY_CURRENT_USER\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Windows
3. If the value "load" (without quotation marks) has any value data, click **Export Registry File** on the **Registry** menu, navigate to the SysDriversBak folder and save the file as `HKCUload`.
4. Double-click the "load" value and clear the value data.
5. When you have completed these steps, restart your computer, and test.

If the problem no longer occurs, then you should merge the values in the following suggested order:

1. Startup icons from both the All Users group and the user account with which you log on
2. HKCURun_ values
3. HKLMRun_ values
4. HKCUload

To add the icons for the **Startup** menu:

1. Click **Start**, point to **Programs**, point to **Accessories**, and then click **Windows Explorer**.
2. Navigate to the SysDriversBak folder that you created earlier, open the AllUsersStartup folder, click **Select All**, and then click **Copy** on the **Edit** menu.
3. Navigate to the following folder, and then click **Paste**:
\Documents and Settings\All Users\Start Menu\Programs\Startup
4. Navigate to SysDriversBak\UserStartup folder, and then click **Copy** on the **Edit** menu.
5. Navigate to the following folder, and then click **Paste**:
\Documents and Settings*username*\Start Menu\Programs\Startup
where *username* is the name of the user that you have logged on as.
6. Restart your computer and test.

Testing User Profiles

Sometimes, a user's specific information may be corrupted, but other users on the same computer may have no problem. To determine if this is the case, log on as a new user or create a new user account, and then test it.

Note: Sometimes, a program may work correctly when you log on with the default Administrator account only. Older programs may have this problem.

If the default Administrator profile becomes corrupt, you need to reinstall Windows 2000 to correct this problem.

All user-specific configuration information (which is displayed in Registry Editor as HKEY_CURRENT_USER) is stored in the Ntuser.dat file in the \Documents and Settings*username* folder.

Disabling Third-Party Services

It is sometimes necessary to disable third-party services that are installed to eliminate problems. Safe mode and Safe mode with Networking do not load third-party services, so if Safe mode works, the problem may be due to a third-party service that is loading.

The following table is a partial list of core operating system services that load; however, this varies according to the services that are installed and the version of Windows 2000 that is in use:

Service	Description	Start Mode
Alerter	Alerter	Automatic
AppMgmt	Application Management	Manual
ClipSrv	Clipbook	Manual
EventSystem	COM+ Event System	Manual
Browser	Computer Browser	Automatic
DHCP	DHCP Client	Automatic
Dfs	Distributed File System	Automatic
TrkWks	Distributed Link Tracking Client	Automatic
TrkSrv	Distributed Link Tracking Server	Manual
MSDTC	Distributed Transaction Coordinator	Automatic
DNSCache	DNS Client	Automatic
EventLog	Event Log	Automatic
Fax	Fax Service	Disabled
NtFrs	File Replication	Manual
IISADMIN	IIS Admin Service	Automatic
cisvc	Indexing Service	Manual
SharedAccess	Internet Connection Sharing (Firewall)	Manual
PolicyAgent	IPSEC Policy Agent(IPSEC Service)	Automatic
LicenseService	License Logging Service	Automatic
dmserver	Logical Disk Manager	Automatic
dmadmin	Logical Disk Manager Administrative Service	Manual
Messenger	Messenger	Automatic
mspadmin	Microsoft Proxy Server Administration	Automatic
wspsvr	Microsoft Winsock Proxy Service	Automatic
Netlogon	Net Logon	Automatic
mnmsrvc	NetMeeting Remote Desktop Sharing	Manual
Netman	Network Connections	Manual
NetDDE	Network DDE	Manual
NetDDEdsdm	Network DDE DSDM	Manual
NtLmSsp	NT LM Security Support Provider	Automatic
OnlBroad	On-Line Presentation Broadcast	Manual
SysmonLog	Performance Logs and Alerts	Manual
PlugPlay	Plug and Play	Automatic
Spooler	Print Spooler	Automatic

ProtectedStorage	Protected Storage	Automatic
mailalrt	Proxy Alert Notification Service	Automatic
RSVP	QoS RSVP	Manual
RasAuto	Remote Access Auto Connection Manager	Manual
RasMan	Remote Access Connection Manager	Automatic
RpcSs	Remote Procedure Call (RPC)	Automatic
RPCLOCATOR	Remote Procedure Call (RPC) Locator	Manual
RemoteRegistry	Remote Registry Service	Automatic
NtmsSvc	Removable Storage	Automatic
seclogon	RunAs Service	Automatic
SamSs	Security Accounts Manager	Automatic
Ianmanserver	Server	Automatic
ScardSvr	Smart Card	Manual
ScardDrv	Smart Card Helper	Manual
SNMP	SNMP Service	Automatic
SNMPTRAP	SNMP Trap Service	Manual
SENS	System Event Notification	Automatic
Schedule	Task Scheduler	Automatic
LmHosts	TCP/IP NetBIOS Helper Service	Automatic
TapiSrv	Telephony	Manual
W3svc	World Wide Web Publishing Service	Automatic
LanmanWorkstation	WorkStation	Automatic

Additional services that could be installed:

- Asc
- AsynMac
- Beep
- Diskperf
- Fastfat
- Fsrec
- Ftdisk
- Gpc
- Ismserv
- Mountmgr
- MSFTPSVC
- MSIServer
- MSKSSRV
- MSPCQ
- NDIS
- NdisTapi
- NdisWan
- NDProxy

- NetBIOS
- NetBT
- NetDetect
- PartMgr
- ParVdm
- RCA
- Schedule
- SchedulingAgent
- TermService
- TlntSrv
- TrkSrv
- UPS
- UtilMan
- W32Time
- WinMgmt
- WMI

If none of these steps resolve your issue, you need to begin uninstalling programs from the Add/Remove Programs tool in Control Panel, restart your computer and then test.

If these steps still do not resolve your issue, you need to contact Microsoft Technical Support or reinstall the operating system and your programs.

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