

## Enabling debug logging for the Net Logon service

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**Important** This article contains information about how to modify the registry. Make sure to back up the registry before you modify it. Make sure that you know how to restore the registry if a problem occurs. For more information about how to back up, restore, and modify the registry, click the following article number to view the article in the Microsoft Knowledge Base:

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[256986](http://support.microsoft.com/kb/256986/) (<http://support.microsoft.com/kb/256986/>) Description of the Microsoft Windows registry

### SUMMARY

This article details the steps to enable logging of debug information by using a debug version of Net Logon and the required debug DLLs.

### MORE INFORMATION

**Warning** Serious problems might occur if you modify the registry incorrectly by using Registry Editor or by using another method. These problems might require that you reinstall your operating system. Microsoft cannot guarantee that these problems can be solved. Modify the registry at your own risk.

#### Setting up to debug Net Logon on Windows NT 3.51

1. CD %windir%\system32
2. Rename Lsass.exe Lsass.fre
3. Rename Lsasrv.dll Lsasrv.fre
4. Rename Netlogon.dll Netlogon.free
5. Copy the checked version of Lsass.exe, Lsasrv.dll and Netlogon.dll to the System32 directory. You can obtain the checked version from the DDK.
6. CD %windir%
7. MD debug
8. Start Regedt32
9. Change the REG\_DWORD value of the following registry key to **2080FFFF**, and then quit Regedt32.

**HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Netlogon\Parameters\DBFlag**

#### Set up to debug Net Logon on Windows NT 4.0

1. CD %windir%\system32.
2. Rename Netlogon.dll Netlogon.free.
3. Copy the checked version of Netlogon.dll to the system32 directory. You can obtain the checked version from the DDK.
4. Start Regedt32.
5. Delete the Reg\_SZ value of the following registry entry, create a REG\_DWORD value with the same name, and then add the 2080FFFF hexadecimal value.

**HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Netlogon\Parameters\DBFlag**

6. Quit Regedt32, and then restart the server
7. Confirm that the debug directory was created under the %windir% directory and contains a Netlogon.log file.

**Note** A Netlogon 3051 eventlog error may be returned and the Net Logon service may not respond to start if the value entered for DBFlag is not entered as a hex value, for example, 0x2400ffff.

```

////////////////////////////////////
//
// 3.5, 3.51 and 4.00 Debug flags and their values.
//
////////////////////////////////////

```

```

#define NL_INIT           0x00000001 // Initialization
#define NL_MISC          0x00000002 // Misc debug
#define NL_LOGON         0x00000004 // Logon processing
#define NL_SYNC          0x00000008 // Synchronization and

```

```

                                replication

#define NL_MAILSLLOT           0x00000010 // Mailslot messages
#define NL_PULSE               0x00000020 // Pulse processing
#define NL_CRITICAL            0x00000100 // Only real important errors
#define NL_SESSION_SETUP      0x00000200 // Trusted Domain maintenance
#define NL_DOMAIN              0x00000400 // Hosted Domain maintenance
#define NL_PACK                0x00000800 // Pack/Unpack of sync messages
#define NL_SERVER_SESS        0x00001000 // Server session maintenance
#define NL_CHANGELOG           0x00002000 // Change Log references
#define NL_DNS                 0x00004000 // DNS name registration

//
// Very verbose bits
//

#define NL_DNS_MORE            0x00020000 // Verbose DNS name registration
#define NL_PULSE_MORE         0x00040000 // Verbose pulse processing
#define NL_SESSION_MORE       0x00080000 // Verbose session management
#define NL_REPL_TIME          0x00100000 // replication timing output
#define NL_REPL_OBJ_TIME      0x00200000 // replication objects get/set
                                timing

                                output
#define NL_ENCRYPT              0x00400000 // debug encrypt and decrypt
                                across

                                net
#define NL_SYNC_MORE           0x00800000 // additional replication
                                dbgprint

#define NL_PACK_VERBOSE        0x01000000 // Verbose Pack/Unpack
#define NL_MAILSLLOT_TEXT     0x02000000 // Verbose Mailslot messages
#define NL_CHALLENGE_RES      0x04000000 // challenge response debug
#define NL_NETLIB              0x08000000 // Netlogon portion of Netlib

//
// Control bits.
//

#ifdef DONT_REQUIRE_ACCOUNT<BR/>
#define NL_DONT_REQUIRE_ACCOUNT 0x00020000 // Don't require
                                account on
                                DC discovery
#endif DONT_REQUIRE_ACCOUNT

#define NL_INHIBIT_CANCEL     0x10000000 // Don't cancel API calls
#define NL_TIMESTAMP          0x20000000 // TimeStamp each output line
#define NL_ONECHANGE_REPL     0x40000000 // Only replicate one change per
                                call

#define NL_BREAKPOINT         0x80000000 // Enter debugger on startup

////////////////////////////////////
//
// 3.1 Debug flags and their values.
//
////////////////////////////////////
#define NL_INIT                0x00000001 // Initialization
#define NL_MISC                0x00000002 // Misc debug
#define NL_LOGON               0x00000004 // Logon processing
#define NL_SYNC                0x00000008 // Synchronization and
                                replication
#define NL_MAILSLLOT           0x00000010 // Mailslot messages
#define NL_PULSE               0x00000020 // Pulse processing
#define NL_CRITICAL            0x00000100 // Only real important errors
#define NL_SESSION_SETUP      0x00000200 // Trusted Domain maintenance
#define NL_PACK                0x00000800 // Pack/Unpack of sync messages
#define NL_SERVER_SESS        0x00001000 // Server session maintenance
#define NL_CHANGELOG           0x00002000 // Change Log references

//
// Very verbose bits
//

#define NL_PULSE_MORE          0x00040000 // Verbose pulse processing
#define NL_SESSION_MORE        0x00080000 // Verbose session management
#define NL_REPL_TIME           0x00100000 // replication timing output

```

```

#define NL_REPL_OBJ_TIME 0x00200000 // replication objects get/set
                                timing output
#define NL_ENCRYPT        0x00400000 // debug encrypt and decrypt

                                across net
#define NL_SYNC_MORE    0x00800000 // additional replication
                                dbgprint
#define NL_PACK_VERBOSE 0x01000000 // Verbose Pack/Unpack
#define NL_MAILSLLOT_TEXT 0x02000000 // Verbose Mailslot messages
#define NL_CHALLENGE_RES 0x04000000 // challenge response debug
#define NL_NETLIB       0x08000000 // Netlogon portion of Netlib

//
// Control bits.
//

#define NL_INHIBIT_CANCEL 0x10000000 // Don't cancel API calls
#define NL_TIMESTAMP      0x20000000 // TimeStamp each output line
#define NL_ONECHANGE_REPL 0x40000000 // Only replicate one change per
                                call
#define NL_BREAKPOINT     0x80000000 // Enter debugger on startup

```

Opcode values that are returned in the Netlogon Logs for Troubleshooting

```

#define LOGON_REQUEST      0 // LM1.0/2.0 LOGON Request from
                                client
#define LOGON_RESPONSE     1 // LM1.0 Response to
                                LOGON_REQUEST
#define LOGON_CENTRAL_QUERY 2 // LM1.0 QUERY for centralized
                                init
#define LOGON_DISTRIB_QUERY 3 // LM1.0 QUERY for non-
                                centralized init
#define LOGON_CENTRAL_RESPONSE 4 // LM1.0 response to
                                LOGON_CENTRAL_QUERY
#define LOGON_DISTRIB_RESPONSE 5 // LM1.0 resp to
                                LOGON_DISTRIB_QUERY
#define LOGON_RESPONSE2    6 // LM2.0 Response to
                                LOGON_REQUEST
#define LOGON_PRIMARY_QUERY 7 // QUERY for Primary DC
#define LOGON_START_PRIMARY 8 // announce startup of Primary
                                DC
#define LOGON_FAIL_PRIMARY 9 // announce failed Primary DC
#define LOGON_UAS_CHANGE   10 // announce change to UAS or SAM
#define LOGON_NO_USER      11 // announce no user on machine
#define LOGON_PRIMARY_RESPONSE 12 // response to
                                LOGON_PRIMARY_QUERY
#define LOGON_RELOGON_RESPONSE 13 // LM1.0/2.0 resp to relogn
                                request
#define LOGON_WKSTINFO_RESPONSE 14 // LM1.0/2.0 resp to interrogate
                                request
#define LOGON_PAUSE_RESPONSE 15 // LM2.0 resp when NETLOGON is
                                paused
#define LOGON_USER_UNKNOWN 16 // LM2.0 response when user is
                                unknown
#define LOGON_UPDATE_ACCOUNT 17 // LM2.1 announce account
                                updates
#define LOGON_SAM_LOGON_REQUEST 18 // SAM LOGON request from client
#define LOGON_SAM_LOGON_RESPONSE 19 // SAM Response to SAM logon
                                request
#define LOGON_SAM_PAUSE_RESPONSE 20 // SAM response when NETLOGON is
                                paused
#define LOGON_SAM_USER_UNKNOWN 21 // SAM response when user is
                                unknown
#define LOGON_SAM_WKSTINFO_RESPONSE 22 // SAM response to
                                interrogate request

```

1. Net Stop Netlogon
2. Net Start Netlogon.
3. This may start logging the Net Logon-related activity to

```
%windir%\debug\netlogon.log
```

#### Windows Server 2003, Windows XP Professional and Windows 2000 Server versions

The version of Netlogon.dll that has tracing included is installed by default. To enable debug logging, set the debug flag that you want in the registry and restart the service by using the following steps:

1. Start the Regedt32 program.
2. Delete the Reg\_SZ value of the following registry entry, create a REG\_DWORD value with the same name, and then add the 2080FFFF hexadecimal value.

**HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Netlogon\Parameters\DBFlag**

3. At a command prompt, type **net stop netlogon**, and then type **net start netlogon**. This enables debug logging.
4. To disable debug logging, change the data value to **0x0** in the following registry key:

**HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Netlogon\Parameters\DBFlag**

5. Quit Regedt32.
6. Stop Net Logon, and then restart Net Logon.

**Note** On Windows Server 2003-based computers, you can use the following Group Policy to configure the log file size:

**\Computer Configuration\Administrative Templates\System\Net Logon\Maximum Log File Size**

**Note** As an alternate method, you can set the dbflag without using the registry. To do this run the following command from a command prompt:

**nltest /dbflag:0x2080ffff**

After you finish debugging, you can run the **nltest /dbflag:0x0** command from a command prompt to reset the debug flag to 0. For more information, click the following article numbers to view the articles in the Microsoft Knowledge Base:

[247811](http://support.microsoft.com/kb/247811/) (http://support.microsoft.com/kb/247811/) How domain controllers are located in Windows

[189541](http://support.microsoft.com/kb/189541/) (http://support.microsoft.com/kb/189541/) Using the checked Netlogon.dll to track account lockouts

**Note** This is the public version of this article.

```

////////////////////////////////////
// Windows 2000 and Windows 2003 Debug flags and their values.
////////////////////////////////////

#define NL_INIT                0x00000001 // Initialization
#define NL_MISC                0x00000002 // Misc debug
#define NL_LOGON               0x00000004 // Logon processing
#define NL_SYNC                0x00000008 // Synchronization and replication
#define NL_MAILSLLOT           0x00000010 // Mailslot messages
#define NL_SITE                0x00000020 // Sites
#define NL_CRITICAL            0x00000100 // Only real important errors
#define NL_SESSION_SETUP      0x00000200 // Trusted Domain maintenance
#define NL_DOMAIN              0x00000400 // Hosted Domain maintenance
#define NL_2                   0x00000800
#define NL_SERVER_SESS        0x00001000 // Server session maintenance
#define NL_CHANGELOG           0x00002000 // Change Log references
#define NL_DNS                 0x00004000 // DNS name registration

//
// Very verbose bits
//

#define NL_WORKER              0x00010000 // Debug worker thread
#define NL_DNS_MORE            0x00020000 // Verbose DNS name registration
#define NL_PULSE_MORE          0x00040000 // Verbose pulse processing
#define NL_SESSION_MORE        0x00080000 // Verbose session management
#define NL_REPL_TIME           0x00100000 // replication timing output
#define NL_REPL_OBJ_TIME       0x00200000 // replication objects get/set timing output
#define NL_ENCRYPT              0x00400000 // debug encrypt and decrypt across net
#define NL_SYNC_MORE           0x00800000 // additional replication dbgprint
#define NL_PACK_VERBOSE         0x01000000 // Verbose Pack/Unpack
#define NL_MAILSLLOT_TEXT      0x02000000 // Verbose Mailslot messages
#define NL_CHALLENGE_RES       0x04000000 // challenge response debug
#define NL_SITE_MORE           0x08000000 // Verbose sites

//
// Control bits.
//

#define NL_INHIBIT_CANCEL      0x10000000 // Don't cancel API calls
#define NL_TIMESTAMP            0x20000000 // TimeStamp each output line

```

```
#define NL_ONECHANGE_REPL 0x40000000 // Only replicate one change per call  
#define NL_BREAKPOINT    0x80000000 // Enter debugger on startup
```

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**APPLIES TO**

- Microsoft Windows Server 2003, Standard Edition (32-bit x86)
- Microsoft Windows Server 2003, Enterprise Edition (32-bit x86)
- Microsoft Windows Server 2003, Datacenter Edition (32-bit x86)
- Microsoft Windows Server 2003, Web Edition
- Microsoft Windows XP Professional
- Microsoft Windows 2000 Server
- Microsoft Windows 2000 Advanced Server
- Microsoft Windows 2000 Datacenter Server
- Microsoft Windows NT Advanced Server 3.1
- Microsoft Windows NT Server 3.5
- Microsoft Windows NT Server 3.51
- Microsoft Windows NT Server 4.0 Standard Edition
- Microsoft Windows NT Workstation 3.1
- Microsoft Windows NT Workstation 3.5
- Microsoft Windows NT Workstation 3.51
- Microsoft Windows NT Workstation 4.0 Developer Edition

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