

Manual | EN

Beckhoff Device Manager



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1 Notes on the documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with the applicable national standards.

It is essential that the documentation and the following notes and explanations are followed when installing and commissioning the components.

It is the duty of the technical personnel to use the documentation published at the respective time of each installation and commissioning.

The responsible staff must ensure that the application or use of the products described satisfy all the security requirements, including all the relevant laws, regulations, guidelines, and standards.

Disclaimer

The documentation has been prepared with care. The products described are, however, constantly under development.

We reserve the right to revise and change the documentation at any time and without prior announcement.

No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams, and descriptions in this documentation.

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2 Security

The Security chapter provides information on how to reduce the risk of unauthorized access.

Signal panels like the one shown below highlight additional information throughout the documentation:



Tip or pointer

This symbol indicates information that contributes to better understanding.

Intended use

The Beckhoff Device Manager is used for Beckhoff IPC diagnostics. It enables monitoring of system values, which helps to prevent device downtimes. Since a customized BIOS is required for using the Beckhoff Device Manager, the Device Manager is only available for Beckhoff Industrial PCs and Embedded PCs.

The intuitive Device Manager website facilitates system configuration. The website is protected by a password, and access is encrypted (https). A standard administrator password specified by Beckhoff is applied on delivery. You should change this password to prevent unauthorized remote access to the system. Information on setting secure passwords is provided below.

Fundamental safety instructions

As a rule, it is important to prevent unauthorized persons from accessing the system. Various security measures are available for this purpose.

- Secure access to the system by means of certificates (e.g. ssh or OPC UA). Note that this only secures this type of access. If you want to prevent unauthorized access to the website, close TCP port 443 (https) in the system firewall. Please refer to the documentation for your operating system.
- Protect the system physically by keeping control cabinets locked and allowing access only to administrators and technicians. This reduces attacks on the system via data carriers.
- Train employees in the general handling of passwords and data carriers.

For more information, refer to the IPC security documentation.

Secure passwords

Strong passwords are an important prerequisite for a secure system.

Please note the following points when assigning new passwords:

- Passwords should be unique for each user and service.
- Only change passwords after an incident in which passwords have become known without authorization.
- Train the device users in the use of passwords.

A secure password has the following characteristics:

- Password complexity: The password should contain capital and lower-case letters, numbers, punctuation marks and special characters.
- Password length: The password should be at least 10 characters long.

You can generate the password in different ways. An example is shown in the following table:

Table 1: Password generation

Procedure	Example
Start with one or two sentences.	Complex passwords are more secure
Remove the spaces.	Complexpasswordsaremoresecure
Abbreviate words or add spelling mistakes.	Complxpasswordsarmoresecure
Insert numbers and special characters to extend the password.	KomlxPasswörterersinsicerer#529954#

The following passwords are not secure:

- Words from a dictionary
- Words written backwards, common spelling mistakes, and abbreviations
- Repetitive sequences, e.g. 123456789 or abcdefgh
- Personal information, e.g. birthdays, ID numbers, telephone numbers

3 Overview

The Beckhoff Device Manager can be used for device diagnostics. It can provide a variety of system values. They can be accessed via standard functions of the Windows operating system and via special functions of the Beckhoff BIOS. The functions available for individual IPCs depend on the hardware, the BIOS, the operating system, and the Device Manager version. They may therefore differ between different Beckhoff IPCs.

In view of the fact that the control computer is the central element of the machine control system, any failure can cause high downtime costs. It is therefore essential to be able to check the device. To prevent failure and minimize downtime, it is important to detect critical conditions early on. These include impending heat collapse due to failure of a fan or insufficient passive cooling. For the acquisition, analysis, and evaluation of system data during operation, all newer Beckhoff IPCs therefore offer the option of sophisticated system diagnostics with standardized, safe access to existing hardware and software components.

The Beckhoff Device Manager is only available for Beckhoff Industrial PCs and Embedded PCs, since it requires a customized BIOS. The current version of the Device Manager is available from Beckhoff support. On Beckhoff IPCs that are delivered with an embedded operating system, the Device Manager is pre-installed as standard (IPCs with standard Windows OS are available on request).

Communication and programming interfaces

The Beckhoff Device Manager supports local system access (in the control program on the device) and remote access from another IPC (or PLC).

The Device Manager functions can be integrated in user applications (particularly TwinCAT) via different communication and programming interfaces.

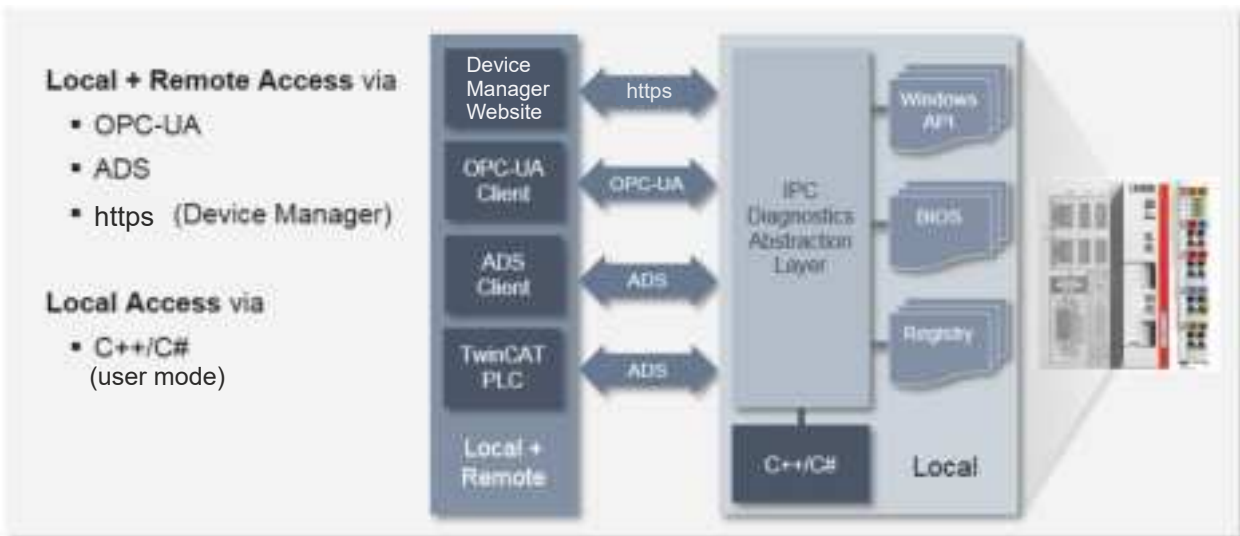


Fig. 1: Communication and programming interfaces

4 System requirements



Current components

The Beckhoff Device Manager is constantly being updated and further developed. Always use the latest components in your application:

- BIOS
- Image for your Beckhoff IPC
- Beckhoff Automation Device Driver
- Tc3_IPCDiag or Tc2_MDP library for your TwinCAT PLC program

Hardware requirements

- The Beckhoff Device Manager only runs on Beckhoff IPCs or Beckhoff Embedded PCs. It does not run on other IPCs/PCs.
- A prerequisite is the use of a Beckhoff image, as this contains special settings for using the Beckhoff Device Manager.
- The Device Manager is included in all current Beckhoff standard images under Windows Embedded (Standard and Compact).

Software requirements

- In the current version of the Device Manager, optimizations and improvements have been made compared to previous versions. The current version of the Device Manager can be obtained from Beckhoff Service.
- The Device Manager is usually not pre-installed on Beckhoff images with Windows desktop versions (Windows 7 Professional etc.). In this case you can install the Beckhoff Device Manager via a setup program. The Setup facility is only available for “big” Windows systems, not for Windows CE or Windows Embedded Compact. Windows CE systems cannot be updated. In this case always use the latest image.
- Non-Beckhoff images are not supported.

BIOS version

There may be further conditions for the Beckhoff Device Manager version and the BIOS version, depending on which features you want to use and which Industrial PCs or Embedded PCs you use.

Whether special features, such as reading of the CPU or mainboard temperature, are available in the Device Manager depends on the BIOS version in the device used, since the device must make the corresponding values available via a dedicated interface (BIOS API).

The following table shows the systems for which Device Manager values can **not** be read via the BIOS API.

IPC mainboard	Server	Embedded PC
<ul style="list-style-type: none"> • CBxx50 • CBxx51 • CB3x10 	<ul style="list-style-type: none"> • C6670 	<ul style="list-style-type: none"> • CX10x0 • CX80x0 • CX90xx

Beckhoff Industrial PCs of the same series may be equipped with different Beckhoff IPC mainboards, depending on the performance class. An exception are Embedded PCs of the CX series. The functions available for the Beckhoff Device Manager therefore depend on the integrated mainboard, not the IPC type.

Check whether additional information on the availability of individual features is provided in the description of the modules you require.

When using the Device Manager via a PLC library, note the system requirements of the PLC library.

5 Web interface

For a quick overview of the functions supported by your Beckhoff IPC, please refer to Device Manager web page. This is particularly helpful for functions that require a special Beckhoff BIOS (e.g. mainboard data).

All IPC diagnostic parameters of the Beckhoff IPC can be read out via the web interface using a standard web browser. The web interface is available for download via a URL with the following structure: `http://<Device IP>/config`

Important notes:

- Local access (without network connection) to the device web page is also available via the URL `http://localhost/config`.
- Your network firewall must permit access via port 443 (https) for the web interface of the IPC.
- Instead of the IP address of the device, in principle you can use the device name of the IPC. However, depending on the structure/configuration of your network (proxy server, etc.), the system may not be able to resolve the device name. We therefore recommend using the IP address of the IPC.

i Self-signed certificates for https connection

Since the devices use self-signed certificates for the https connection, current browsers will issue a warning message that the identity cannot be verified. In this case, you can import the self-signed certificate of the device (server) into the client Windows computer.

Before you can import the self-signed certificate to the client Windows computer, you must copy it from the Industrial PC to the client Windows computer. For 64-bit systems the certificates can be found in the directory `C:\Program Files (x86)\Beckhoff\IPC-Diagnostics\Certs`, for 32-bit systems in the directory `C:\Program Files\Beckhoff\IPC-Diagnostics\Certs`.

Now import the self-signed certificate to the client Windows computer as follows:

1. Start `certmgr.msc` on the Windows computer.
2. Add the certificate snap-in for the computer account and manage the certificates for the local computer.
3. Import the self-signed certificate into `Trusted Root Certification Authorities > Certificates`.

i Update certificate

If you want to install a new image on a device, the certificate on the client Windows computer must also be updated.

By default, the access data are predefined when the IPCs are delivered:

- User name: Administrator
- Password: 1

The Security Wizard of the Device Manager prompts you to change these access data after the first start. Please follow this instruction to prevent unauthorized access. For more information on selecting strong passwords, see chapter 2 [Security](#) [▶ 6].

After you have changed and confirmed the access data, the home page of the current web interface of the Beckhoff Device Manager appears:



Fig. 2: Beckhoff Device Manager home page

The home page provides a basic overview of the device. From here you can directly access the hardware, software, and security sections. This allows you to check the hardware and software in a targeted manner.

From the home page, navigate further in the menu to configure the Industrial PC or Embedded PC. Note that modifications only become active once they have been confirmed. Restart the PC if necessary.

On Beckhoff IPCs with desktop Windows, which are usually delivered without pre-installed Beckhoff Device Manager, the Device Manager can be retrofitted via an installation program. The installation program is available from Beckhoff Support.

Previous version of the web interface

The web interface of the Beckhoff Device Manager shown above was introduced at the end of 2015, so that all new images will contain this interface from the time of its introduction. All images from the time before the end of 2015 contain the old interface. The following image shows the home page and the Software menu item, with reference to the MDP interface version (as an indicator of up-to-dateness) of the old web interface.



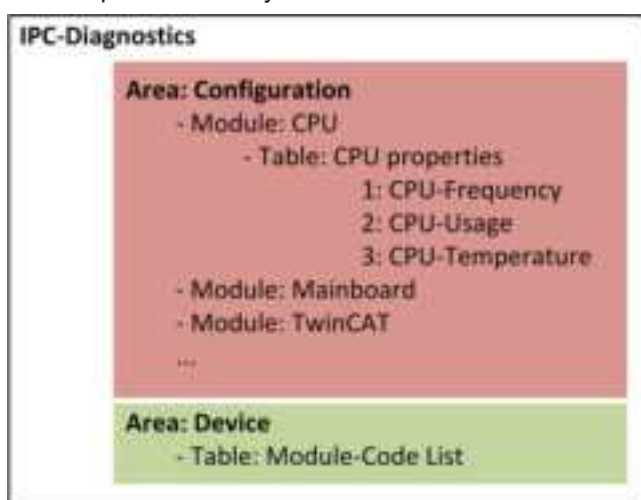
Fig. 3: IPC diagnostics, old web interface

6 Information model

Modules – categorization of hardware and software information

The Beckhoff Device Manager categorizes various hardware and software data in an information model via modules.

- A module categorizes several pieces of hardware and software information in logical groups, e.g. CPU, mainboard, TwinCAT.
- The Device Manager automatically generates modules on system startup based on the actual IPC hardware and software. Modules therefore do not have a static address but a dynamic address, which is generated when the Device Manager is started, based on the identified hardware and software of the IPC.
- A module contains several tables that subdivide the hardware and software information for respective modules into logical subgroups. Each module contains at least one "Header" table containing general information on the module, plus at least one data table.
- A particular entry in the table is addressed via its subindex.



The following information is required to read specific data via the Device Manager:

- The (dynamic) address of the table containing the required information. A table can be addressed via a unique address.
- The SubIndex within the table representing the desired information (e.g. CPU temperature).

For PLC programming convenient function blocks are available, which facilitate access to the required data (see [samples for PLC programming](#) [► 64]). The following information on addressing can therefore be skipped for PLC programming.

Finding the address of a table

To read a particular piece of hardware or software information via the Device Manager it is necessary to determine its precise position in the information model, based on the index of the surrounding table and its subindex.

Index:

The index of the table consists of 16 bits and is configured as follows:

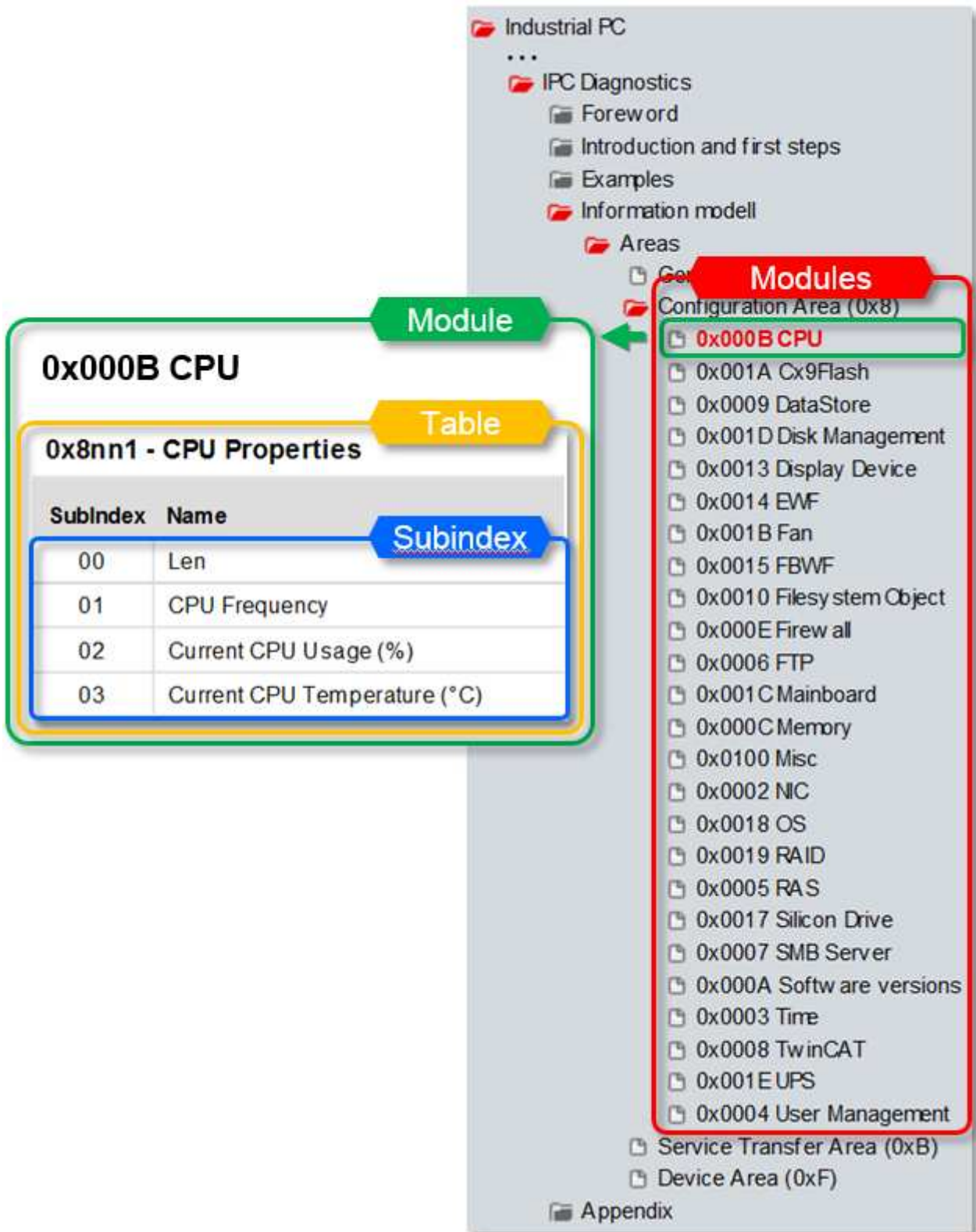
0x	a	nn	x
Hex preamble	Area code (4 bits)	Module ID (8 bits)	Table ID (4 bits)

Area code (4 bits): describes which [area](#) [► 15] this address should address.

Module ID (8 bits): clearly identifies the dynamic position of the respective module and is automatically generated by the Device Manager at system startup. It can be determined by querying the table 0xF020 (Device Area).

Table ID (4 bits): identifies the table within a module.

Depending on the area used, the module ID and the table ID may be consolidated, e.g. for the Device Area, which does not have any modules.



SubIndex:

The subindex for a required piece of information can be found in the list of available modules (Configuration Area).

Example

In this example the NIC module is to be addressed for reading the IP address of the network card (NIC). Remember: Device Manager modules are generated automatically based on the actually available hardware and software. In table 0xF020 [▶ 62] of the Device Area a list of all automatically generated modules can be queried. Each row in this table represents a module, consisting of the respective module type in the high word and the dynamically created module ID in the low word. The content of table 0xF020 may look as follows, for example:

SubIndex	Value High/Low Word prefix	Description
0	5	Number of entries in this table
1	0x 000C 0000	Module "Memory"
2	0x 000B 0001	Module "CPU" (core 1)
3	0x 000B 0002	Module "CPU" (core 2)
4	0x 0002 0003	Module "NIC"

The value returned to SubIndex 4 consists of the searched module type "NIC" (0x0002) in the high word and the dynamic module ID (0x0003) in the low word. Since the list is sorted based on the dynamic module IDs, the dynamic module ID always corresponds to the subindex minus one.

The complete index is now configured as follows, based on the scheme mentioned above:

0x	a	nn	x
0x	8	03	1
	Area code (in this case: Configuration Area)	Module ID (results from the table 0xF020)	Table ID (1 = NIC properties)

The properties of the network card are therefore stored at address 0x8031. According to the [specification of the NIC module \[▶ 18\]](#), the IP address of the network card can now be read under address 0x8031 at its subindex 2. The return value corresponds to one of the defined [data types \[▶ 77\]](#).

6.1 Areas

For addressing a table it is important to specify which area is to be addressed, since the Beckhoff Device Manager is subdivided into different areas:

Area code	Name	Meaning
0x1	General Area	The General Area contains various general data of the IPC.
0x8	Configuration Area	This is where the individual modules and associated information are created.
0xB	Service Transfer Area	The Service Transfer Area offers functional access.
0xF	Device Area	This is where the IPC diagnostics enters information to indicate which modules are automatically detected on startup, depending on the hardware and software, for example. In contrast to the Configuration Area, the Device Area does not consist of subordinate modules, only of individual tables.

When addressing a table, the first 4 bits represent the area (see also [Description of the information model](#) [► 12]).

6.1.1 0x1000-0x1FFF – General Area

The General Area contains various general data of the IPC.

0x1000

SubIndex	Typ	Name	Typ	Zugriff
00	VAR	Device Typ (MDP ProfileID(0x1389) & SubProfileID(0x2710))	DWORD32	read-only

0x1008

SubIndex	Type	Name	Type	Access
00	VAR	Device Name	VISIBLE STRING	read-write

If the device name is invalid, the write command terminates with the value `0xECA60106` (invalid data [► 77]).

Valid file names must meet the following requirements:

- Compliant with the RFC952/1123 standard
- The following prefixes are reserved by Beckhoff and must not be included:
 - CX- or CX_
 - CP- or CP_
 - EK-
 - AX-

0x1009

SubIndex	Typ	Name	Typ	Zugriff
00	VAR	Hardware Version	VISIBLE STRING	constant

0x100A

SubIndex	Typ	Name	Typ	Zugriff
00	VAR	OS and Image Version	VISIBLE STRING	constant

0x1018 - Identity Object

SubIndex	Typ	Name	Typ	Zugriff
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Vendor	UNSIGNED32	constant
02	VAR	Product Code (not yet supported)	UNSIGNED32	constant
03	VAR	Revision Number (not yet supported)	UNSIGNED32	constant
04	VAR	Serial Number	UNSIGNED32	constant

6.1.2 0x8000-0x8FFF – Configuration Area

The Configuration Area enables read and write accesses to configuration data in the existing MDP modules.

The following module list shows the available modules. It also indicates on which operating system the respective modules are not available. The corresponding data are shown as elements of tables. Each table has a unique MDP index (see [information model \[► 12\]](#)).

Note: If a component – e.g. an EtherCAT port or a hard disk – is present several times on the system, a separate module instance is created for each one.

Overview of the module types according to type numbers

Module	Typenumber	Operating system (module not available)
NIC [▶ 18]	0x0002	
Time [▶ 19]	0x0003	
User Management [▶ 21]	0x0004	
RAS [▶ 23]	0x0005	TwinCAT/BSD
FTP	0x0006	TwinCAT/BSD
SMB [▶ 24]	0x0007	
TwinCAT [▶ 26]	0x0008	
Software [▶ 28]	0x000A	
CPU [▶ 29]	0x000B	
Memory [▶ 30]	0x000C	
Firewall WinCE [▶ 30]	0x000E	
File System Object [▶ 34]	0x0010	
Display Device [▶ 37]	0x0013	
EWF [▶ 38]	0x0014	TwinCAT/BSD
FBWF [▶ 40]	0x0015	TwinCAT/BSD
OS [▶ 43]	0x0018	
RAID [▶ 43]	0x0019	
Fan [▶ 45]	0x001B	
Mainboard [▶ 46]	0x001C	
Disk Management [▶ 48]	0x001D	
UPS [▶ 49]	0x001E	
Physical Drive (S.M.A.R.T) [▶ 52]	0x001F	Windows CE/Windows Embedded Compact TwinCAT/BSD
Mass Storage Monitoring [▶ 54]	0x0020	Windows CE/Windows Embedded Compact
Unified Write Filter (UWF) [▶ 57]	0x0021	Windows CE/Windows Embedded Compact TwinCAT/BSD
Misc [▶ 59]	0x0100	

The individual modules are explained in the following sections. Each module may contain access options for different MDP areas.

6.1.2.1 0x0002 - NIC

0x8nn0 - Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0002 00nn	UNSIGNED32	read-only
02	VAR	Type	NIC	VISIBLE STRING	read-only
03	VAR	Name	Adapter Name	VISIBLE STRING	read-only
04	VAR	Dev type	0x0002 2710	UNSIGNED32	read-only

0x8nn1 – NIC properties



If this component exists more than once on the system, a separate module instance is created for each one.



Changing these settings requires an active network connection for the selected Ethernet/EtherCAT adapter. Without an active network connection no parameters can be (pre-)set.

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	MAC Address	VISIBLE STRING	constant
02	VAR	IPv4 Address ¹	VISIBLE STRING	read-write
03	VAR	IPv4 Subnet Mask ¹	VISIBLE STRING	read-write
04	VAR	DHCP	BOOLEAN	read-write
05	VAR	IPv4 Default Gateway ^{1,2}	VISIBLE STRING	read-write
06	VAR	IPv4 DNS Servers ³	VISIBLE STRING	read-write
07	VAR	Virtual Device Name ⁴	VISIBLE STRING	read-write
08	VAR	IPv4 DNS Servers Active ⁵	VISIBLE STRING	read

¹ This is the current active value.

With WinCE a reboot may be required in order to obtain a correct value. Without a reboot WinCE may still supply the previous value!

² WinCE: Depending on the DHCP status, a "Read" operation has the return value "DefaultGateway" or "DhcpDefaultGateway".

³ Not available for WinCE.

⁴ Only available for Windows.

⁵ Only available for TC/BSD and TC/RTOS.

0xBnn0 – IP Release/Renew Address (Service Transfer Object)

InputData	
Type	Name
UNSIGNED8	DummyByte

0xBnn1 – Set IP, Subnet and Default Gateway

InputData	
Type	Name
UNSIGNED32	cbInputData
UNSIGNED32	IpLen
UNSIGNED32	SubnetLen
UNSIGNED32	GatewayLen
char[IpLen]	szIP
char[SubnetLen]	szSubnet
char[GatewayLen]	szGateway

6.1.2.2 0x0003 - Time

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0003 00nn	UNSIGNED32	read-only
02	VAR	Type	Time	VISIBLE STRING	read-only
03	VAR	Name	Time	VISIBLE STRING	read-only
04	VAR	Dev type	0x0003 2710	UNSIGNED32	read-only

0x8nn1

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	SNTP Server: <ul style="list-style-type: none"> Name or IP Address of the timeserver Empty string = No synchronization "NT5DS" = Use domain hierarchy settings (Win32 only) 	VISIBLE STRING	read-write
02	VAR	SNTP Refresh in Seconds On Windows CE the smallest allowed value is 5 seconds.	UNSIGNED32	read-write
03	VAR	Seconds since midnight January 1, 1970 (UTC)	UNSIGNED32	read-write
04	VAR	Textual DateTime presentation (ISO 8601) YYYY-MM-DDThh:mm:ss.sTZD	VISIBLE STRING	read-write
05	VAR	Timezone.Zero based index of currently active timezone as listed in object 0x8nn2. Sub indices in Object 0x8nn2 are one based. To lookup timezone information you need to query sub idx @ "this value"+1	UNSIGNED16	read-write
06	VAR	Shift Value ² – Offset in seconds of the current local time relative to the coordinated universal time (UTC)	SIGNED32	read-write

¹SNTP Server and SNTP Refresh: the system must be rebooted in order for the changes to take effect.

²Only supported for TC/RTOS

0x8nn2 - Timezones

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Timezone1 .. Len	VISIBLE STRING	read-only

6.1.2.3 0x0004 - User Management

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0004 00nn	UNSIGNED32	read-only
02	VAR	Type	User Management	VISIBLE STRING	read-only
03	VAR	Name	User Management	VISIBLE STRING	read-only
04	VAR	Dev type	0x0004 2710	UNSIGNED32	read-only

0x8nn1 – User Name

List of the local users (excluding domain users)

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	name1 .. Len	VISIBLE STRING	read-only

0x8nn2 – Domain

List of domain names for the users from table 0x8nn1

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	name1 .. Len	VISIBLE STRING	read-only

0x8nn3 – Group Membership *

Comma-separated list of groups to whom the user from list 0x8nn1 belongs.

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	GroupList 1 .. Len	VISIBLE STRING	read-only

0x8nn4 – Local Groups *

List of all local groups

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	GroupList 1 .. Len	VISIBLE STRING	read-only

Service transfer objects

0xBnn0 – Add User (Service Transfer Object)

InputData	
Type	Name
UNSIGNED32	cbInputData
UNSIGNED32	NameLen
UNSIGNED32	Domain Len
UNSIGNED32	Password Len
char[Name Len]	szName
char[DomainLen]	szDomain
char[Password Len]	szPassword

No output data

0xBnn1 – Delete User (Service Transfer Object)

InputData	
Type	Name
UNSIGNED32	cbInputData
UNSIGNED32	NameLen
UNSIGNED32	Domain Len
char[Name Len]	szName
char[DomainLen]	szDomain

No output data

0xBnn3 – Set Group Membership (Service Transfer Object) *

InputData	
Type	Name
UNSIGNED32	cbInputData
UNSIGNED32	UserNameLen
UNSIGNED32	GroupNameLen
UNSIGNED32	DomainNameLen
BOOLEAN	IsMemberOfGroup
char[Name Len]	szUserName
char[Group Len]	szGroupName
char[DomainLen]	szDomainName

No output data

0xBnn4 – Create Group (Service Transfer Object) *

InputData	
Type	Name
UNSIGNED32	cbInputData
UNSIGNED32	GroupNameLen
UNSIGNED32	DomainNameLen
char[Name Len]	szGroupName
char[DomainLen]	szDomainName

No output data

0xBnn5 – Delete Group (Service Transfer Object) *

InputData	
Type	Name
UNSIGNED32	cbInputData
UNSIGNED32	GroupNameLen
UNSIGNED32	DomainNameLen
char[Name Len]	szGroupName
char[DomainLen]	szDomainName

No output data

* Available in MDP 1.0.5.x

0xBnn6 – SetPassword Secure (Service Transfer Object)

InputData	
Type	Name
DWORD	cb
DWORD	cchName
DWORD	cchDomain
DWORD	cchPassword
DWORD]	cchPasswordNew
char[cchName]	szName
char[cchDomain]	szDomain
char[cchPassword]	szPassword
char[cchPasswordNew]	szPasswordNew

No output data

6.1.2.4 0x0005 - RAS (WinCE)



This module is available for Windows CE.



TwinCAT/BSD

This function is not available for TwinCAT/BSD.

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0005 00nn	UNSIGNED32	read-only
02	VAR	Type	RAS	VISIBLE STRING	read-only
03	VAR	Name	RAS	VISIBLE STRING	read-only
04	VAR	Dev type	0x0005 2710	UNSIGNED32	read-only

0x8nn1 - Misc

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Enable	BOOLEAN	read-write
02	VAR	Slow Connection	BOOLEAN	read-write
03	VAR	Use DHCP	BOOLEAN	read-write
04	VAR	Use Auto Addresses	BOOLEAN	read-write
05	VAR	Static Ip Count	UNSIGNED32	read-write
06	VAR	Static Ip Start	VISIBLE STRING	read-write

0x8nn2 - Line Names

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Line 1 .. Len	VISIBLE STRING	read-only

0x8nn3 - Line Enabled

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Enabled 1 .. Len	BOOLEAN	read-write

0x8nn4 - Userlist

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Username 1 .. Len	VISIBLE STRING	read-only

Service transfer objects**0xBnn0 – Add User**

InputData	
Typ	Name
UNSIGNED32	cbUserName
VISIBLE STRING	UserName

0xBnn1 – Delete User

InputData	
Typ	Name
UNSIGNED32	cbUserName
VISIBLE STRING	UserName

6.1.2.5 0x0007 - SMB Server**0x8nn0 – Module Header**

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0007 00nn	UNSIGNED32	read-only
02	VAR	Type	SMB Server	VISIBLE STRING	read-only
03	VAR	Name	SMB Server	VISIBLE STRING	read-only
04	VAR	Dev type	0x0007 2710	UNSIGNED32	read-only

0x8nn1 - SMB Share Names

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	name 1 .. Len	VISIBLE STRING	read-only

0x8nn2- SMB Path Names

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Path 1 .. Len	VISIBLE STRING	read-only

0x8nn3- Userlist

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Username 1 .. Len	VISIBLE STRING	read-only

0x8nn4- Access rights

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Access right 1 .. Len	VISIBLE STRING	read-only

Access rights:

The user access rights have the format UNSIGNED32 and are output as VISIBLE STRING.

```

USER_DELETE 0 // deletes the specified user from the
ACL

SHARE_READ 10 // grant read Access

SHARE_CHANGE 20 // grant change Access

SHARE_FULL -1 // grant full Access
    
```

Under WinCE only USER_DELETE and SHARE_FULL access can be set.

Service transfer objects

0xBnn0 – Add Share (Service Transfer Object)

InputData	
Type	Name
UNSIGNED32	cbInputData
UNSIGNED32	NameLen
UNSIGNED32	PathLen
char[NameLen]	szName
char[PathLen]	szPath

0xBnn1 – Del Share (Service Transfer Object)

InputData	
Type	Name
UNSIGNED32	NameLen
Char[NameLen]	ShareName

0xBnn2 – Set user Access rights (Service Transfer Object)

InputData	
Type	Name
UNSIGNED32	ShareNameLen
UNSIGNED32	UserNameLen
UNSIGNED32	AccessRights
Char[NameLen]	ShareName
Char[NameLen]	UserName

6.1.2.6 0x0008 - TwinCAT

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0008 00nn	UNSIGNED32	read-only
02	VAR	Type	TwinCAT	VISIBLE STRING	read-only
03	VAR	Name	TwinCAT	VISIBLE STRING	read-only
04	VAR	Dev type	0x0008 2710	UNSIGNED32	read-only

0x8nn1 – Tc Misc

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Major Version	UNSIGNED16	read-only
02	VAR	Minor Version	UNSIGNED16	read-only
03	VAR	Build	UNSIGNED16	read-only
04	VAR	Ams Net ID ¹	VISIBLE STRING	read-write
05	VAR	Reg Level ² (Only available with TwinCAT 2)	UNSIGNED32	read-only
06	VAR	TwinCAT Status	UNSIGNED16	read-only
07	VAR	RunAsDevice (available for WindowsCE)	UNSIGNED16	read-write
08	VAR	ShowTargetVisu (available for WindowsCE)	UNSIGNED16	read-write
09	VAR	Log File size (available for WindowsCE)	UNSIGNED32	read-write
10	VAR	Log File Path (available for WindowsCE)	VISIBLE STRING	read-write
11	VAR	TwinCAT System ID ³	VISIBLE STRING	read-only
12	VAR	TwinCAT Revision	UNSIGNED16	read-only

¹ Ams Net ID Info

A restart of the computer is required in order to make the changes to the NetID

² Reg Level Info (only available with TwinCAT 2)

Reg Level 0 =CP
 Reg Level 1 =I/O
 Reg Level 2 =PLC
 Reg Level 3 =NC-PTP
 Reg Level 4 =NCI

³ TwinCAT System ID Info

System requirements: MDP Version 1.6 or higher

0x8nn2 - TwinCAT Route Name

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	name1 .. Len	VISIBLE STRING	read-only

0x8nn3 - TwinCAT Route Address

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Address1 .. Len	VISIBLE STRING	read-only

0x8nn4 - TwinCAT Route AMS Address

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	AMS1 .. Len	VISIBLE STRING	read-only

0x8nn5 - TwinCAT Route Flags

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Flags1 .. Len	UNSIGNED32	read-only

0x8nn6 - TwinCAT Route Timeout

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Timeout1 .. Len	UNSIGNED32	read-only

0x8nn7 - TwinCAT Route Transport

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Transport1 .. Len	UNSIGNED16	read-only
Transport Info				
The type E_RouteTransportType is documented in the Beckhoff Information System				

0x8nn8 - TwinCAT Logfile

SubIndex	Type	Name	Type	Access
00	VAR	Logfile	VISIBLE STRING	read-only

0x8nn9 – TwinCAT Router Information¹

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Router Memory Maximum	UNSIGNED64	read-only
02	VAR	Router Memory Available	UNSIGNED64	read-only
03	VAR	Registered Ports	UNSIGNED32	read-only
04	VAR	Registered Drivers	UNSIGNED32	read-only
05	VAR	Registered Transports	UNSIGNED32	read-only
06	VAR	Debug Window – True if Ads Logger is active	BOOLEAN	read-only
07	VAR	Mailbox Size	UNSIGNED32	read-only
08	VAR	Mailbox Used Entries	UNSIGNED32	read-only

¹Available in MDP 1.0.10.3

0x8nnA – TwinCAT and OS extended Information TcOs¹

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	TwinCAT Heap Maximum – Maximum available Memory for TcOs Instance	UNSIGNED64	read-only
02	VAR	TwinCAT Heap Available – free Memory in TcOs Instance ²	UNSIGNED64	read-only

¹only supported for TC/RTOS.

²may be fragmented and can therefore likely not be allocated as a single block.

Service transfer objects

0xBnn0 - TwinCAT Add Route (Service Transfer Object)

InputData	
Type	Name
UNSIGNED32	cbInputData
UNSIGNED32	Flags
UNSIGNED32	Timeout
UNSIGNED16	Transport
BYTE[6]	NetId
UNSIGNED32	Name Len
UNSIGNED32	Address Len
char[name Len]	szName
char[Adresse Len]	szAddress
Transport Info	
The type E_RouteTransportType is documented in the Beckhoff Information System	

0xBnn1 - TwinCAT Del Route (Service Transfer Object)

InputData	
Type	Name
UNSIGNED32	NameLen
char[nameLen]	szName

6.1.2.7 0x000A - Software versions

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x000A 00nn	UNSIGNED32	read-only
02	VAR	Type	Software	VISIBLE STRING	read-only
03	VAR	Name	Software	VISIBLE STRING	read-only
04	VAR	Dev type	0x000A 2710	UNSIGNED32	read-only

0x8nn1 - Name

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Name 1 .. Len	VISIBLE STRING	read-only

0x8nn2 - Company

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Company 1 .. Len	VISIBLE STRING	read-only

0x8nn3 - Date

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Date 1 .. Len	VISIBLE STRING	read-only

0x8nn4 - Version

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Version 1 .. Len	VISIBLE STRING	read-only

6.1.2.8 0x000B - CPU

This module provides CPU information.



The current version does not support multi-core systems.

0x8nn0 - Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x000B 00nn	UNSIGNED32	read-only
02	VAR	Type	CPU	VISIBLE STRING	read-only
03	VAR	Name	CPU	VISIBLE STRING	read-only
04	VAR	Dev type	0x000B 2710	UNSIGNED32	read-only

0x8nn1 - CPU Properties

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	CPU frequency	UNSIGNED32	constant
02	VAR	Current CPU Usage (%)	UNSIGNED16	read-only
03	VAR	Current CPU Temperature (°C) ¹	SIGNED16	read-only

¹ Requires BIOS API, see system requirements [▶ 9]

6.1.2.9 0x000C - Memory

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x000C 00nn	UNSIGNED32	read-only
02	VAR	Type	Memory	VISIBLE STRING	read-only
03	VAR	Name	Memory	VISIBLE STRING	read-only
04	VAR	Dev type	0x000C 2710	UNSIGNED32	read-only

0x8nn1

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Program Memory Allocated	UNSIGNED32	read-only
02	VAR	Program Memory Available	UNSIGNED32	read-only
03	VAR	Storage Memory Allocated (available for WindowsCE)	UNSIGNED32	read-only
04	VAR	Storage Memory Available (available for WindowsCE)	UNSIGNED32	read-only
05	VAR	Memory Division (available for Windows CE)	UNSIGNED32	read-write
06	VAR	Program Memory Allocated ¹	UNSIGNED64	read-only
07	VAR	Program Memory Available ²	UNSIGNED64	read-only

¹ Program Memory Allocated

On computers with more than 4 GB of RAM the subindex 01 "Program Memory Allocated" will return Not Supported. Use subindex 06 instead.

System requirements: MDP Version 1.7 or higher

² Program Memory Available

On computers with more than 4 GB of RAM the subindex 02 "Program Memory Available" will return Not Supported. Use subindex 07 instead.

System requirements: MDP Version 1.7 or higher

6.1.2.10 0x000E - Firewall (WinCE)



This module is based on operating system-specific functions and is not automatically supported by all devices. The module is only available for Windows CE and Windows Embedded Compact.

Module for configuring the Windows CE firewall.

Table 0x8nn1 contains general firewall settings. The tables from 0x8nn2 onwards describe the firewall rules.

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x000E 00nn	UNSIGNED32	read-only
02	VAR	Type	Firewall CE	VISIBLE STRING	read-only
03	VAR	Name	Firewall CE	VISIBLE STRING	read-only
04	VAR	Dev type	0x000E 2710	UNSIGNED32	read-only

0x8nn1 – Firewall Settings

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Activate IPv4	BOOLEAN	read-write
02	VAR	Activate IPv6	BOOLEAN	read-write
03	VAR	Persist	BOOLEAN	read-write

0x8nn2 – Flags

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Flags1 .. Len	ENUM	read-only

```
FWF_BLOCK = 01
FWF_ALLOW = 02
FWF_LOG = 04
FWF_INBOUND = 08
FWF_OUTBOUND = 16
FWF_DISABLED = 20
```

0x8nn3 – Mask

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Mask1 .. Len	ENUM	read-only

```
FWM_PRIVATE_HOST = 0x0001
FWM_PUBLIC_HOST = 0x0002
FWM_PORT = 0x0004
FWM_TYPE = 0x0008
FWM_CODE = 0x0010
FWM_PROTOCOL = 0x0020
FWM_ACTION = 0x0040
FWM_TIME_OF_DAY = 0x0080 (not supported)
FWM_DAY_OF_WEEK = 0x0100 (not supported)
FWM_DAY = 0x0200 (not supported)
FWM_MONTH = 0x0400 (not supported)
FWM_PUBLIC_HOST_MASK = 0x0800
FWM_PUBLIC_HOST_PREFIX = 0x1000
```

0x8nn4 – Private Host

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	IP String 1 .. Len	VISIBLE STRING	read-only

Only valid if the flags (0x8nn2) contain FWM_PRIVATE_HOST.

0x8nn5 – Public Host

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	IP String 1 .. Len	VISIBLE STRING	read-only

Only valid if the flags (0x8nn2) contain FWM_PUBLIC_HOST. The content is then a textual representation of an IPv4 or IPv6 address (depending on the protocol type that is specified in 0x8nn6).

0x8nn6 – Public Host Mask

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Mask1 .. Len	VISIBLE STRING	read-only

Only valid if the flags (0x8nn2) contain FWM_PUBLIC_HOST_MASK. If it is an IPv4 rule, this is the subnet mask. For an IPv6 rule this is the "prefix length".

0x8nn7 – protocol

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Protocol 1 .. Len	UNSIGNED32	read-only

Only valid if the flags (0x8nn2) contain FWM_PROTOCOL.

0x8nn8 – action

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Action 1 .. Len	ENUM	read-only

BLOCK = 0x01 ALLOW = 0x02 ALLOW_RESPONSE = 0x03

0x8nn9 – port area

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Protocol 1 .. Len	UNSIGNED32	read-only

Only valid if the flags (0x8nn2) contain FWM_PORT. Hiword is Max Port; Loword is Min Port. Max Port must be equal or greater Min Port.

0x8nnA – type & code

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Protocol 1.. Len	WORD	read-only

Hibyte is code; Lobyte is type. The validity depends on the flags FWM_TYPE and FWM_CODE (0x8nn2).

0x8nnB – description

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Description 1 .. Len	VISIBLE STRING	read-only

0x8nnC – UID

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	UID 1 .. Len	UNSIGNED32	read-only

Service transfer objects

0xBnn0 – Add Rule (Service Transfer Object)

InputData	
type	name
UNSIGNED32	cbData
UNSIGNED32	Flags
UNSIGNED32	Mask
union { char szPrivateHost[8*5]; WORD family; };	If FWF_PRIVATE_HOST is set this is the Private host Ip Address. Otherwise this is the Address Family to which the rule applies (AF_INET or AF_INET6)
Char[8*5]	Public Host IP
union { BYTE b[4]; UINT publicHostPrefixLength; };	If FWM_PUBLIC_HOST_MASK is set this is the public host mask for an IPv4 Address. If FWM_PUBLIC_HOST_PREFIX is set this is the public host prfix length for an IPv6 Address.
UNSIGNED32	Protocol
UNSIGNED32	Actions
UNSIGNED32	PortRange (HIWORD = max LOWORD = min)
UNSIGNED16	type & Code (HBYTE = code LOBYTE = type)
UNSIGNED32	DescriptionLen
char[DescriptionLen]	szDescription

0xBnn1 – Delete Rule (Service Transfer Object)

InputData	
type	name
UNSIGNED32	UId (From Table 8x8nnC)

6.1.2.11 0x0010 - File System Object

The module offers access to the local file system via Service Transfer Objects, which enable the browsing of directories and access to files.

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0010 00nn	UNSIGNED32	read-only
02	VAR	Type	FSO	VISIBLE STRING	read-only
03	VAR	Name	FSO	VISIBLE STRING	read-only
04	VAR	Dev type	0x0010 2710	UNSIGNED32	read-only

0xBnn0 - Dir Service Transfer

This object returns all files and subdirectories of a given directory path (e.g. for browsing directories).

The path specification can contain placeholders, e.g. '*' or '?'. If the string ends with a placeholder, a Dot (.) or the directory name, the user must have access rights to the main directory and all subdirectories of the path.

InputData	
Type	Name
DWORD	cbsRootDir
VISIBLE STRING	sRootDir

OutputData	
Type	Name
DWORD	Version = 0
DWORD	cbData
DWORD	cDirs
DWORD	cFiles
DWORD	nOffsFirstDir //Offset of the first DirectoryInfo structure
DWORD	nOffsFirstFile //Offset of the first FileInfo structure

0xBnn1 – GetFile Service Transfer

Service Transfer Objects for reading from and writing to a file

Reading from and writing to large files can take place via multiple calls. The file is initially opened by specifying a file name, then specifying the Continuation Handle that is returned with tFileResponse. The maximum size of a data segment is defined by the parameter cbMaxRead.

Either a file name or a Continuation Handle must always be specified. If both are specified simultaneously or if none is specified, this leads to the return value E_INVALIDDATA.

InputData		
Type	Name	Meaning
DWORD	cbFilename	Length of the file name in characters
DWORD	Continuation handle	The Continuation Handle returned by ReadFile OutputData must be specified for subsequent read accesses.
DWORD	cbMaxRead	Maximum size of the return value. This is the number of bytes that are to be read, plus the size of the OutputData structure. The value must always be larger than the size of the OutputData structure.
Char[cbFilename]	Filename	Path and file name to be opened for reading

OutputData		
Type	Name	Meaning
DWORD	cbData	Number of bytes that were read
DWORD	Continuation handle	If data still remain to be read, this Continuation Handle is used for subsequent read accesses
BOOL	bMoreData	Indicates whether more data can still be read from the file. "True" = reading of the data is complete and no further data are available.
BYTE[cbData]	data	Memory range for the data to be read

0xBnn2 - WriteFile Service Transfer

InputData		
Type	Name	Meaning
DWORD	cbFilename	Length of the file name in characters
DWORD	Continuation handle	The Continuation Handle returned by WriteFile OutputData must be specified for subsequent write accesses.
DWORD	cbData	Number of bytes which are to be written
DWORD	bWriteCompleted	Indicates the completion of the file access. If !=0, the file is closed after the final access.
Char[cbFilename]	Filename	File name
BYTE[cbData]	data	Data that is to be written

OutputData		
Type	Name	Meaning
DWORD	Continuation handle	Continuation Handle for writing further data to the file

0xBnn3 - CopyFile Service Transfer

Copy or move the source file to the target

InputData		
Type	Name	Meaning
DWORD	cbSrc	Length of the source file name
DWORD	cbDst	Length of the target file name
DWORD	Flags	One or more of the following flags: 0x00000001 = copy file. (If the flag is not set, the file is moved.) 0x00000002 = overwrite existing file
Char[cbSource]	Source Filename	Complete path to the source file
Char[cbDst]	Destination file name	Complete path to the destination file

0xBnn4 - DeleteFile ServiceTransfer

Delete a file or folder.

InputData		
Type	Name	Meaning
DWORD	cbFilename	length of filename
BOOL	bRecurse	delete an entire directory recursively
Char[cbFilename]	Filename	Path to destination file or folder

0xBnn5 - mkdir ServiceTransfer

Create a new directory

InputData		
Type	Name	Meaning
DWORD	cbFilename	Length of the folder to be created
BOOL	bRecurse	Create directories recursively
char[cbFilename]	Filename	Name of the new folder.

6.1.2.12 0x0013 - Display Device

Properties of the display adapter. If several adapters are installed, there is an instance for each one.

Table 0x8nn2 is a list of all available display modes, while the current display mode is shown in table 0x8nn1.

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0013 00nn	UNSIGNED32	read-only
02	VAR	Type	Display Device	VISIBLE STRING	read-only
03	VAR	Name	Device Name	VISIBLE STRING	read-only
04	VAR	Dev type	0x0013 2710	UNSIGNED32	read-only

0x8nn1 – Device settings

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	IDx of active display mode	UNSIGNED8	read-write

0x8nn2 – Display modes

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Mode	VISIBLE STRING	read-only

0x8nn3 – Dim function ¹

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	IsPrimaryDisplay	BOOLEAN	read-only
02	VAR	Com Port ²	VISIBLE STRING	read-write
03	VAR	Version	UNSIGNED32	read-only
04	VAR	Brightness ³	UNSIGNED32	read-write
05	VAR	Light ⁴	BOOLEAN	read-write

¹ Dim function info
 The dimming function is not supported by all devices.
 In Windows CE, the dimming function is only available for the primary monitor. "Com Port" must be set to the configured virtual com port, (e.g "COM4").
System requirements:
 Windows Embedded Standard (WES): MDP Version 1.7 or higher

² Com Port Info
Windows Embedded Standard (WES): e.g. "Com4"
Windows CE: Under Windows CE, the Com Port must end with a colon, e.g. "COM4:"

³ Brightness Info
 Valid values: 20-100 (20 lowest brightness, 100 maximum brightness)

⁴Light Info

Valid values: TRUE = background light ON, FALSE = background light OFF

0xBnn0 – Identify Com Port (Service Transfer Object) ⁵**InputData**

Type	Name
UNSIGNED8	DummyByte

⁵Identify Com Port Info

Identification of the com port(s) is started by setting any value. If the call is successful, the field 0x8nn3 subindex 2 is set. If the call fails, an error code is issued.

System requirements:

Windows Embedded Standard (WES): MDP Version 1.7 or higher

Windows CE: not supported

0xBnn1 – Save T1, T2, T3, T4 and Brightness**InputData**

Type	Name
UNSIGNED8	DummyByte

6.1.2.13 0x0014 - Enhanced Write Filter (EWF)** System requirements**

This module is based on operating system-specific functions and is not automatically supported by all devices.

The module requires the Windows Embedded Standard version as operating system (including Windows XP Embedded)

 TwinCAT/BSD

This function is not available for TwinCAT/BSD.

Configuration of the "Enhanced Write Filters" of Windows Embedded Standard.

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0014 00nn	UNSIGNED32	read-only
02	VAR	Type	EWF	VISIBLE STRING	read-only
03	VAR	Name	EWF	VISIBLE STRING	read-only
04	VAR	Dev type	0x0014 2710	UNSIGNED32	read-only

0x8nn1 – Volume name

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Volume name	VISIBLE STRING	read-only

0x8nn2 – Volume ID

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Volume ID	VISIBLE STRING	read-only

0x8nn3 – State

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	State	UNSIGNED32	read-only

Values:

- 0 = EWF_ENABLED
- 1 = EWF_DISABLED

0x8nn4 – type

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	type	UNSIGNED32	read-only

Values:

- 0 = EWF_DISK
- 1 = EWF_RAM
- 2 = EWF_RAM_REG

0x8nn5 – Boot command

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Boot command	UNSIGNED32	read-write

OUT Values

- 0 = No Command
- 1 = Enable
- 2 = Disable
- 3 = SetLevel
- 4 = Commit

IN Values

- 0 = ClearCommand
- 1 = EwfMgrEnable
- 2 = EwfMgrDisable without Commit
- 3 = EwfMgrDisable with Commit
- 4 = EwfMgrCommit

Die IN und OUT Werte korrespondieren nicht!

Service transfer objects

0xBnn0 - EWF Commit and Disable Live*

InputData	
Type	Name
CHAR	Volume name

6.1.2.14 0x0015 - File Based Write Filter (FBWF)

i System requirements

This module is based on operating system-specific functions and is not automatically supported by all devices.

The module requires the Windows Embedded Standard version as operating system (including Windows XP Embedded)

i TwinCAT/BSD

This function is not available for TwinCAT/BSD.

Configuration of the "File Based Write Filter" of Windows Embedded Standard.

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0015 00nn	UNSIGNED32	read-only
02	VAR	Type	FBWF	VISIBLE STRING	read-only
03	VAR	Name	FBWF	VISIBLE STRING	read-only
04	VAR	Dev type	0x0015 2710	UNSIGNED32	read-only

0x8nn1 - CurrentState

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	State	UNSIGNED32	read-only
02	VAR	Compression	UNSIGNED32	read-only
03	VAR	PreAllocation	UNSIGNED32	read-only

0x8nn2 - NextState

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	State	UNSIGNED32	read-write
02	VAR	Compression	UNSIGNED32	read-write
03	VAR	PreAllocation	UNSIGNED32	read-write

0x8nn3 - Volumes

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Volume	VISIBLE STRING	read-only

0x8nn4 - Exclusions

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Exclusions for one volume at a time (corresponding volumes see 0x8nn3). The return value is a multi-string. Each individual string is singly null-terminated, the whole multi-string is doubly null-terminated.	VISIBLE STRING	read-only

Service transfer objects

0xBnn0 - FBWF Add Volume Command object

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
CHAR[cbVolume]	cVolume

0xBnn1 - FBWF Remove Volume Command object

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
BOOL	bClearExclusion
CHAR[cbVolume]	cVolume

bClearExclusion: If "TRUE", the exclusion list for this volume is deleted.

0xBnn2- FBWF Add Exclusion Command object

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
DWORD	cbFilePath
CHAR[cbVolume]	cVolume
CHAR[cbFilePath]	cFilePath

0xBnn3- FBWF Enum Exclusions Command object

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
DWORD	Index
CHAR[cbVolume]	cVolume

OutputData	
Type	Name
DWORD	cbFilePath
CHAR[cbFilePath]	cFilePath

0xBnn4 - FBWF Remove Exclusion Command object

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
DWORD	cbFilePath
CHAR[cbVolume]	cVolume
CHAR[cbFilePath]	cFilePath

0xBnn5 - FBWF Commit File Command object

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
DWORD	cbFilePath
CHAR[cbVolume]	cVolume
CHAR[cbFilePath]	cFilePath

0xBnn6 - FBWF Commit All Command object*

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
CHAR[cbVolume]	cVolume

* Not supported for security reasons

0xBnn7 - FBWF RestoreFile Command object

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
DWORD	cbFilePath
CHAR[cbVolume]	cVolume
CHAR[cbFilePath]	cFilePath

System requirements

Driver	Installed FBWF driver
Operating system	Windows Embedded (XPE, WES, WES7)

6.1.2.15 0x0018 - Operating System

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0018 00nn	UNSIGNED32	read-only
02	VAR	Type	OperatingSystem	VISIBLE STRING	read-only
03	VAR	Name	<OS Name>	VISIBLE STRING	read-only
04	VAR	Dev type	0x0018 2710	UNSIGNED32	read-only

0x8nn1

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	OS Major Version	UNSIGNED32	read-only
02	VAR	OS Minor Version	UNSIGNED32	read-only
03	VAR	OS Build	UNSIGNED32	read-only
04	VAR	CSD Version	VISIBLE STRING	read-only

System requirements

MDP	Version 1.3.42 or higher
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6.1.2.16 0x0019 - RAID

This module can be used to manage and check physical components in a RAID hard disk array.

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0019 00nn	UNSIGNED32	read-only
02	VAR	Type	RAID Controller	VISIBLE STRING	read-only
03	VAR	Name	SCSI Number	VISIBLE STRING	read-only
04	VAR	Dev type	0x0019 2710	UNSIGNED32	read-only

0x8nn1 – Controller Info

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	State	UNSIGNED32	read-only
02	VAR	Offline Reason	UNSIGNED32	read-only

State Info

1 = GOOD => Normal operation.

2 = FAILED => Controller signals error. In this status read or write access to the controller should be avoided.

3 = OFFLINE => The controller is in a transition mode and currently unreachable.

In this status, read or write access to the controller must be avoided.

4 = POWEROFF => The controller is currently switched off. (This status may have been preceded by an error.)

Offline Reason Info

0 = NO_REASON => reason unknown.

1 = INITIALIZING => The driver is still being initialized by the controller.

2 = BUS_DEGRADED => The physical interface to the SAS or SATA domain is not working properly (sporadic errors).

3 = BUS_FAILURE => The physical interface to the SAS or SATA domain is not working.

0x8nn2 – RAID Set Typ

The tables 0x8nn2, 0x8nn3 and 0x8nn4 are connected to each other. Each table contains information on existing Raid Sets. The same index references the same Raid Set.

Example: In all three tables index 1 contains detailed information on the same Raid Set.

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Type	UNSIGNED8	read-only

Type info

0 = no RAID

1 = RAID type 0

2 = Raid Typ 1

3 = RAID type 10

4 = Raid Typ 5

5 = Raid Typ 15

255 = RAID type is not a standard type

0x8nn3 – RAID Sets Status & Info

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	State & Info	UNSIGNED16	read-only

State = first 8 bits

0 = OK => indicator: RAID set is ready for operation.

1 = DEGRADED => indicator: RAID set no longer operates in fault-tolerant mode.

2 = REBUILDING => indicator: RAID set is being restored. This follows a "degraded operation". As soon as the rebuild is completed successfully, the status is set to "OK". If the rebuild fails, the status is updated accordingly.

3 = FAILED => indicator: RAID set shows faulty behavior. The function of the RAID Set is no longer ensured. Data loss is imminent or has already occurred.

Information = last 8 bits

bStatus == OK: Info is 0.

bStatus == DEGRADED: Info contains the index of the faulty hard disk.¹

bStatus == REBUILDING: Info contains the percentage value of the recovery. The value is in the range 0 to 100 (0x0 to 0x64). bStatus == FAILED: Information is 0 or vendor-specific. A manufacturer-specific code may contain hard disk or controller error messages.

¹ Not supported

0x8nn4 – RAID Sets Festplatten

This is a list of all RAID Sets in the current system configuration. Each line contains a specific number of devices. One byte of the value represents an index in the 0x8nn9 / 0x8nnA list. Detailed information can be found in the 0x8nn9 and 0x8nnA tables. The maximum value is 255.

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Devices	VISIBLE STRING	read-only

0x8nn5 – 0x8nn8 : Reserved

0x8nn9 - serial number of the hard disk

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Serial Number	VISIBLE STRING	read-only

Serial Number
Maximum 40 bytes

0x8nnA – hard disk status

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	State	UNSIGNED8	read-only

State
0 = OK => indicator: The physical hard disk is in operation. 1 = REBUILDING => indicator: The physical hard disk is part of the configuration of a RAID set. As soon as the build is completed successfully, the status changes to OK. If the (re-)configuration is unsuccessful, the status is updated accordingly. ¹ 2 = FAILED => indicator: The physical hard disk has reported unrecoverable errors to the controller, or it has started a manufacturer-specific action, in order to remove the physical hard disk from the RAID set. The behavior of the hard disk cannot be guaranteed, data loss is imminent or has already occurred. 3 = DEGRADED => indicator: The physical hard disk has sent a SMART message to the controller.

¹ Not Supported

System requirements

OS	XPE, WES, WES 7 XP, Windows 7
RAID driver	IMSM 7.0 PV or higher

6.1.2.17 0x001B - Fan

Each fan for which information is available is represented by a dedicated MDP module instance (not all devices support this).

0x8nn0 - Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x001b 00nn	UNSIGNED32	read-only
02	VAR	Type	Fan	VISIBLE STRING	read-only
03	VAR	Name	Adapter Name	VISIBLE STRING	read-only
04	VAR	Dev type	0x001b 2710	UNSIGNED32	read-only

0x8nn1 - Fan Properties

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Fan speed (rpm)	SIGNED 16	read-only

6.1.2.18 0x001C - Mainboard**System requirements**

This module is not supported by all devices, since it requires a special BIOS.

If your device does not support this module, the program will issue error message [[▶ 78](#)] 0xECA60105 ("No data available").

See also: System requirements [[▶ 9](#)]

This module provides mainboard information.

0x8nn0 - Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x001C 00nn	UNSIGNED32	read-only
02	VAR	Type	Mainboard	VISIBLE STRING	read-only
03	VAR	Name	Mainboard	VISIBLE STRING	read-only
04	VAR	Dev type	0x001C 2710	UNSIGNED32	read-only

0x8nn1 - Mainboard Information

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Mainboard Type	VISIBLE STRING	read-only
02	VAR	Serial Number	VISIBLE STRING	read-only
03	VAR	Production Date	VISIBLE STRING	read-only
04	VAR	Boot Count	UNSIGNED32	read-only
05	VAR	Operating Time in Minutes	UNSIGNED32	read-only
06	VAR	Min Board Temperature (°C) ¹	SIGNED32	read-only
07	VAR	Max Board Temperature (°C) ¹	SIGNED32	read-only
08	VAR	Min Input Voltage (mV) ¹	SIGNED32	read-only
09	VAR	Max Input Voltage (mV) ¹	SIGNED32	read-only
10	VAR	Mainboard Temperature (°C) ¹	SIGNED16	read-only

¹ Requires BIOS API, see [system requirements \[► 9\]](#)

Production Date Info
YYYY-MM-DD-ww (Year-Month-Day-CalendarWeek) Each value can be 0 if it is not used.

Min Board Temperature Info
Lowest measured temperature

Max Board Temperature Info
Highest measured temperature

Min Input Voltage Info
Lowest measured voltage

Max Input Voltage Info
Highest measured voltage

0x8nn2 - Version Information

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Mainboard revision	UNSIGNED8	read-only
02	VAR	Bios Major Version	UNSIGNED8	read-only
03	VAR	Bios Minor Version	UNSIGNED8	read-only

0x8nn3 - Voltage Information

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Name	VISIBLE STRING	read-only

0x8nn4 - Voltage Information

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Location	SIGNED16	read-only

Location Info

00 = LOCATION_UNKNOWN 01 = LOCATION_OTHER
 02 = LOCATION_PROCESSOR
 03 = LOCATION_DISK
 04 = LOCATION_SYSTEM_MANAGEMENT_MODULE
 05 = LOCATION_MOTHERBOARD
 06 = LOCATION_MEMORY_MODULE
 07 = LOCATION_POWER_SUPPLY
 08 = LOCATION_ADDIN_CARD
 09 = LOCATION_FRONT_PANEL_BOARD
 10 = LOCATION_BACK_PANEL_BOARD
 11 = LOCATION_PERIPHERIE
 12 = LOCATION_CHASSIS
 13 = LOCATION_BATTERY
 14 = LOCATION_UPS
 15 = LOCATION_GRAFFIC_BOARD
 16 = LOCATION_SUPERIO
 17 = LOCATION_CHIPSET

0x8nn5 - Voltage Information

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Voltage (mV)	SIGNED16	read-only

0x8nn6 - Voltage Information

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Nominal Voltage (mV)	SIGNED16	read-only

6.1.2.19 0x001D - Disk Management

List of the mounted logical volumes.



If this component exists more than once on the system, a separate module instance is created for each one.

0x8nn0 - Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x001d 00nn	UNSIGNED32	read-only
02	VAR	Type	DiskManagement	VISIBLE STRING	read-only
03	VAR	Name	DiskManagement	VISIBLE STRING	read-only
04	VAR	Dev type	0x001d 2710	UNSIGNED32	read-only

0x8nn1 - DriveLetter

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Drive letter 1..n	VISIBLE STRING	read-only

0x8nn2 - Volume Label

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Volume Label 1... n	VISIBLE STRING	read/ write*

* Write is not supported under WinCE.

0x8nn3 - FileSystem

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	File system name 1..n	VISIBLE STRING	read-only

0x8nn4 - drive type

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Drive type 1..n	UNSIGNED32	read-only

```
DRV_UNKNOWN = 0,
DRV_FIXED = 1,
DRV_REMOVABLE = 2,
DRV_CDROM = 4
```

0x8nn5 - total size (bytes)

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Volume size 1... n	UNSIGNED64	read-only

0x8nn6 – free space (bytes)

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Free space 1..n	UNSIGNED64	read-only

6.1.2.20 0x001E - UPS



The module is not supported by all devices.

UPS (uninterruptible power supply) / German: USV (unterbrechungsfreie Stromversorgung)

This module provides UPS information.

0x8nn0 - Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x001E 00nn	UNSIGNED32	read-only
02	VAR	Type	UPS	VISIBLE STRING	read-only
03	VAR	Name	UPS	VISIBLE STRING	read-only
04	VAR	Dev type	0x001E 2710	UNSIGNED32	read-only

0x8nn1 - UPS Information

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	UPS Model	VISIBLE STRING	read-only
02	VAR	Vendor Name	VISIBLE STRING	read-only
03	VAR	Version	UNSIGNED8	read-only
04	VAR	Revision	UNSIGNED8	read-only
05	VAR	Build	UNSIGNED16	read-only
06	VAR	Serial Number	VISIBLE STRING	read-only
07	VAR	Power-Status	UNSIGNED8	read-only
08	VAR	Communication Status	UNSIGNED8	read-only
09	VAR	Battery Status	UNSIGNED8	read-only
10	VAR	Battery Capacity (in %)	UNSIGNED8	read-only
11	VAR	Battery Runtime (in seconds)	UNSIGNED32	read-only
12	VAR	Persistent Power Fail Count	BOOLEAN	read-only
13	VAR	Power Fail Counter	UNSIGNED32	read-only
14	VAR	Fan Error	BOOLEAN	read-only
15	VAR	No Battery	BOOLEAN	read-only
16	VAR	Test Capacity	BOOLEAN	write-only
17	VAR	Battery Replace Date	VISIBLE STRING	read-only
18	VAR	Interval Service Status	BOOLEAN	read-only

Compatibility List	S-UPS	24V Beckhoff UPS/ 230V Beckhoff UPS
UPS Model	x	x
Vendor Name	x	x
Version	x	x
Revision	x	x
Build	x	x
Serial Number		x
Power-Status	x	x
Communication Status		x
Battery Status		x
Battery Capacity (in %)	x	x
Battery Runtime (in seconds)	x	x
Persistent Power Fail Counter	x	x
Power Fail Counter	x	x
Fan Error		x
No Battery		x
Test Capacity	x	
Battery Replace Date		x
Interval Service Status		x

UPS Model Info
 1 = SUPS
 2 = 24V Beckhoff UPS and APC 230V UPS

Power Status Info
 0 = UNKOWN
 1 = ONLINE
 2 = ONBATTERIES

Communication Status Info
 0 = UNKOWN
 1 = OK
 2 = ERROR

Battery Status Info
 0 = UNKNOWN
 1 = OK
 2 = Change Battery

Persistent Power Fail Counter Info
 TRUE = Power Fail Counter is stored persistently
 FALSE = Power Fail Counter is reset at each restart

Test Capacity Info
 "TestCapacity" updates "Battery Runtime (in seconds)". Write a value to start the test. Disconnect the computer from the mains supply and wait until the computer switches off. Start the computer and read "Battery Runtime (in seconds)".

Battery Replace Date Info
 Date of the last battery change.

Interval Service Status Info
 Interval Service Status indicates whether the configured service interval has elapsed.

0x8nn2 - UPS GPIO Pin Information

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Address	UNSIGNED16	read-only
02	VAR	Offset	UNSIGNED8	read-only
03	VAR	Params	UNSIGNED8	read-only

Compatibility List	S-UPS	24V Beckhoff UPS/ 230V Beckhoff UPS
Address	x	
Offset	x	
Params	x	

System requirements

MDP	Version 1.6 or higher
-----	-----------------------

6.1.2.21 0x001F - Physical Drive (S.M.A.R.T.)**i Windows CE / Windows Embedded Compact**

This function is not available for Windows CE / Windows Embedded Compact.

i If this component exists more than once on the system, a separate module instance is created for each one.

i TwinCAT/BSD

This function is not available for TwinCAT/BSD.

Self-Monitoring, Analysis and Reporting Technology (SMART or S.M.A.R.T.), is an industry standard that is built into computer hard disks. It enables the permanent monitoring of important parameters and thus the early identification of impending defects. The Beckhoff IPC diagnostics enables access to these parameters.

0x8nn0 - Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x001f 00nn	UNSIGNED32	read-only
02	VAR	Type	PhysicalDrive	VISIBLE STRING	read-only
03	VAR	Name	Serial number of drive	VISIBLE STRING	read-only
04	VAR	Dev type	0x001f 2710	UNSIGNED32	read-only

0x8nn1 - Drive Properties

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Index	UNSIGNED32	read-only
02	VAR	Caption	VISIBLE STRING	read-only
03	VAR	Logical Partitions (Comma separated list)	VISIBLE STRING	read-only
04	VAR	Partition Count	UNSIGNED32	read-only
05	VAR	Total Cylinders	UNSIGNED64	read-only
06	VAR	Total Heads	UNSIGNED32	read-only
07	VAR	Total Sectors	UNSIGNED64	read-only
08	VAR	Total Tracks	UNSIGNED64	read-only

0x8nn2 - S.M.A.R.T. Attribute IDs

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Attribute ID	UNSIGNED8	read-only

0x8nn3 - S.M.A.R.T. Status Flags

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Status Flag	UNSIGNED16	read-only

0x8nn4 - S.M.A.R.T. Current Values

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Current Value	UNSIGNED8	read-only

0x8nn5 - S.M.A.R.T. Worst Values

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Worst Value	UNSIGNED8	read-only

0x8nn6 - S.M.A.R.T. Raw Data

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Raw Data (6 Byte)	VISIBLE STRING	read-only

0x8nn7 - S.M.A.R.T. Thresholds

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Threshold	UNSIGNED8	read-only

6.1.2.22 0x0020 - Mass Storage Monitoring

i Windows CE / Windows Embedded Compact

This function is not available for Windows CE / Windows Embedded Compact.

The information about a drive is mapped line by line in the tables 0x8nn1 to 0x8nnF. For example, the serial number from line 2 (in Table 0x8nn1) and the DriveName from line 2 (in Table 0x8nn4) belong to the same drive.

i Position offset

The position of the drives within the table can shift if a drive is connected to the computer or disconnected from it during operation. Therefore a check should always be done on the basis of the serial number from Table 0x8nn1 in order to identify the drive in line (n).

- If drive (n) is a data storage device that is not supported, then Tables 0x8nn4 to 0x8nnF contain the error message 0xECA61000 "Not Supported" in line (n).
- The tables 0x8nn6 to 0x8nnB contain exclusively SMART information for flash drive media. If the drive (n) is a hard disk (DriveType=1), then these tables contain the error message 0xECAF0701 "Flashdrive data not available" in line (n).
- Tables 0x8nnC to 0x8nnF contain exclusively data for hard disks (rotary data storage media). If the drive (n) is a flash drive (DriveType > 1), then these tables contain the error message 0xECAF0702 "Hard disk data not available" in line (n).

0x8nn0 - Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0020 00nn	UNSIGNED32	read-only
02	VAR	Type	MassStorageMonitoring	VISIBLE STRING	read-only
03	VAR	Name	MassStorageMonitoring	VISIBLE STRING	read-only
04	VAR	Dev type	0x0020 2710	UNSIGNED32	read-only

0x8nn1 - Serialnumber

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	Serial number of drive 1..n	VISIBLE STRING	read-only

0x8nn2 - SATA-Port

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	SATA Port of drive 1..n	UNSIGNED8	read-only

0x8nn3 - Partiton-letter(s)

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	Partiton letter(s) of drive 1..n	VISIBLE STRING	read-only

0x8nn4 - DriveName

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	DriveName of drive 1..n	VISIBLE STRING	read-only

0x8nn5 - DriveType

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	DriveType of drive 1..n	UNSIGNED8	read-only

(0 = Unknown, 1 = Harddisk, 2 = SSD, 3 = CFast, 4 = CF)

Flashdrive SMART information

0x8nn6 - EraseCountAverage

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	EraseCountAverage of drive 1..n	UNSIGNED64	read-only

0x8nn7 - EraseCountSpecified

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	EraseCountSpecified of drive 1..n	UNSIGNED64	read-only

0x8nn8 - EraseCyclesLeftPercent

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	EraseCyclesLeftPercent of drive 1..n	SIGNED16	read-only

0x8nn9 - SpareBlocksRemaining

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	SpareBlocksRemaining of drive 1..n	UNSIGNED64	read-only

0x8nnA - SpareBlocksInitial

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	SpareBlocksInitial of drive 1..n	UNSIGNED64	read-only

0x8nnB - SpareBlocksLeftPercent

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	SpareBlocksLeftPercent of drive 1..n	SIGNED16	read-only

Harddisk SMART information

0x8nnC - ReallocatedSectors

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	ReallocatedSectors of drive 1..n	UNSIGNED64	read-only

0x8nnD - SpinRetries

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	SpinRetries of drive 1..n	UNSIGNED64	read-only

0x8nnE - PendingSectors

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	PendingSectors of drive 1..n	UNSIGNED64	read-only

0x8nnF - UltraDmaCrcErrors

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01...n	VAR	UltraDmaCrcErrors of drive 1..n	UNSIGNED64	read-only

6.1.2.23 0x0021 - Unified Write Filter (UWF)



Windows CE/Windows Embedded Compact

This function is not available for Windows CE/Windows Embedded Compact.



This component is available from the MDP version 1.0.9.25.
The BkWritefilterDll.dll is required in the image to use the component.



TwinCAT/BSD

This function is not available for TwinCAT/BSD.

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0021 00nn	UNSIGNED32	read-only
02	VAR	Type	UWF	VISIBLE STRING	read-only
03	VAR	Name	UWF	VISIBLE STRING	read-only
04	VAR	Dev type	0x0021 2710	UNSIGNED32	read-only

0x8nn1 - CurrentState

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	State	BOOLEAN	read-only
02	VAR	Overlay Mode	UNSIGNED32	read-only
03	VAR	Overlay Size [MB]	UNSIGNED32	read-only

Overlay Mode: 0 = RAM, 1 = Disk

0x8nn2 – NextState

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	State	BOOLEAN	read-write
02	VAR	Overlay Mode	UNSIGNED32	read- write
03	VAR	Overlay Size [MB]	UNSIGNED32	read- write

Overlay Mode: 0 = RAM, 1 = Disk

Overlay Size: A **warning eventlog is written at 50 %** and a **critical eventlog at 75 % of the Overlay.**

0x8nn3 – Volumes

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Volume	VISIBLE STRING	read-only

0x8nn4 – Volume Protection Current States

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Volume protection state	BOOLEAN	read-only

0x8nn5 – Volume Protection Next States

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Volume protection state	BOOLEAN	read-only

0x8nn6 – Exclusions

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01..Len	VAR	Exclusions for one volume at a time (corresponding volumes see 0x8nn3). The return value is a multi-string. Each individual string is singly null-terminated, the whole multi-string is doubly null-terminated.	VISIBLE STRING	read-only

Service transfer objects**0xBnn0 – UWF Protect Volume**

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
CHAR[cbVolume]	cVolume

0xBnn1 – UWF Unprotect Volume

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
CHAR[cbVolume]	cVolume

0xBnn2 – UWF Add Exclusions

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
DWORD	cbFilePath
CHAR[cbVolume]	cVolume
CHAR[cbFilePath]	cFilePath

0xBnn3 – UWF Enum Exclusions Command object*

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
DWORD	Index
CHAR[cbVolume]	cVolume

OutputData	
Type	Name
DWORD	cbFilePath
CHAR[cbFilePath]	cFilePath

0xBnn4 – UWF Remove Exclusion

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
DWORD	cbFilePath
CHAR[cbVolume]	cVolume
CHAR[cbFilePath]	cFilePath

0xBnn5 – UWF Commit File Command object

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
DWORD	cbFilePath
CHAR[cbVolume]	cVolume
CHAR[cbFilePath]	cFilePath

0xBnn6 – UWF Commit File Delete Command object

InputData	
Type	Name
DWORD	cbData
DWORD	cbVolume
DWORD	cbFilePath
CHAR[cbVolume]	cVolume
CHAR[cbFilePath]	cFilePath

6.1.2.24 0x0100 - Miscellaneous

This module pools the remaining information.

0x8nn0 – Module Header

SubIndex	Type	Name	Value	Type	Access
00	VAR	Len		UNSIGNED16	read-only
01	VAR	Address	0x0100 00nn	UNSIGNED32	read-only
02	VAR	Type	Misc	VISIBLE STRING	read-only
03	VAR	Name	Misc	VISIBLE STRING	read-only
04	VAR	Dev type	0x0100 2710	UNSIGNED32	read-only

0x8nn1

SubIndex	Type	Name	Type	Access
00	VAR	Len	UNSIGNED16	read-only
01	VAR	Startup Numlock State. State of the Numlock key at system start	BOOLEAN	read-write
02	VAR	CE remote display state shows whether a client is connected via CERHost. From MDP 1.6.x (WinCE only)	BOOLEAN	read only
03	VAR	CE Remote Display Enabled (WinCE only)	BOOLEAN	read-write
04	VAR	SecurityWizardEnabled	BOOLEAN	read-write
05	VAR	AutoLogonUser	VISIBLE STRING	read-only
06	VAR	AutoGenerateCertificates	BOOLEAN	read-write

Service transfer objects**0xBnn0 - Restore Factory Settings (Service Transfer Object)** (available for Windows CE)

InputData	
Type	Name
UNSIGNED16	DummyByte

0xBnn1 - Reboot (Service Transfer Object)

InputData	
Type	Name
UNSIGNED8	DummyByte

0xBnn2 – SetAutoLogon (Service Transfer Object) (BigWindows only)

InputData	
Type	Name
DWORD	cb
DWORD	cchUsername
DWORD	cchDomain
DWORD	cchPassword
BOOLEAN	bAutoLogon
char[cchUsername]	szUsername
char[cchDomain]	szDomain
char[cchPassword]	szPassword

6.1.3 0xB000-0xBFFF – ServiceTransfer Area

The Service Transfer Area offers functional access. The handling is therefore different than for data from the Configuration Area. An operation is started and processed asynchronously.

The module descriptions contain tables for the Service Transfer Area. An operation may contain input parameters, which are shown in an InputData table, and output parameters, which are shown in an OutputData table.

The following applies for all indices of the Service Transfer Area:

SubIndex	Name	Access
00	Len (always = 4)	Read only
01	Trigger / Write Data	Write only
02	Operation status	Read only
03	Operation status and read data	Read only

SubIndex 01

Writing the input data starts the action. For this trigger the SubIndex 01 is used. All variables are transmitted in one data block.

SubIndex 02

Once an operation has been started, its status can be queried with subindex 02.

Status value [BYTE]	Description
0	No error; No data available
1	No error; Data available
2	error; No data available
3	error; data available (4 byte MDP error code [▶ 77])
100 ... 200	Busy; 0% ... 100%
255	Busy; No percentage

SubIndex 03

As soon as the action is complete, the return data are available and can be queried. Subindex 03 is used for this purpose. All information is received in a data block, according to the structure in the OutputData table.

In addition to the read data the status of the operation is also output, according to the diagram above.

Layout:

```

BYTE status
BYTE padding
VOID Nutzdaten (Optional)
    
```

6.1.4 0xF000-0xFFFF – Device Area

Index 0xF000

SubIndex	type	name	value	type	Access
00	VAR	Len	4	UNSIGNED16	read-only
01	VAR	Object interval	16	UNSIGNED32	read-only
02	VAR	Max Modules	0xFF	UNSIGNED32	read-only
03	VAR		0	UNSIGNED32	read-only
04	VAR		0xF	UNSIGNED32	read-only

Index 0xF010 – module types list

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	MDPSubProfile Id and Module Type	UNSIGNED32	read-only

Flat list of the module types of the instantiated modules. The module type is stored in the LowWord. The HighWord contains the "MDPSubProfile Id".

The SubIndex can be used to determine the dynamically created "Module ID" of a module.

Example:

```
SubIndex: 0x04      MDPSubProfile Id
and Module type: 0x2710 0002
```

The module type 0x02 is stored in SubIndex 0x04: It is an instance of the [NIC module \[► 18\]](#); the dynamically created module ID is 0x03 (SubIndex - 1).

The configuration data can therefore be found at address 0x8030.

Index 0xF020 – module ID list

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Module type and ID	UNSIGNED32	read-only

The module type is stored in the HighWord. The LowWord contains the dynamically assigned module ID.

The module type is determined via the module type in the HighWord. The "Module ID" is a sequential number that is allocated for each object. It corresponds to the variables 'nn' in the index.

Example:

```
Module type and ID: 0x0002 0003
```

The module type is 0x02: [NIC module \[► 18\]](#)
The Module ID is 3, the object is described at index 0x8030.

Index 0xF060 – module names list

SubIndex	type	name	type	Access
00	VAR	Len	UNSIGNED16	read-only
01 .. Len	VAR	Module name	VIS STRING	read-only

List of the names of all instanced modules. The module name is unique. It enables the module to be identified unambiguously, even if the index was modified dynamically.

Index 0xF9F0 – serial number of Beckhoff IPCs

SubIndex	type	name	type	Access
00	VAR	Serial number	VIS STRING	read-only

Serial number of a Beckhoff IPC (according to the name plate of the IPC).

Note: Not to be confused with the serial number of the motherboard. (This is read out via the MDP module "Mainboard")

Comments:

- For Beckhoff DIN rail IPCs (CXnnnn series) the serial number of the device matches the serial number of the mainboard (since in this case there is only one mainboard type for the respective IPC).
- All other Beckhoff IPCs have a serial number for the mainboard and a separate serial number for the device (different mainboards are used, depending on the power level).
- In older BIOS version (before Q4/2013) the serial number was not stored in the IPC BIOS. In these cases the return value is the serial number of the IPC mainboard.
- For older Beckhoff Automation Device Driver versions (for details see note) the return value is the serial number of the IPC mainboard.
- The serial number of the IPC mainboard is read via the [mainboard module](#) [▶ 46].

i Prerequisites for index 0xF9F0

MDP version 1.0.7.6 or higher

i Return of IPC serial number

Additional prerequisites for returning the IPC serial number (not the mainboard serial number): Beckhoff Automation Device Driver v1.22.1.0 or higher. BIOS that supports this functionality (Beckhoff IPCs manufactured from Q4/2013)

7 API / samples

This section provides programming samples for the Device Manager that demonstrate the principle of access to Device Manager data. The examples are structured such that they can easily be modified for querying other data values.

The underlying data structure is described in section [Information model \[► 12\]](#).

7.1 PLC

TwinCAT 3:

In order to be able to use the functions of the Beckhoff Device Manager in a TwinCAT PLC program, the **TwinCAT 3 PLC library Tc3_IPCDiag** must be integrated into the TwinCAT project as reference.

The Device Manager offers a wide range of readable and partly writeable parameters. The available Device Manager parameters are organized in modules in the Configuration area. A module contains all the data for a specific topic, for example the CPU or the fans.

Since the available modules and their contents depend on the components available in the IPC, the list is generated dynamically – depending on which components the current IPC contains or which information types it supports. A module or a parameter therefore cannot be addressed via a fixed address. You first have to determine where exactly the module is located. In the Tc3_IPCDiag library this is done by the function block `FB_IPCDiag_Register`. It identifies a register of all available information so that it can be easily accessed from then on. Normally, the function block only needs to be executed once at the beginning.

The function block `FB_IPCDiag_ReadParameter` offers an extensive list of parameters, which are grouped according to their MDP area and modules, with the help of the `E_IPCDiag_ParameterKey` enumeration.

Below is an excerpt from the enumeration containing more than 100 parameters:

Enumeration value	Comment
<code>E_IPCDiag_ParameterKey.IPCDeviceName</code>	IPC device name, STRING, read/write (MDP general area)
<code>E_IPCDiag_ParameterKey.CPU_Usage</code>	CPU usage (%), UINT, read-only
<code>E_IPCDiag_ParameterKey.CPU_Temp</code>	CPU temperature (°C), INT, read-only
<code>E_IPCDiag_ParameterKey.Fan_Speed</code>	Fan speed (rpm), INT, read-only
<code>E_IPCDiag_ParameterKey.NIC_IPv4Address</code>	IPv4 address, STRING, read/write
<code>E_IPCDiag_ParameterKey.TC_VersionBuild</code>	TwinCAT build version, UINT, read-only

A detailed description of the Tc3_IPCDiag library and easy access to the parameters and Device Manager modules can be found in the [documentation of the TwinCAT 3 PLC library Tc3_IPCDiag](#). There you will also find the [Samples chapter](#) with programming examples for a quick introduction to using the PLC library.

i Restricted access at the time of system start

MDP forms an interface to the hardware. This is independent of TwinCAT. MDP can be accessed from TwinCAT with the PLC library. This is done internally by means of ADS communication. The versatility of the hardware configuration justifies a different initialization phase of the MDP service. It is possible that first PLC cycles are executed while the MDP initialization is not yet completed. Either the possible error outputs as well as timeouts of the function blocks from the library can be reacted and a new query can be triggered or the queries are executed deliberately delayed after the system start.

It is recommended in the PLC program not to query values from the MDP immediately after the system start, but to consider a small waiting time. How large this should be depends on various parameters (such as the performance of your control computer), and can therefore not be given as a general rule. Typically it is in the range of 10-60 seconds.

TwinCAT 3: Previous library:



Update: Tc3_IPCDiag library

The TwinCAT 3 PLC library Tc2_MDP is the predecessor to Tc3_IPCDiag. With the new Tc3_IPCDiag library the number of readable parameters has been increased and the user interface has been optimized. It is recommended to use the [Tc3_IPCDiag library](#).

Future extensions will no longer be performed in the Tc2_MDP library. It is not recommended to use the Tc2_MDP library for new projects. All functionalities of the Tc2_MDP library can also be found in the new Tc3_IPCDiag library.

A detailed description of the Tc2_MDP PLC library and all available function blocks through which TwinCAT 3 accesses the Device Manager modules can be found in the documentation:

- [Function blocks of the TwinCAT 3 PLC library "Tc2_MDP" for IPC diagnostics](#)
- [Error codes of the TwinCAT 3 PLC library "Tc2_MDP" for IPC diagnostics](#)
- The [Tc2_MDP library examples](#) cover the following use cases:
 - Querying CPU data (generic)
 - Querying the fan state (generic)
 - Querying CPU data (specific)
 - Reading IPC serial numbers
 - Setting the IP address

TwinCAT 2:

A description of the corresponding TwinCAT 2 PLC TcMDP library can be found in the documentation entitled:

- [Function blocks of the TwinCAT 2 PLC library "TcMDP" for IPC diagnostics](#)
- [Error codes of the TwinCAT 2 PLC library "TcMDP" for IPC diagnostics](#)
- [Examples for TwinCAT 2](#)

Requirements

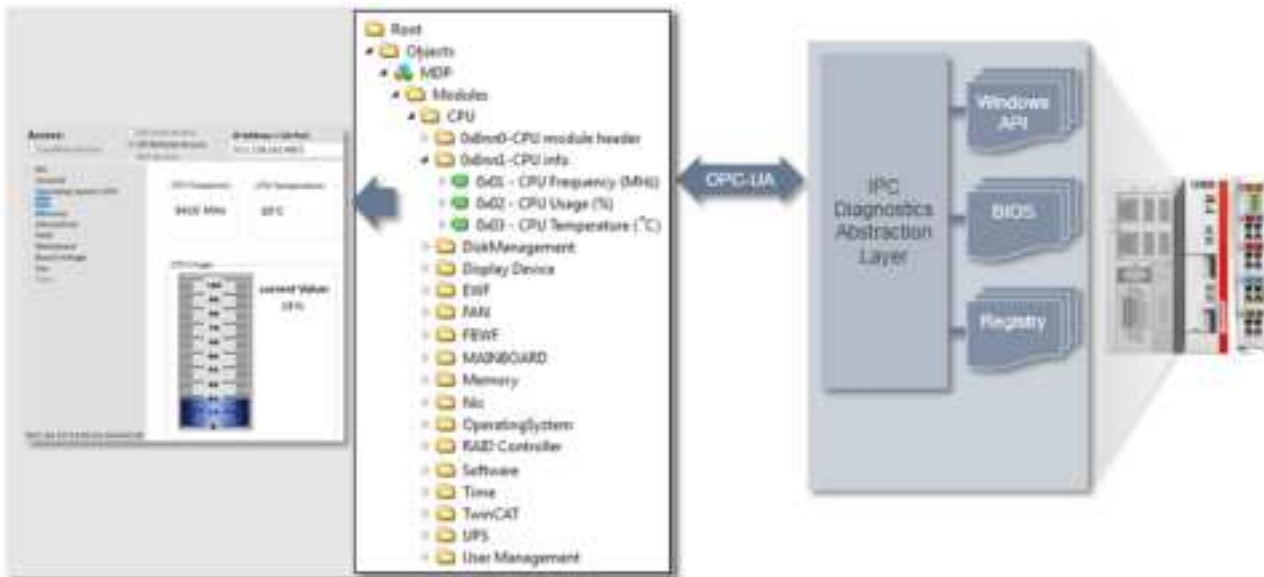
MDP version	Beckhoff Automation Device Driver	Beckhoff BIOS
From version 1.0.7.6	From v1.22.1.0	From Q4/2013

MDP (Modular Device Profile) is the information model that TwinCAT uses to access the Device Manager data.

7.2 OPC UA

OPC UA is a standardized communication interface with built in transmission and access security that is supported by numerous software manufacturers (e.g. visualization software).

The Device Manager values can also be accessed via OPC UA. The Device Manager comes with its own OPC UA server for data access.



The address for accessing the OPC UA server of an IPC is:

`opc.tcp://<Device IP>:4852`

Samples:

`opc.tcp://CP-004711:4852`

`opc.tcp://172.17.36.11:4852`

The OPC UA Server is disabled on IPCs with Windows CE (Windows Embedded Compact) at delivery and must be started manually (or by configuring Autostart accordingly), if required: `\Hard Disk\BklpcDiag\UA_DevMgrSvr-UA-CE`.

i OPC UA port blocked by firewall

By default, the OPC UA port is blocked by the firewall in all current images. In this case the port in the firewall must be opened if necessary.

OPC UA .NET sample

Via OPC UA the following .NET application reads the current values for CPU frequency, CPU load, CF card memory capacity, TwinCAT version, TwinCAT build, and CPU temperature.

Download: `mdpoverua.zip` (Resources/zip/263048715.zip)

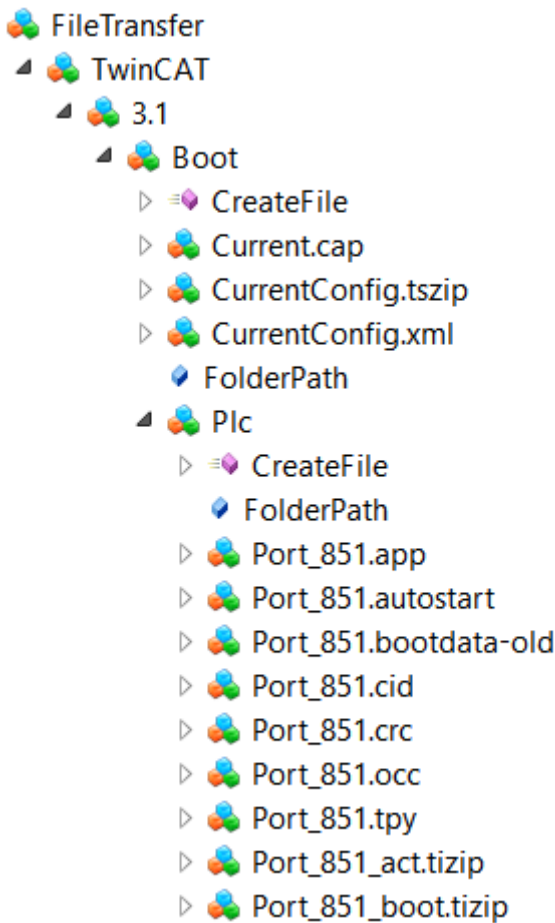
Execute the following steps:

1. Unpack the sample.
2. Open the file `settings.xml` in directory `MDPOverUA\MDPOverUA` folder.
3. In the file find the line `<Session Url="opc.tcp://<DeviceName>:4852" Security="None" RefreshInterval="1000" KeepAlive="10000" />`.
4. Modify the value for `<DeviceName>` according to your device.
5. Compile the project and execute it.

Access to files and folders via OPC UA

From OPC UA specification version 1.02, OPC UA contains a specialized ObjectType for file transfer, which is described in Appendix C of the specification. This special ObjectType called "FileType" describes the information model for the data transfer. Files can be modeled as simple variables in OPC UA with ByteStrings. FileType is a file with methods for accessing the file. The OPC UA specification provides further information about FileType and the structure and handling of the underlying methods and properties for accessing a file in the OPC UA namespace.

Beckhoff has implemented a generic way to load files and folders from a local hard disk into the OPC UA namespace. Each file is represented by a FileType and allows read and write operations for this file. In addition, each folder contains a CreateFile() method to create new files on the hard disk and a separate FolderPath to specify the actual path to the folder on the OPC UA Server.



i FileTransfer in the OPC UA Server Device Manager

Only the OPC UA server of the Beckhoff Device Manager has this function. The Twin-CAT OPC UA Server also provides some parts of this file transfer. However, the general function that enables disclosure of all files and folders is only available in the OPC UA Server, which is part of the device manager that is automatically available on every Beckhoff Industrial PC or Embedded PC. See the [Device manager documentation](#) for more information.

Configuration

FileType objects are created in a separate namespace called "FileTransfer". An XML file (*files.xml*) is used to configure this namespace and to select the files and folders available via OPC UA. The file must be located in the same directory as the executable file of the OPC UA Server. The system must be restarted in order to activate the configuration. The XML file contains information about the folder path and a search mask that defines which files are published in the OPC UA namespace:

```
<Files>
  <FolderObject DisplayName="TwinCAT">
    <FolderObject DisplayName="3.1">
      <FolderObject DisplayName="Boot" Path="c:/TwinCAT/3.1/Boot" Search="*.*" >
        <FolderObject DisplayName="Plc" Path="c:/TwinCAT/3.1/Boot/Plc" Search="*.*" ></FolderObject>
        <FolderObject DisplayName="Tmi" Path="c:/TwinCAT/3.1/Boot/Tmi" Search="*.*" ></FolderObject>
      </FolderObject>
    </FolderObject>
  </FolderObject>
</Files>
```

Example: Reading a file with UA Expert

General file handling is described in Appendix C of the OPC UA specification. Reading a file via UA can be divided into the following steps:

1. Calling the Open method of a file. This method returns a file handle that must be saved for later access. The mode defines whether the file is read or written to (see File modes).
2. Determining the file size with the property "Size". In this way, the entire file can be read when the Read method is called.
3. Calling the Read method. Inserting the file handle and file size as inputs. Selecting the destination folder in which the file contents are to be saved AFTER the method call.
4. Calling the Close method to enable the file handle.

File modes

The following table shows all available file modes.

Field	Bit	Description
Read	1	The file is opened for reading. If this bit is not set, Read cannot be executed.
Write	4	The file is opened for writing. If this bit is not set, Write cannot be executed.
EraseExisting	6	The existing file contents are deleted, and an empty file is made available.
Append	10	The file is opened and positioned at the end, otherwise it is moved to the beginning. This position can be changed with SetPosition.

7.3 C#

VisualStudio.NET C# (Visual Studio 2010/2012/2013)

Programming of the sample programs is explained based on Visual Studio 2012. The procedure for Visual Studio 2010/2013 is similar.

The programs require the library *MdpNetApi.dll*, which can be found in the respective installation directory of the IPC diagnostics.



64-bit Windows

Prerequisites for creating 64-bit application programs with the library *MdpNetApi.dll*:

MDP from v1.0.7.06 and Beckhoff Automation Device Driver from v1.22.1.0

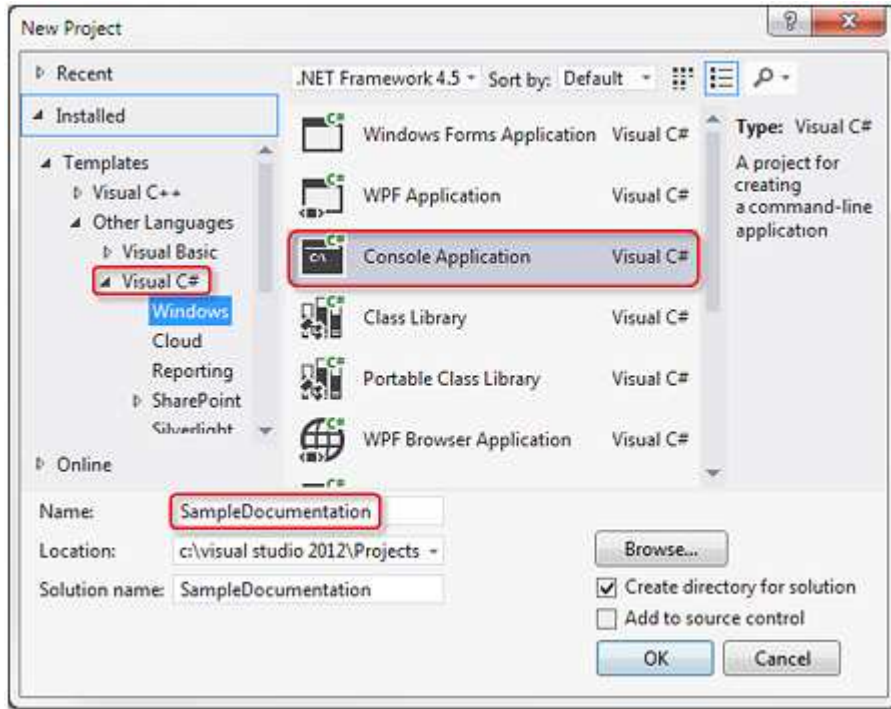
If older versions of MDP or the Beckhoff Automation Device Driver are used, the application program must be compiled for 32 bits, since these library and driver versions are only designed for 32-bit programs. (An application program compiled for 32 bits can be used on a 64-bit system.)

The implementation of the sample code in user programs is explained below. The description is based on the simplest option in Visual Studio, i.e. configuration of a console application.

Creating a new console application in Visual Studio

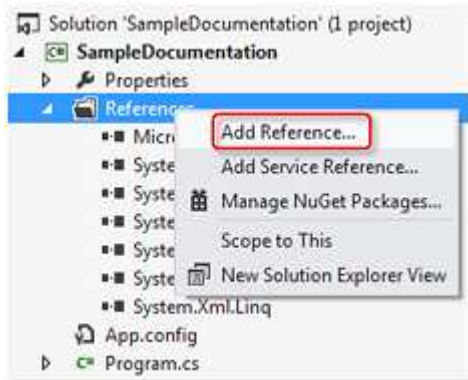
1. Under **File > New**, select the command **Project** to create a new console application.
 - ⇒ The **New Project** dialog opens.

- In the overview on the left, select **Templates > Other Languages > Visual C#**, then select **Console Application** in the overview on the right. Enter a name for the project.



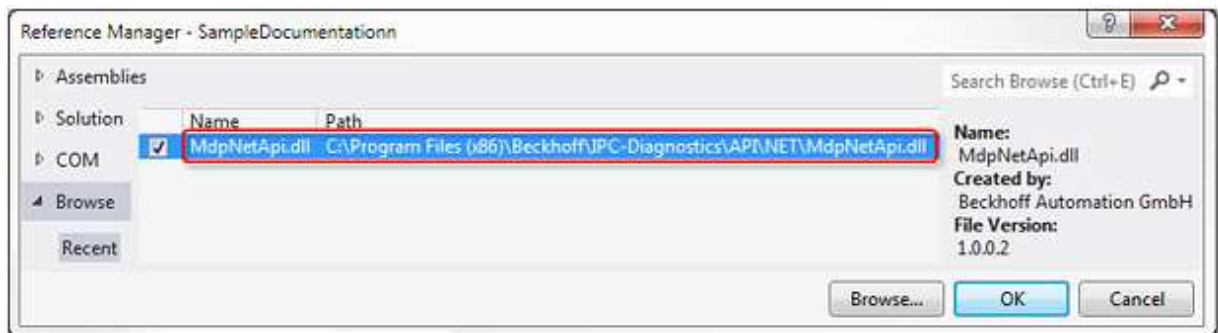
⇒ TwinCAT creates a new console application.

- Right-click **References** and select the command **Add References** from the context menu that opens.



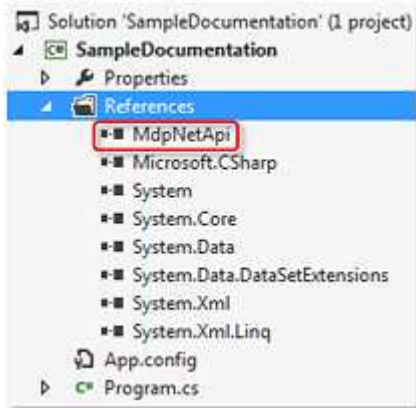
⇒ The **Reference Manager** dialog opens.

- Enter the file name *MdpNetApi.dll* and confirm with **OK**.

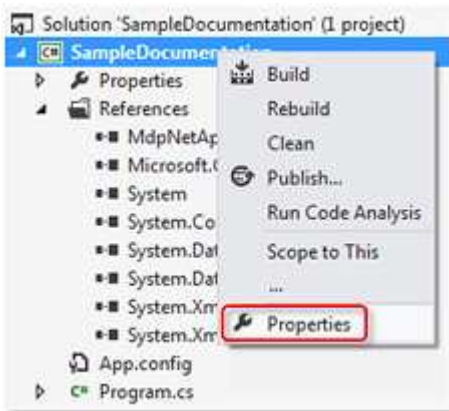


The library *MdpNetApi.dll* can be found in the IPC diagnostics installation directory (default: C:\Program Files (x86)\Beckhoff\IPC-Diagnostics).

⇒ The file is entered as a new reference.

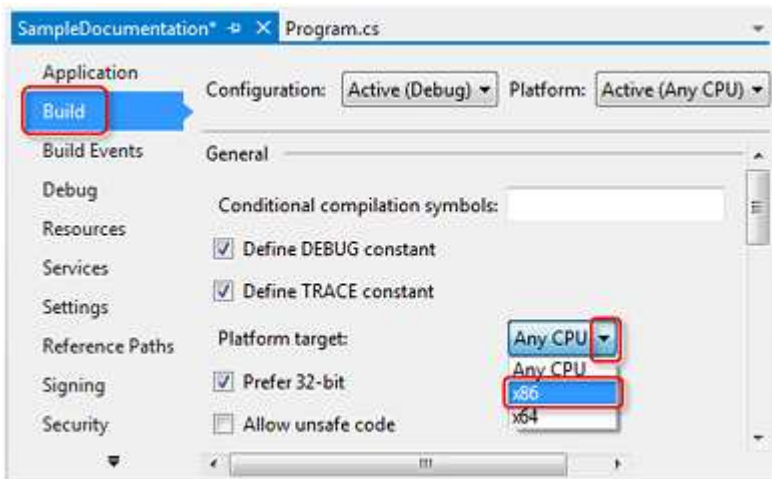


5. Right-click on the project (here: SampleDocumentation) and select **Properties** from the context menu that opens to select the target platform.

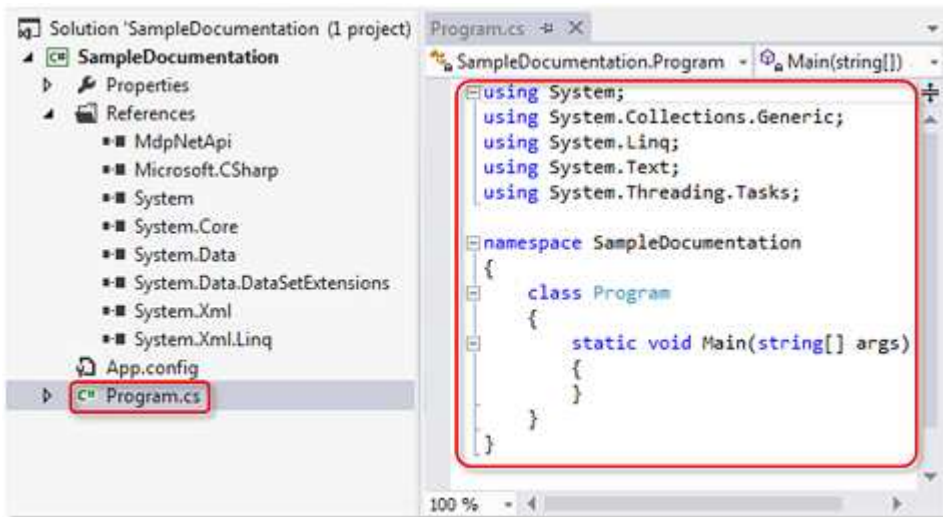


⇒ A configuration window opens.

6. Select the **Build** category and select "x86" or "x64" from the **Platform target** drop-down list, depending on the target platform. Select "x86" (= 32-bit) as target platform, if the requirements for 64-bit (see above) are not met.



7. Incorporate the program code of the example. To do this, copy the code from the sample program to the default file *Program.cs*. Replace the whole default program code highlighted below with the sample code.



⇒ The program can now be compiled and tested.

7.3.1 Querying CPU data

This example demonstrates access to IPC diagnostic data via a C# program. CPU data (clock frequency and load) are read as examples.

The library *MdpNetApi.dll* required for this purpose can be found in the installation directory of the IPC diagnostics (default directory: *C:\Program Files (x86)\Beckhoff\IPC-Diagnostics*).

Program code:

```
using System.Text;
using System.IO; // namespace for the Memory Stream, Stream- und Binary-Reader
using MdpNetApi; // namespace of the MDP .Net API

namespace MdpCsharpHwRead
{
    class Program
    {
        static void Main(string[] args)
        {
            ///////////////////////////////////////////////////////////////////////////////////////////////////////////////////
            /
            // initialization

            // opens a connection to the MDP
            MdpNetMethods.MDPOpen();

            // create Memory Stream, Stream- and Binary-Reader for handling data
            MemoryStream memoryStream = new MemoryStream();
            memoryStream.SetLength(1);
            BinaryReader binReader = new BinaryReader(memoryStream);
            StreamReader strReader = new StreamReader(memoryStream);

            // title/header of console output
            Console.WriteLine("Hardware Information (via MDP Csharp Sample)\n=====
            =====");
            Console.WriteLine("");

            ///////////////////////////////////////////////////////////////////////////////////////////////////////////////////
            /
            // Read module information
            // Get CPU information (CPU frequency & load)

            memoryStream.Position = 0;

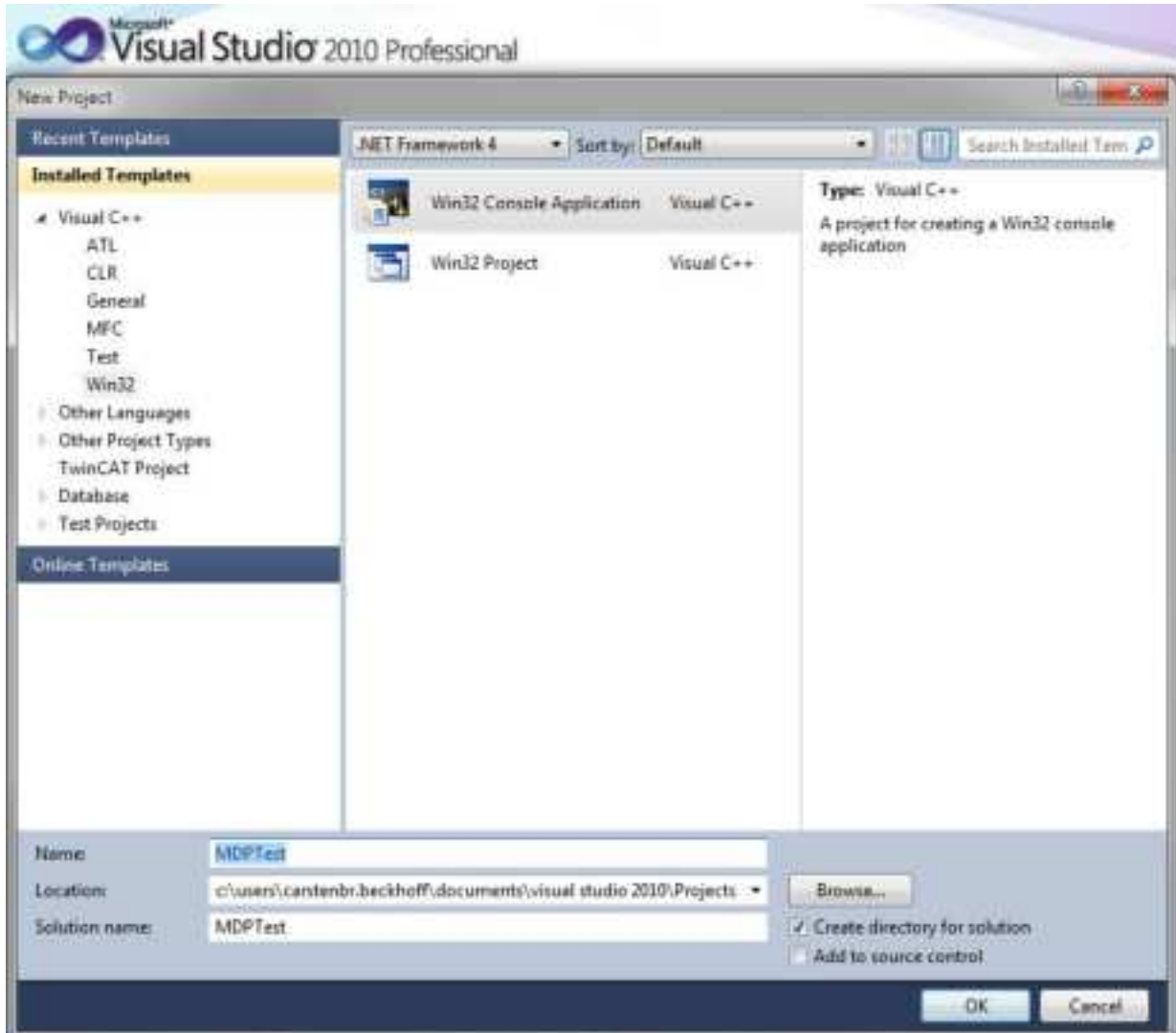
            // create a variable containing the base address of a specific module type
            ushort nBaseAddress = GetAddressOfModuleType(MdpModuleType.CPU)[0];
```


Preparation of Visual Studio

This section explains how to include the files required for IPC diagnostics for programming in C++ in Visual Studio 2010.

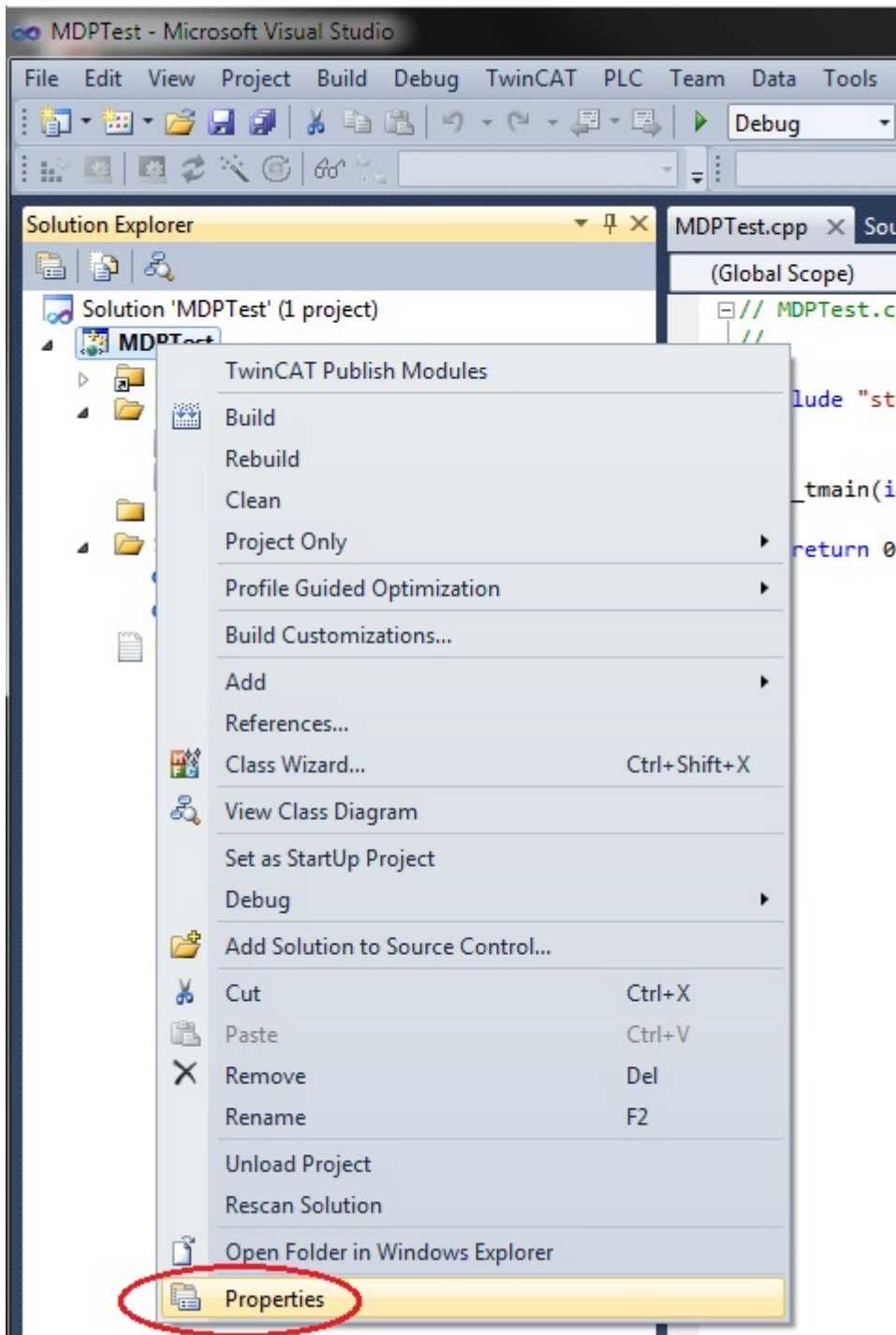
The files can be found in the IPC diagnostics installation directory (Windows: *C:\Program Files (x86)\Beckhoff\IPC-Diagnostics\API\C*).

1. Start Visual Studio and create a new Visual C++ Win32 console application.

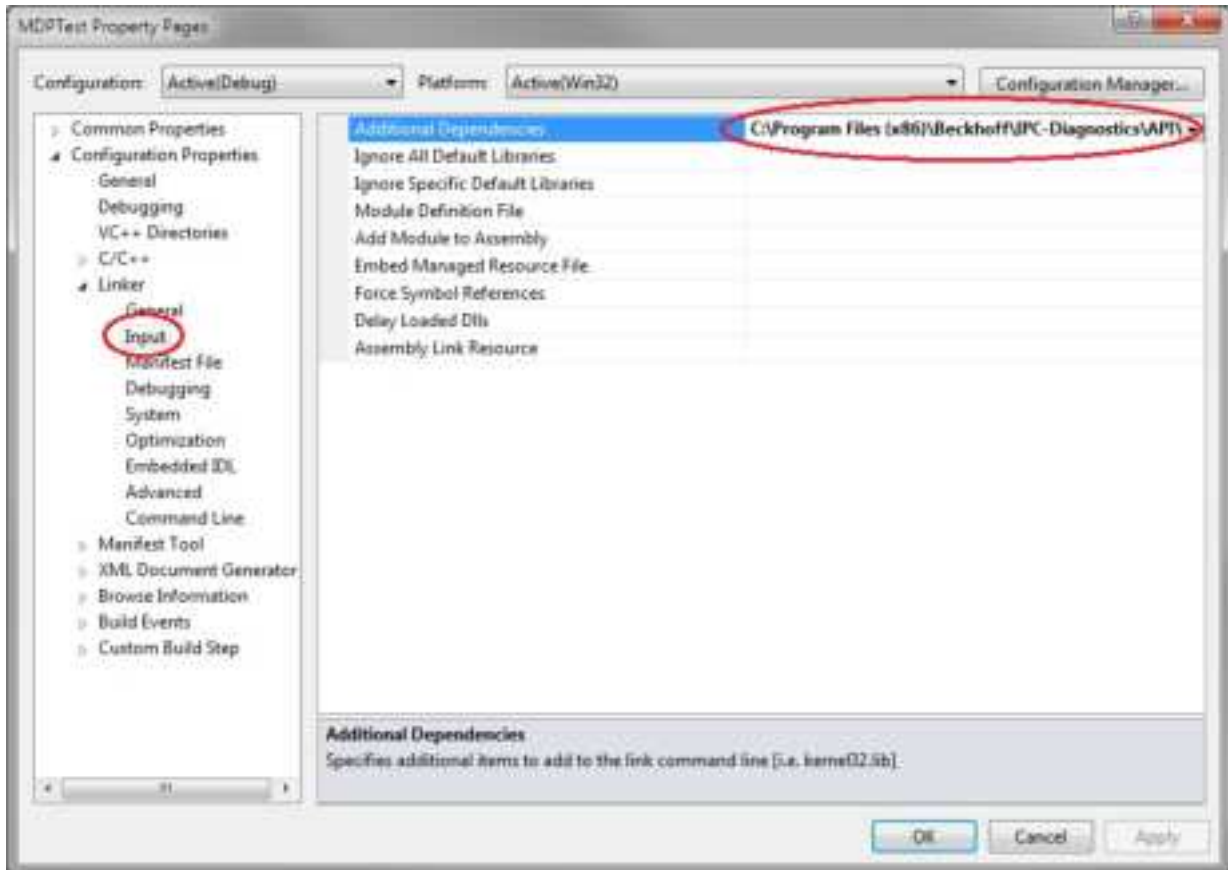


2. Confirm the default settings of the project wizard.

3. Open the project properties.



4. Enter MDPApi.lib (from C:\Program Files (x86)\Beckhoff\IPC-Diagnostics\API\C\Lib\Win32) as additional dependency.



5. Add the MDPApi header:

```
#include "C:\Program Files (x86)\Beckhoff\IPC-Diagnostics\API\C\Include\MdpApi.h"
```

6. The program now has the following structure:

```
// MDPTest.cpp : Defines the entry point for the console application.
//
#include "stdafx.h"
#include "C:\Program Files (x86)\Beckhoff\IPC-Diagnostics\API\C\Include\MdpApi.h"

int _tmain(int argc, _TCHAR* argv[])
{
    return 0;
}
```

Prerequisites

Required TwinCAT libraries	MDP version	Beckhoff Automation Device Driver	Beckhoff BIOS
MDPApi.lib MdpApi.h	Current MDP version	Current BA Device Driver	Current Beckhoff BIOS

7.5 ADS

IPC diagnostics via ADS - Example in C#

In addition to communication with "Modular Device Profile for IPC" via MDP API it is possible to communicate with MDP via ADS.

The following example reads the CPU frequency, CPU load, free space, CF card drive usage, TwinCAT version & build and the CPU temperature, if supported.

Download: [mdpoverads.zip \(Resources/zip/263045771.zip\)](#)

Execute the following steps:

1. Extract the example.
2. Open the solution.
3. In *Window1.xaml.cs* find the line `private AmsNetId netId = AmsNetId.Local`.
4. In this case the default NetId is local. To connect a remote device change the NetId, e.g. to the new `AmsNetId ("172.16.5.2.1.1")`.
5. Compile and execute the solution.

8 Appendix

8.1 Initial help in case of problems



Current components

The Beckhoff Device Manager is constantly being updated and further developed. Always use the latest components in your application:

- BIOS
- Image for your Beckhoff IPC
- Beckhoff Automation Device Driver
- IPC diagnostics program version
(Update for Windows x86/64 available from Beckhoff Support)
- PLC library for your TwinCAT PLC program

The following questions and hints are intended to provide initial assistance in the event of any problems:

- Why does the Device Manager not work or issue error messages?
- Why can some values not be accessed?
- Check the Device Manager version via the version of the file MDP.exe (MDP.dll on Windows CE).
- The current version of the Device Manager for x86/x64 Windows is available from Beckhoff support.
- Windows CE (Windows Embedded Compact): are you using the latest image for your device?
The Device Manager for Windows CE is not available as a separate download.
- Which services are supported by your IPC?
- Does the device web page work?
Check with the device web page whether the desired values are displayed.
- Does access via OPC UA work?
Use an OPC UA client (e.g. UA Expert) to check whether you can access the desired values.

8.2 Data Types Overview

The MDP information is subdivided into modules, which contain different elements. The elements may have different data types.

Data type	Description
BOOLEAN	8-bit Boolean value. 1=true, 0= false
SIGNED8	8 bit signed integer
SIGNED16	16 bit signed integer
SIGNED32	32 bit signed integer
UNSIGNED8	8 bit unsigned integer
UNSIGNED16	16 bit unsigned integer
UNSIGNED32	32 bit unsigned integer
UNSIGNED64	64 bit unsigned integer
REAL32	32-bit floating point value
VISIBLE STRING	ASCII string, variable length, not null-terminated

8.3 Overview of error codes.

An error code is made up of two parts. The error code group, which is represented by the upper two bytes, describes the type of error that has occurred.

Error code group	Type of error
0x EC81 xxxx	Error codes of the Tc3_IPCDiag PLC library
0x ECA6 xxxx	General IPC diagnostic error codes
0x ECA7 xxxx	API error codes (Win32 error codes)
0x ECA8 xxxx	ADS error codes (TwinCAT ADS error codes)
0x ECAF xxxx	Module-dependent error numbers

Error codes of the Tc3_IPCDiag PLC library

Code	Meaning
0xEC810001	invalid module list (initialization of IPCDiag required) Probably the instance of FB_IPCDiag_Register was not called successfully or it is still pending.
0xEC810002	module of parameter is unavailable (not existing)
0xEC810003	parameter is unavailable (not existing)
0xEC810004	no valid value available (reading is probably pending)
0xEC810005	allocated buffer is invalid (pointer is zero or buffer size is too small)
0xEC810006	allocated index is invalid

General IPC diagnosis error codes

Code	Meaning
0x00000000	Success - No Error
0xECA60001	Fail - Unspecified error
0xECA60100	Invalid index
0xECA60101	Invalid access
0xECA60102	Buffer too small
0xECA60103	Type not supported
0xECA60104	Out of memory
0xECA60105	No data available
0xECA60106	Invalid data
0xECA60107	Invalid arg
0xECA60108	Value out of range
0xECA60200	Server is busy
0xECA60201	MDP API not initialized
0xECA60F00	Not implemented
0xECA61000	Not supported
0xECA60FFF	Unexpected error

API error codes

Code	Meaning
0xECA7xxxx	The low word contains an error code from a system call.

See also: [Win32 Error Codes \[► 84\]](#)

ADS error codes

Code	Meaning
0xECA8xxxx	The low word contains a ADS result code

See also: [ADS Return Codes \[► 80\]](#)

Module specific error codes

Code	Module	Meaning
0xECAF0401	User Mgmt	User already exists
0xECAF0402	User Mgmt	User does not exist
0xECAF0403	User Mgmt	Group already exists
0xECAF0404	User Mgmt	Group does not exist
0xECAF0410	SMB	Server is not installed
0xECAF0411	SMB	Share already exists
0xECAF0412	SMB	Share does not exist
0xECAF0420	TwinCAT	Ads route already exists
0xECAF0421	TwinCAT	Ads port could not be opened
0xECAF0430	Datastore	A variable with this name already exists
0xECAF0431	Datastore	Variable with requested name does not exist
0xECAF0432	Datastore	Section with specified name does not exist
0xECAF0433	Datastore	The name of the variable was invalid
0xECAF0440	Registry	The name of the key (e.g. "HKLM") was invalid
0xECAF0601	Display	RESTART/ computer must be restarted for the graphics mode to work
0xECAF0602	Display	FAILED/ display driver failed specified graphics mode
0xECAF0603	Display	BADMODE/ graphics mode is not supported
0xECAF0604	Display	NOTUPDATED/ unable to write settings to the registry
0xECAF0605	Display	BADFLAGS/ invalid set of flags
0xECAF0606	Display	BADPARAM/ Invalid parameter or invalid combination of flags
0xECAF0607	Display	BADDUALVIEW/ System is DualView capable
0xECAF0608	Display	Com Port not set
0xECAF0609	Display	Invalid Value
0xECAF0610	Display	Invalid Command
0xECAF0611	Display	Invalid Com Port

8.4 ADS Return Codes

Grouping of error codes: 0x000 [▶ 80]..., 0x500 [▶ 80]..., 0x700 [▶ 81]..., 0x1000 [▶ 83]...

Global error codes

Hex	Dec	HRESULT	Name	Description
0x0	0	0x9811 0000	ERR_NOERROR	No error.
0x1	1	0x9811 0001	ERR_INTERNAL	Internal error.
0x2	2	0x9811 0002	ERR_NORTIME	No real-time.
0x3	3	0x9811 0003	ERR_ALLOCLOCKEDMEM	Allocation locked – memory error.
0x4	4	0x9811 0004	ERR_INSERTMAILBOX	Mailbox full – the ADS message could not be sent. Reducing the number of ADS messages per cycle will help.
0x5	5	0x9811 0005	ERR_WRONGRECEIVEHMSG	Wrong HMSG.
0x6	6	0x9811 0006	ERR_TARGETPORTNOTFOUND	Target port not found – ADS server is not started or is not reachable.
0x7	7	0x9811 0007	ERR_TARGETMACHINENOTFOUND	Target computer not found – AMS route was not found.
0x8	8	0x9811 0008	ERR_UNKNOWNCMDID	Unknown command ID.
0x9	9	0x9811 0009	ERR_BADTASKID	Invalid task ID.
0xA	10	0x9811 000A	ERR_NOIO	No IO.
0xB	11	0x9811 000B	ERR_UNKNOWNAMSCMD	Unknown AMS command.
0xC	12	0x9811 000C	ERR_WIN32ERROR	Win32 error.
0xD	13	0x9811 000D	ERR_PORTNOTCONNECTED	Port not connected.
0xE	14	0x9811 000E	ERR_INVALIDAMSLENGTH	Invalid AMS length.
0xF	15	0x9811 000F	ERR_INVALIDAMSNETID	Invalid AMS Net ID.
0x10	16	0x9811 0010	ERR_LOWINSTLEVEL	Installation level is too low –TwinCAT 2 license error.
0x11	17	0x9811 0011	ERR_NODEBUGINTAVAILABLE	No debugging available.
0x12	18	0x9811 0012	ERR_PORTDISABLED	Port disabled – TwinCAT system service not started.
0x13	19	0x9811 0013	ERR_PORTALREADYCONNECTED	Port already connected.
0x14	20	0x9811 0014	ERR_AMSSYNC_W32ERROR	AMS Sync Win32 error.
0x15	21	0x9811 0015	ERR_AMSSYNC_TIMEOUT	AMS Sync Timeout.
0x16	22	0x9811 0016	ERR_AMSSYNC_AMSERROR	AMS Sync error.
0x17	23	0x9811 0017	ERR_AMSSYNC_NOINDEXINMAP	No index map for AMS Sync available.
0x18	24	0x9811 0018	ERR_INVALIDAMSPORT	Invalid AMS port.
0x19	25	0x9811 0019	ERR_NOMEMORY	No memory.
0x1A	26	0x9811 001A	ERR_TCPSEND	TCP send error.
0x1B	27	0x9811 001B	ERR_HOSTUNREACHABLE	Host unreachable.
0x1C	28	0x9811 001C	ERR_INVALIDAMSFRAGMENT	Invalid AMS fragment.
0x1D	29	0x9811 001D	ERR_TLSEND	TLS send error – secure ADS connection failed.
0x1E	30	0x9811 001E	ERR_ACCESSDENIED	Access denied – secure ADS access denied.

Router error codes

Hex	Dec	HRESULT	Name	Description
0x500	1280	0x9811 0500	ROUTERERR_NOLOCKEDMEMORY	Locked memory cannot be allocated.
0x501	1281	0x9811 0501	ROUTERERR_RESIZEMEMORY	The router memory size could not be changed.
0x502	1282	0x9811 0502	ROUTERERR_MAILBOXFULL	The mailbox has reached the maximum number of possible messages.
0x503	1283	0x9811 0503	ROUTERERR_DEBUGBOXFULL	The Debug mailbox has reached the maximum number of possible messages.
0x504	1284	0x9811 0504	ROUTERERR_UNKNOWNPORTTYPE	The port type is unknown.
0x505	1285	0x9811 0505	ROUTERERR_NOTINITIALIZED	The router is not initialized.
0x506	1286	0x9811 0506	ROUTERERR_PORTALREADYINUSE	The port number is already assigned.
0x507	1287	0x9811 0507	ROUTERERR_NOTREGISTERED	The port is not registered.
0x508	1288	0x9811 0508	ROUTERERR_NOMOREQUEUES	The maximum number of ports has been reached.
0x509	1289	0x9811 0509	ROUTERERR_INVALIDPORT	The port is invalid.
0x50A	1290	0x9811 050A	ROUTERERR_NOTACTIVATED	The router is not active.
0x50B	1291	0x9811 050B	ROUTERERR_FRAGMENTBOXFULL	The mailbox has reached the maximum number for fragmented messages.
0x50C	1292	0x9811 050C	ROUTERERR_FRAGMENTTIMEOUT	A fragment timeout has occurred.
0x50D	1293	0x9811 050D	ROUTERERR_TOBEREMOVED	The port is removed.

General ADS error codes

Hex	Dec	HRESULT	Name	Description
0x700	1792	0x9811 0700	ADSERR_DEVICE_ERROR	General device error.
0x701	1793	0x9811 0701	ADSERR_DEVICE_SRVNOTSUPP	Service is not supported by the server.
0x702	1794	0x9811 0702	ADSERR_DEVICE_INVALIDGRP	Invalid index group.
0x703	1795	0x9811 0703	ADSERR_DEVICE_INVALIDOFFSET	Invalid index offset.
0x704	1796	0x9811 0704	ADSERR_DEVICE_INVALIDACCESS	Reading or writing not permitted.
0x705	1797	0x9811 0705	ADSERR_DEVICE_INVALIDSIZE	Parameter size not correct.
0x706	1798	0x9811 0706	ADSERR_DEVICE_INVALIDDATA	Invalid data values.
0x707	1799	0x9811 0707	ADSERR_DEVICE_NOTREADY	Device is not ready to operate.
0x708	1800	0x9811 0708	ADSERR_DEVICE_BUSY	Device is busy.
0x709	1801	0x9811 0709	ADSERR_DEVICE_INVALIDCONTEXT	Invalid operating system context. This can result from use of ADS function blocks in different tasks. It may be possible to resolve this through multitasking synchronization in the PLC.
0x70A	1802	0x9811 070A	ADSERR_DEVICE_NOMEMORY	Insufficient memory.
0x70B	1803	0x9811 070B	ADSERR_DEVICE_INVALIDPARAM	Invalid parameter values.
0x70C	1804	0x9811 070C	ADSERR_DEVICE_NOTFOUND	Not found (files, ...).
0x70D	1805	0x9811 070D	ADSERR_DEVICE_SYNTAX	Syntax error in file or command.
0x70E	1806	0x9811 070E	ADSERR_DEVICE_INCOMPATIBLE	Objects do not match.
0x70F	1807	0x9811 070F	ADSERR_DEVICE_EXISTS	Object already exists.
0x710	1808	0x9811 0710	ADSERR_DEVICE_SYMBOLNOTFOUND	Symbol not found.
0x711	1809	0x9811 0711	ADSERR_DEVICE_SYMBOLVERSIONINVALID	Invalid symbol version. This can occur due to an online change. Create a new handle.
0x712	1810	0x9811 0712	ADSERR_DEVICE_INVALIDSTATE	Device (server) is in invalid state.
0x713	1811	0x9811 0713	ADSERR_DEVICE_TRANSMODENOTSUPP	AdsTransMode not supported.
0x714	1812	0x9811 0714	ADSERR_DEVICE_NOTIFYHNDINVALID	Notification handle is invalid.
0x715	1813	0x9811 0715	ADSERR_DEVICE_CLIENTUNKNOWN	Notification client not registered.
0x716	1814	0x9811 0716	ADSERR_DEVICE_NOMOREHDL	No further notification handle available.
0x717	1815	0x9811 0717	ADSERR_DEVICE_INVALIDWATCHSIZE	Notification size too large.
0x718	1816	0x9811 0718	ADSERR_DEVICE_NOTINIT	Device not initialized.
0x719	1817	0x9811 0719	ADSERR_DEVICE_TIMEOUT	Device has a timeout.
0x71A	1818	0x9811 071A	ADSERR_DEVICE_NOINTERFACE	Interface query failed.
0x71B	1819	0x9811 071B	ADSERR_DEVICE_INVALIDINTERFACE	Wrong interface requested.
0x71C	1820	0x9811 071C	ADSERR_DEVICE_INVALIDCLSID	Class ID is invalid.
0x71D	1821	0x9811 071D	ADSERR_DEVICE_INVALIDOBJID	Object ID is invalid.
0x71E	1822	0x9811 071E	ADSERR_DEVICE_PENDING	Request pending.
0x71F	1823	0x9811 071F	ADSERR_DEVICE_ABORTED	Request is aborted.
0x720	1824	0x9811 0720	ADSERR_DEVICE_WARNING	Signal warning.
0x721	1825	0x9811 0721	ADSERR_DEVICE_INVALIDARRAYIDX	Invalid array index.
0x722	1826	0x9811 0722	ADSERR_DEVICE_SYMBOLNOTACTIVE	Symbol not active.
0x723	1827	0x9811 0723	ADSERR_DEVICE_ACCESSDENIED	Access denied.
0x724	1828	0x9811 0724	ADSERR_DEVICE_LICENSENOTFOUND	Missing license.
0x725	1829	0x9811 0725	ADSERR_DEVICE_LICENSEEXPIRED	License expired.
0x726	1830	0x9811 0726	ADSERR_DEVICE_LICENSEEXCEEDED	License exceeded.
0x727	1831	0x9811 0727	ADSERR_DEVICE_LICENSEINVALID	Invalid license.
0x728	1832	0x9811 0728	ADSERR_DEVICE_LICENSESYSTEMID	License problem: System ID is invalid.
0x729	1833	0x9811 0729	ADSERR_DEVICE_LICENSENOTIMELIMIT	License not limited in time.
0x72A	1834	0x9811 072A	ADSERR_DEVICE_LICENSEFUTUREISSUE	License problem: Time in the future.
0x72B	1835	0x9811 072B	ADSERR_DEVICE_LICENSETIMETOLONG	License period too long.
0x72C	1836	0x9811 072C	ADSERR_DEVICE_EXCEPTION	Exception at system startup.
0x72D	1837	0x9811 072D	ADSERR_DEVICE_LICENSEDUPLICATED	License file read twice.
0x72E	1838	0x9811 072E	ADSERR_DEVICE_SIGNATUREINVALID	Invalid signature.
0x72F	1839	0x9811 072F	ADSERR_DEVICE_CERTIFICATEINVALID	Invalid certificate.
0x730	1840	0x9811 0730	ADSERR_DEVICE_LICENSEOEMNOTFOUND	Public key not known from OEM.
0x731	1841	0x9811 0731	ADSERR_DEVICE_LICENSERESTRICTED	License not valid for this system ID.
0x732	1842	0x9811 0732	ADSERR_DEVICE_LICENSEDEMODENIED	Demo license prohibited.
0x733	1843	0x9811 0733	ADSERR_DEVICE_INVALIDFNCID	Invalid function ID.
0x734	1844	0x9811 0734	ADSERR_DEVICE_OUTOFRANGE	Outside the valid range.
0x735	1845	0x9811 0735	ADSERR_DEVICE_INVALIDALIGNMENT	Invalid alignment.

Hex	Dec	HRESULT	Name	Description
0x736	1846	0x9811 0736	ADSERR_DEVICE_LICENSEPLATFORM	Invalid platform level.
0x737	1847	0x9811 0737	ADSERR_DEVICE_FORWARD_PL	Context – forward to passive level.
0x738	1848	0x9811 0738	ADSERR_DEVICE_FORWARD_DL	Context – forward to dispatch level.
0x739	1849	0x9811 0739	ADSERR_DEVICE_FORWARD_RT	Context – forward to real-time.
0x740	1856	0x9811 0740	ADSERR_CLIENT_ERROR	Client error.
0x741	1857	0x9811 0741	ADSERR_CLIENT_INVALIDPARG	Service contains an invalid parameter.
0x742	1858	0x9811 0742	ADSERR_CLIENT_LISTEMPTY	Polling list is empty.
0x743	1859	0x9811 0743	ADSERR_CLIENT_VARUSED	Var connection already in use.
0x744	1860	0x9811 0744	ADSERR_CLIENT_DUPLINVOKEID	The called ID is already in use.
0x745	1861	0x9811 0745	ADSERR_CLIENT_SYNCTIMEOUT	Timeout has occurred – the remote terminal is not responding in the specified ADS timeout. The route setting of the remote terminal may be configured incorrectly.
0x746	1862	0x9811 0746	ADSERR_CLIENT_W32ERROR	Error in Win32 subsystem.
0x747	1863	0x9811 0747	ADSERR_CLIENT_TIMEOUTINVALID	Invalid client timeout value.
0x748	1864	0x9811 0748	ADSERR_CLIENT_PORTNOTOPEN	Port not open.
0x749	1865	0x9811 0749	ADSERR_CLIENT_NOAMSADDR	No AMS address.
0x750	1872	0x9811 0750	ADSERR_CLIENT_SYNCINTERNAL	Internal error in Ads sync.
0x751	1873	0x9811 0751	ADSERR_CLIENT_ADDHASH	Hash table overflow.
0x752	1874	0x9811 0752	ADSERR_CLIENT_REMOVEHASH	Key not found in the table.
0x753	1875	0x9811 0753	ADSERR_CLIENT_NOMORESVM	No symbols in the cache.
0x754	1876	0x9811 0754	ADSERR_CLIENT_SYNCRESINVALID	Invalid response received.
0x755	1877	0x9811 0755	ADSERR_CLIENT_SYNCPORTLOCKED	Sync Port is locked.

RTime error codes

Hex	Dec	HRESULT	Name	Description
0x1000	4096	0x9811 1000	RTERR_INTERNAL	Internal error in the real-time system.
0x1001	4097	0x9811 1001	RTERR_BADTIMERPERIODS	Timer value is not valid.
0x1002	4098	0x9811 1002	RTERR_INVALIDTASKPTR	Task pointer has the invalid value 0 (zero).
0x1003	4099	0x9811 1003	RTERR_INVALIDSTACKPTR	Stack pointer has the invalid value 0 (zero).
0x1004	4100	0x9811 1004	RTERR_PRIOEXISTS	The request task priority is already assigned.
0x1005	4101	0x9811 1005	RTERR_NOMORETCB	No free TCB (Task Control Block) available. The maximum number of TCBs is 64.
0x1006	4102	0x9811 1006	RTERR_NOMORESEMAS	No free semaphores available. The maximum number of semaphores is 64.
0x1007	4103	0x9811 1007	RTERR_NOMOREQUEUES	No free space available in the queue. The maximum number of positions in the queue is 64.
0x100D	4109	0x9811 100D	RTERR_EXTIRQALREADYDEF	An external synchronization interrupt is already applied.
0x100E	4110	0x9811 100E	RTERR_EXTIRQNOTDEF	No external sync interrupt applied.
0x100F	4111	0x9811 100F	RTERR_EXTIRQINSTALLFAILED	Application of the external synchronization interrupt has failed.
0x1010	4112	0x9811 1010	RTERR_IRQNOTLESSOREQUAL	Call of a service function in the wrong context
0x1017	4119	0x9811 1017	RTERR_VMXNOTSUPPORTED	Intel VT-x extension is not supported.
0x1018	4120	0x9811 1018	RTERR_VMXDISABLED	Intel VT-x extension is not enabled in the BIOS.
0x1019	4121	0x9811 1019	RTERR_VMXCONTROLSSMISSING	Missing function in Intel VT-x extension.
0x101A	4122	0x9811 101A	RTERR_VMXENABLEFAILS	Activation of Intel VT-x fails.

TCP Winsock error codes

Hex	Dec	Name	Description
0x274C	10060	WSAETIMEDOUT	A connection timeout has occurred - error while establishing the connection, because the remote terminal did not respond properly after a certain period of time, or the established connection could not be maintained because the connected host did not respond.
0x274D	10061	WSAECONNREFUSED	Connection refused - no connection could be established because the target computer has explicitly rejected it. This error usually results from an attempt to connect to a service that is inactive on the external host, that is, a service for which no server application is running.
0x2751	10065	WSAEHOSTUNREACH	No route to host - a socket operation referred to an unavailable host.

More Winsock error codes: [Win32 error codes \[▶ 84\]](#)

8.5 Win32 Error Codes

The following table provides a list of Win32 error codes.

[0](#) [[▶ 85](#)], [100](#) [[▶ 87](#)], [200](#) [[▶ 89](#)], [1001](#) [[▶ 91](#)], [1100](#) [[▶ 93](#)], [1200](#) [[▶ 95](#)], [1400](#) [[▶ 100](#)], [1600](#) [[▶ 102](#)], [1800](#) [[▶ 106](#)], [2000](#) [[▶ 108](#)], [3000](#) [[▶ 109](#)], [5000](#) [[▶ 112](#)], [6000](#) [[▶ 115](#)], [8000](#) [[▶ 117](#)], [8500](#) [[▶ 126](#)], [9001](#) [[▶ 130](#)], [10004](#) [[▶ 132](#)], [12000](#) [[▶ 135](#)],

		Error		Description
decimal	Hexadecimal	Name		
0	0x00000000	ERROR_SUCCESS		The operation completed successfully.
1	0x00000001	ERROR_INVALID_FUNCTION		Incorrect function.
2	0x00000002	ERROR_FILE_NOT_FOUND		The system cannot find the file specified.
3	0x00000003	ERROR_PATH_NOT_FOUND		The system cannot find the path specified.
4	0x00000004	ERROR_TOO_MANY_OPEN_FILES		The system cannot open the file.
5	0x00000005	ERROR_ACCESS_DENIED		Access is denied.
6	0x00000006	ERROR_INVALID_HANDLE		The handle is invalid.
7	0x00000007	ERROR_ARENA_TRASHED		The storage control blocks were destroyed.
8	0x00000008	ERROR_NOT_ENOUGH_MEMORY		Not enough storage is available to process this command.
9	0x00000009	ERROR_INVALID_BLOCK		The storage control block address is invalid.
10	0x0000000A	ERROR_BAD_ENVIRONMENT		The environment is incorrect.
11	0x0000000B	ERROR_BAD_FORMAT		An attempt was made to load a program with an incorrect format.
12	0x0000000C	ERROR_INVALID_ACCESS		The access code is invalid.
13	0x0000000D	ERROR_INVALID_DATA		The data is invalid.
14	0x0000000E	ERROR_OUTOFMEMORY		Not enough storage is available to complete this operation.
15	0x0000000F	ERROR_INVALID_DRIVE		The system cannot find the drive specified.
16	0x00000010	ERROR_CURRENT_DIRECTORY		The directory cannot be removed.
17	0x00000011	ERROR_NOT_SAME_DEVICE		The system cannot move the file to a different disk drive.
18	0x00000012	ERROR_NO_MORE_FILES		There are no more files.
19	0x00000013	ERROR_WRITE_PROTECT		The media is write protected.
20	0x00000014	ERROR_BAD_UNIT		The system cannot find the device specified.
21	0x00000015	ERROR_NOT_READY		The device is not ready.
22	0x00000016	ERROR_BAD_COMMAND		The device does not recognize the command.
23	0x00000017	ERROR_CRC		Data error (cyclic redundancy check).
24	0x00000018	ERROR_BAD_LENGTH		The program issued a command but the command length is incorrect.
25	0x00000019	ERROR_SEEK		The drive cannot locate a specific area or track on the disk.
26	0x0000001A	ERROR_NOT_DOS_DISK		The specified disk or diskette cannot be accessed.
27	0x0000001B	ERROR_SECTOR_NOT_FOUND		The drive cannot find the sector requested.
28	0x0000001C	ERROR_OUT_OF_PAPER		The printer is out of paper.
29	0x0000001D	ERROR_WRITE_FAULT		The system cannot write to the specified device.
30	0x0000001E	ERROR_READ_FAULT		The system cannot read from the specified device.
31	0x0000001F	ERROR_GEN_FAILURE		A device attached to the system is not functioning.
32	0x00000020	ERROR_SHARING_VIOLATION		The process cannot access the file because it is being used by another process.
33	0x00000021	ERROR_LOCK_VIOLATION		The process cannot access the file because another process has locked a portion of the file.
34	0x00000022	ERROR_WRONG_DISK		The wrong diskette is in the drive. Insert %2 (Volume Serial Number: %3) into drive %1.
36	0x00000024	ERROR_SHARING_BUFFER_EXCEEDED		Too many files opened for sharing.
38	0x00000026	ERROR_HANDLE_EOF		Reached the end of the file.
39	0x00000027	ERROR_HANDLE_DISK_FULL		The disk is full.
50	0x00000032	ERROR_NOT_SUPPORTED		The request is not supported.
51	0x00000033	ERROR_REM_NOT_LIST		The remote computer is not available.
52	0x00000034	ERROR_DUP_NAME		A duplicate name exists on the network.
53	0x00000035	ERROR_BAD_NETPATH		The network path was not found.
54	0x00000036	ERROR_NETWORK_BUSY		The network is busy.
55	0x00000037	ERROR_DEV_NOT_EXIST		The specified network resource or device is no longer available.
56	0x00000038	ERROR_TOO_MANY_CMDS		The network BIOS command limit has been reached.
57	0x00000039	ERROR_ADAP_HDW_ERR		A network adapter hardware error occurred.

Error			Description
decimal	Hexadecimal	Name	
58	0x0000003A	ERROR_BAD_NET_RESP	The specified server cannot perform the requested operation.
59	0x0000003B	ERROR_UNEXP_NET_ERR	An unexpected network error occurred.
60	0x0000003C	ERROR_BAD_REM_ADAP	The remote adapter is not compatible.
61	0x0000003D	ERROR_PRINTQ_FULL	The printer queue is full.
62	0x0000003E	ERROR_NO_SPOOL_SPACE	Space to store the file waiting to be printed is not available on the server.
63	0x0000003F	ERROR_PRINT_CANCELLED	Your file waiting to be printed was deleted.
64	0x00000040	ERROR_NETNAME_DELETED	The specified network name is no longer available.
65	0x00000041	ERROR_NETWORK_ACCESS_DENIED	Network access is denied.
66	0x00000042	ERROR_BAD_DEV_TYPE	The network resource type is not correct.
67	0x00000043	ERROR_BAD_NET_NAME	The network name cannot be found.
68	0x00000044	ERROR_TOO_MANY_NAMES	The name limit for the local computer network adapter card was exceeded.
69	0x00000045	ERROR_TOO_MANY_SESS	The network BIOS session limit was exceeded.
70	0x00000046	ERROR_SHARING_PAUSED	The remote server has been paused or is in the process of being started.
71	0x00000047	ERROR_REQ_NOT_ACCEP	No more connections can be made to this remote computer at this time because there are already as many connections as the computer can accept.
72	0x00000048	ERROR_REDIR_PAUSED	The specified printer or disk device has been paused.
80	0x00000050	ERROR_FILE_EXISTS	The file exists.
82	0x00000052	ERROR_CANNOT_MAKE	The directory or file cannot be created.
83	0x00000053	ERROR_FAIL_I24	Fail on INT 24.
84	0x00000054	ERROR_OUT_OF_STRUCTURES	Storage to process this request is not available.
85	0x00000055	ERROR_ALREADY_ASSIGNED	The local device name is already in use.
86	0x00000056	ERROR_INVALID_PASSWORD	The specified network password is not correct.
87	0x00000057	ERROR_INVALID_PARAMETER	The parameter is incorrect.
88	0x00000058	ERROR_NET_WRITE_FAULT	A write fault occurred on the network.
89	0x00000059	ERROR_NO_PROC_SLOTS	The system cannot start another process at this time.

		Error	Description
decimal	Hexadecimal	Name	
100	0x00000064	ERROR_TOO_MANY_SEMAPHORES	Cannot create another system semaphore.
101	0x00000065	ERROR_EXCL_SEM_ALREADY_OWNED	The exclusive semaphore is owned by another process.
102	0x00000066	ERROR_SEM_IS_SET	The semaphore is set and cannot be closed.
103	0x00000067	ERROR_TOO_MANY_SEM_REQUESTS	The semaphore cannot be set again.
104	0x00000068	ERROR_INVALID_AT_INTERRUPT_TIME	Cannot request exclusive semaphores at interrupt time.
105	0x00000069	ERROR_SEM_OWNER_DIED	The previous ownership of this semaphore has ended.
106	0x0000006A	ERROR_SEM_USER_LIMIT	Insert the diskette for drive %1.
107	0x0000006B	ERROR_DISK_CHANGE	The program stopped because an alternate diskette was not inserted.
108	0x0000006C	ERROR_DRIVE_LOCKED	The disk is in use or locked by another process.
109	0x0000006D	ERROR_BROKEN_PIPE	The pipe has been ended.
110	0x0000006E	ERROR_OPEN_FAILED	The system cannot open the device or file specified.
111	0x0000006F	ERROR_BUFFER_OVERFLOW	The file name is too long.
112	0x00000070	ERROR_DISK_FULL	There is not enough space on the disk.
113	0x00000071	ERROR_NO_MORE_SEARCH_HANDLES	No more internal file identifiers available.
114	0x00000072	ERROR_INVALID_TARGET_HANDLE	The target internal file identifier is incorrect.
117	0x00000075	ERROR_INVALID_CATEGORY	The IOCTL call made by the application program is not correct.
118	0x00000076	ERROR_INVALID_VERIFY_SWITCH	The verify-on-write switch parameter value is not correct.
119	0x00000077	ERROR_BAD_DRIVER_LEVEL	The system does not support the command requested.
120	0x00000078	ERROR_CALL_NOT_IMPLEMENTED	This function is not supported on this system.
121	0x00000079	ERROR_SEM_TIMEOUT	The semaphore timeout period has expired.
122	0x0000007A	ERROR_INSUFFICIENT_BUFFER	The data area passed to a system call is too small.
123	0x0000007B	ERROR_INVALID_NAME	The filename, directory name, or volume label syntax is incorrect.
124	0x0000007C	ERROR_INVALID_LEVEL	The system call level is not correct.
125	0x0000007D	ERROR_NO_VOLUME_LABEL	The disk has no volume label.
126	0x0000007E	ERROR_MOD_NOT_FOUND	The specified module could not be found.
127	0x0000007F	ERROR_PROC_NOT_FOUND	The specified procedure could not be found.
128	0x00000080	ERROR_WAIT_NO_CHILDREN	There are no child processes to wait for.
129	0x00000081	ERROR_CHILD_NOT_COMPLETE	The %1 application cannot be run in Win32 mode.
130	0x00000082	ERROR_DIRECT_ACCESS_HANDLE	Attempt to use a file handle to an open disk partition for an operation other than raw disk I/O.
131	0x00000083	ERROR_NEGATIVE_SEEK	An attempt was made to move the file pointer before the beginning of the file.
132	0x00000084	ERROR_SEEK_ON_DEVICE	The file pointer cannot be set on the specified device or file.
133	0x00000085	ERROR_IS_JOIN_TARGET	A JOIN or SUBST command cannot be used for a drive that contains previously joined drives.
134	0x00000086	ERROR_IS_JOINED	An attempt was made to use a JOIN or SUBST command on a drive that has already been joined.
135	0x00000087	ERROR_IS_SUBSTED	An attempt was made to use a JOIN or SUBST command on a drive that has already been substituted.
136	0x00000088	ERROR_NOT_JOINED	The system tried to delete the JOIN of a drive that is not joined.
137	0x00000089	ERROR_NOT_SUBSTED	The system tried to delete the substitution of a drive that is not substituted.
138	0x0000008A	ERROR_JOIN_TO_JOIN	The system tried to join a drive to a directory on a joined drive.
139	0x0000008B	ERROR_SUBST_TO_SUBST	The system tried to substitute a drive to a directory on a substituted drive.
140	0x0000008C	ERROR_JOIN_TO_SUBST	The system tried to join a drive to a directory on a substituted drive.
141	0x0000008D	ERROR_SUBST_TO_JOIN	The system tried to SUBST a drive to a directory on a joined drive.

Error			Description
decimal	Hexadecimal	Name	
142	0x0000008E	ERROR_BUSY_DRIVE	The system cannot perform a JOIN or SUBST at this time.
143	0x0000008F	ERROR_SAME_DRIVE	The system cannot join or substitute a drive to or for a directory on the same drive.
144	0x00000090	ERROR_DIR_NOT_ROOT	The directory is not a subdirectory of the root directory.
145	0x00000091	ERROR_DIR_NOT_EMPTY	The directory is not empty.
146	0x00000092	ERROR_IS_SUBST_PATH	The path specified is being used in a substitute.
147	0x00000093	ERROR_IS_JOIN_PATH	Not enough resources are available to process this command.
148	0x00000094	ERROR_PATH_BUSY	The path specified cannot be used at this time.
149	0x00000095	ERROR_IS_SUBST_TARGET	An attempt was made to join or substitute a drive for which a directory on the drive is the target of a previous substitute.
150	0x00000096	ERROR_SYSTEM_TRACE	System trace information was not specified in your CONFIG.SYS file, or tracing is disallowed.
151	0x00000097	ERROR_INVALID_EVENT_COUNT	The number of specified semaphore events for DosMuxSemWait is not correct.
152	0x00000098	ERROR_TOO_MANY_MUXWAITERS	DosMuxSemWait did not execute; too many semaphores are already set.
153	0x00000099	ERROR_INVALID_LIST_FORMAT	The DosMuxSemWait list is not correct.
154	0x0000009A	ERROR_LABEL_TOO_LONG	The volume label you entered exceeds the label character limit of the target file system.
155	0x0000009B	ERROR_TOO_MANY_TCBS	Cannot create another thread.
156	0x0000009C	ERROR_SIGNAL_REFUSED	The recipient process has refused the signal.
157	0x0000009D	ERROR_DISCARDED	The segment is already discarded and cannot be locked.
158	0x0000009E	ERROR_NOT_LOCKED	The segment is already unlocked.
159	0x0000009F	ERROR_BAD_THREADID_ADDR	The address for the thread ID is not correct.
160	0x000000A0	ERROR_BAD_ARGUMENTS	The argument string passed to DosExecPgm is not correct.
161	0x000000A1	ERROR_BAD_PATHNAME	The specified path is invalid.
162	0x000000A2	ERROR_SIGNAL_PENDING	A signal is already pending.
164	0x000000A4	ERROR_MAX_THRDS_REACHED	No more threads can be created in the system.
167	0x000000A7	ERROR_LOCK_FAILED	Unable to lock a region of a file.
170	0x000000AA	ERROR_BUSY	The requested resource is in use.
173	0x000000AD	ERROR_CANCEL_VIOLATION	A lock request was not outstanding for the supplied cancel region.
174	0x000000AE	ERROR_ATOMIC_LOCKS_NOT_SUPPORTED	The file system does not support atomic changes to the lock type.
180	0x000000B4	ERROR_INVALID_SEGMENT_NUMBER	The system detected a segment number that was not correct.
182	0x000000B6	ERROR_INVALID_ORDINAL	The operating system cannot run %1.
183	0x000000B7	ERROR_ALREADY_EXISTS	Cannot create a file when that file already exists.
186	0x000000BA	ERROR_INVALID_FLAG_NUMBER	The flag passed is not correct.
187	0x000000BB	ERROR_SEM_NOT_FOUND	The specified system semaphore name was not found.
188	0x000000BC	ERROR_INVALID_STARTING_CODESEG	The operating system cannot run %1.
189	0x000000BD	ERROR_INVALID_STACKSEG	The operating system cannot run %1.
190	0x000000BE	ERROR_INVALID_MODULETYPE	The operating system cannot run %1.
191	0x000000BF	ERROR_INVALID_EXE_SIGNATURE	Cannot run %1 in Win32 mode.
192	0x000000C0	ERROR_EXE_MARKED_INVALID	The operating system cannot run %1.
193	0x000000C1	ERROR_BAD_EXE_FORMAT	%1 is not a valid Win32 application.
194	0x000000C2	ERROR_ITERATED_DATA_EXCEEDS_64k	The operating system cannot run %1.
195	0x000000C3	ERROR_INVALID_MINALLOCSIZE	The operating system cannot run %1.
196	0x000000C4	ERROR_DYNLINK_FROM_INVALID_RING	The operating system cannot run this application program.
197	0x000000C5	ERROR_IOPL_NOT_ENABLED	The operating system is not presently configured to run this application.
198	0x000000C6	ERROR_INVALID_SEGDPL	The operating system cannot run %1.
199	0x000000C7	ERROR_AUTODATASEG_EXCEEDS_64k	The operating system cannot run this application program.

		Error	Description
decimal	Hexadecimal	Name	
200	0x000000C8	ERROR_RING2SEG_MUST_BE_MOVABLE	The code segment cannot be greater than or equal to 64K.
201	0x000000C9	ERROR_RELOC_CHAIN_XEEDS_SEGLIM	The operating system cannot run %1.
202	0x000000CA	ERROR_INFLOOP_IN_RELOC_CHAIN	The operating system cannot run %1.
203	0x000000CB	ERROR_ENVVAR_NOT_FOUND	The system could not find the environment option that was entered.
205	0x000000CD	ERROR_NO_SIGNAL_SENT	No process in the command subtree has a signal handler.
206	0x000000CE	ERROR_FILENAME_EXCED_RANGE	The filename or extension is too long.
207	0x000000CF	ERROR_RING2_STACK_IN_USE	The ring 2 stack is in use.
208	0x000000D0	ERROR_META_EXPANSION_TOO_LONG	The global filename characters, * or ?, are entered incorrectly or too many global filename characters are specified.
209	0x000000D1	ERROR_INVALID_SIGNAL_NUMBER	The signal being posted is not correct.
210	0x000000D2	ERROR_THREAD_1_INACTIVE	The signal handler cannot be set.
212	0x000000D4	ERROR_LOCKED	The segment is locked and cannot be reallocated.
214	0x000000D6	ERROR_TOO_MANY_MODULES	Too many dynamic-link modules are attached to this program or dynamic-link module.
215	0x000000D7	ERROR_NESTING_NOT_ALLOWED	Cannot nest calls to LoadModule.
216	0x000000D8	ERROR_EXE_MACHINE_TYPE_MISMATCH	The image file %1 is valid, but is for a machine type other than the current machine.
230	0x000000E6	ERROR_BAD_PIPE	The pipe state is invalid.
231	0x000000E7	ERROR_PIPE_BUSY	All pipe instances are busy.
232	0x000000E8	ERROR_NO_DATA	The pipe is being closed.
233	0x000000E9	ERROR_PIPE_NOT_CONNECTED	No process is on the other end of the pipe.
234	0x000000EA	ERROR_MORE_DATA	More data is available.
240	0x000000F0	ERROR_VC_DISCONNECTED	The session was canceled.
254	0x000000FE	ERROR_INVALID_EA_NAME	The specified extended attribute name was invalid.
255	0x000000FF	ERROR_EA_LIST_INCONSISTENT	The extended attributes are inconsistent.
258	0x00000102	WAIT_TIMEOUT	The wait operation timed out.
259	0x00000103	ERROR_NO_MORE_ITEMS	No more data is available.
266	0x0000010A	ERROR_CANNOT_COPY	The copy functions cannot be used.
267	0x0000010B	ERROR_DIRECTORY	The directory name is invalid.
275	0x00000113	ERROR_EAS_DIDNT_FIT	The extended attributes did not fit in the buffer.
276	0x00000114	ERROR_EA_FILE_CORRUPT	The extended attribute file on the mounted file system is corrupt.
277	0x00000115	ERROR_EA_TABLE_FULL	The extended attribute table file is full.
278	0x00000116	ERROR_INVALID_EA_HANDLE	The specified extended attribute handle is invalid.
282	0x0000011A	ERROR_EAS_NOT_SUPPORTED	The mounted file system does not support extended attributes.
288	0x00000120	ERROR_NOT_OWNER	Attempt to release mutex not owned by caller.
298	0x0000012A	ERROR_TOO_MANY_POSTS	Too many posts were made to a semaphore.
299	0x0000012B	ERROR_PARTIAL_COPY	Only part of a ReadProcessMemory or WriteProcessMemory request was completed.
300	0x0000012C	ERROR_OPLOCK_NOT_GRANTED	The oplock request is denied.
301	0x0000012D	ERROR_INVALID_OPLOCK_PROTOCOL	An invalid oplock acknowledgment was received by the system.
302	0x0000012E	ERROR_DISK_TOO_FRAGMENTED	The volume is too fragmented to complete this operation.
303	0x0000012F	ERROR_DELETE_PENDING	The file cannot be opened because it is in the process of being deleted.
317	0x0000013D	ERROR_MR_MID_NOT_FOUND	The system cannot find message text for message number 0x%1 in the message file for %2.
487	0x000001E7	ERROR_INVALID_ADDRESS	Attempt to access invalid address.
534	0x00000216	ERROR_ARITHMETIC_OVERFLOW	Arithmetic result exceeded 32 bits.
535	0x00000217	ERROR_PIPE_CONNECTED	There is a process on other end of the pipe.
536	0x00000218	ERROR_PIPE_LISTENING	Waiting for a process to open the other end of the pipe.
994	0x000003E2	ERROR_EA_ACCESS_DENIED	Access to the extended attribute was denied.

Error			Description
decimal	Hexadecimal	Name	
995	0x000003E3	ERROR_OPERATION_ABORTED	The I/O operation has been aborted because of either a thread exit or an application request.
996	0x000003E4	ERROR_IO_INCOMPLETE	Overlapped I/O event is not in a signaled state.
997	0x000003E5	ERROR_IO_PENDING	Overlapped I/O operation is in progress.
998	0x000003E6	ERROR_NOACCESS	Invalid access to memory location.
999	0x000003E7	ERROR_SWAPERROR	Error performing inpage operation.

Error			Description
decimal	Hexadecimal	Name	
1001	0x000003E9	ERROR_STACK_OVERFLOW	Recursion too deep; the stack overflowed.
1002	0x000003EA	ERROR_INVALID_MESSAGE	The window cannot act on the sent message.
1003	0x000003EB	ERROR_CAN_NOT_COMPLETE	Cannot complete this function.
1004	0x000003EC	ERROR_INVALID_FLAGS	Invalid flags.
1005	0x000003ED	ERROR_UNRECOGNIZED_VOLUME	The volume does not contain a recognized file system. Please make sure that all required file system drivers are loaded and that the volume is not corrupted.
1006	0x000003EE	ERROR_FILE_INVALID	The volume for a file has been externally altered so that the opened file is no longer valid.
1007	0x000003EF	ERROR_FULLSCREEN_MODE	The requested operation cannot be performed in full-screen mode.
1008	0x000003F0	ERROR_NO_TOKEN	An attempt was made to reference a token that does not exist.
1009	0x000003F1	ERROR_BADDB	The configuration registry database is corrupt.
1010	0x000003F2	ERROR_BADKEY	The configuration registry key is invalid.
1011	0x000003F3	ERROR_CANTOPEN	The configuration registry key could not be opened.
1012	0x000003F4	ERROR_CANTREAD	The configuration registry key could not be read.
1013	0x000003F5	ERROR_CANTWRITE	The configuration registry key could not be written.
1014	0x000003F6	ERROR_REGISTRY_RECOVERED	One of the files in the registry database had to be recovered by use of a log or alternate copy. The recovery was successful.
1015	0x000003F7	ERROR_REGISTRY_CORRUPT	The registry is corrupted. The structure of one of the files containing registry data is corrupted, or the system's memory image of the file is corrupted, or the file could not be recovered because the alternate copy or log was absent or corrupted.
1016	0x000003F8	ERROR_REGISTRY_IO_FAILED	An I/O operation initiated by the registry failed unrecoverably. The registry could not read in, or write out, or flush, one of the files that contain the system's image of the registry.
1017	0x000003F9	ERROR_NOT_REGISTRY_FILE	The system has attempted to load or restore a file into the registry, but the specified file is not in a registry file format.
1018	0x000003FA	ERROR_KEY_DELETED	Illegal operation attempted on a registry key that has been marked for deletion.
1019	0x000003FB	ERROR_NO_LOG_SPACE	System could not allocate the required space in a registry log.
1020	0x000003FC	ERROR_KEY_HAS_CHILDREN	Cannot create a symbolic link in a registry key that already has subkeys or values.
1021	0x000003FD	ERROR_CHILD_MUST_BE_VOLATILE	Cannot create a stable subkey under a volatile parent key.
1022	0x000003FE	ERROR_NOTIFY_ENUM_DIR	A notify change request is being completed and the information is not being returned in the caller's buffer. The caller now needs to enumerate the files to find the changes.
1051	0x0000041B	ERROR_DEPENDENT_SERVICES_RUNNING	A stop control has been sent to a service that other running services are dependent on.
1052	0x0000041C	ERROR_INVALID_SERVICE_CONTROL	The requested control is not valid for this service.
1053	0x0000041D	ERROR_SERVICE_REQUEST_TIMEOUT	The service did not respond to the start or control request in a timely fashion.
1054	0x0000041E	ERROR_SERVICE_NO_THREAD	A thread could not be created for the service.
1055	0x0000041F	ERROR_SERVICE_DATABASE_LOCKED	The service database is locked.
1056	0x00000420	ERROR_SERVICE_ALREADY_RUNNING	An instance of the service is already running.
1057	0x00000421	ERROR_INVALID_SERVICE_ACCOUNT	The account name is invalid or does not exist, or the password is invalid for the account name specified.
1058	0x00000422	ERROR_SERVICE_DISABLED	The service cannot be started, either because it is disabled or because it has no enabled devices associated with it.
1059	0x00000423	ERROR_CIRCULAR_DEPENDENCY	Circular service dependency was specified.
1060	0x00000424	ERROR_SERVICE_DOES_NOT_EXIST	The specified service does not exist as an installed service.

Error			Description
decimal	Hexadecimal	Name	
1061	0x00000425	ERROR_SERVICE_CANNOT_ACCEPT_CTRL	The service cannot accept control messages at this time.
1062	0x00000426	ERROR_SERVICE_NOT_ACTIVE	The service has not been started.
1063	0x00000427	ERROR_FAILED_SERVICE_CONTROLLER_CONNECT	The service process could not connect to the service controller.
1064	0x00000428	ERROR_EXCEPTION_IN_SERVICE	An exception occurred in the service when handling the control request.
1065	0x00000429	ERROR_DATABASE_DOES_NOT_EXIST	The database specified does not exist.
1066	0x0000042A	ERROR_SERVICE_SPECIFIC_ERROR	The service has returned a service-specific error code.
1067	0x0000042B	ERROR_PROCESS_ABORTED	The process terminated unexpectedly.
1068	0x0000042C	ERROR_SERVICE_DEPENDENCY_FAIL	The dependency service or group failed to start.
1069	0x0000042D	ERROR_SERVICE_LOGON_FAILED	The service did not start due to a logon failure.
1070	0x0000042E	ERROR_SERVICE_START_HANG	After starting, the service hung in a start-pending state.
1071	0x0000042F	ERROR_INVALID_SERVICE_LOCK	The specified service database lock is invalid.
1072	0x00000430	ERROR_SERVICE_MARKED_FOR_DELETE	The specified service has been marked for deletion.
1073	0x00000431	ERROR_SERVICE_EXISTS	The specified service already exists.
1074	0x00000432	ERROR_ALREADY_RUNNING_LKG	The system is currently running with the last-known-good configuration.
1075	0x00000433	ERROR_SERVICE_DEPENDENCY_DELETED	The dependency service does not exist or has been marked for deletion.
1076	0x00000434	ERROR_BOOT_ALREADY_ACCEPTED	The current boot has already been accepted for use as the last-known-good control set.
1077	0x00000435	ERROR_SERVICE_NEVER_STARTED	No attempts to start the service have been made since the last boot.
1078	0x00000436	ERROR_DUPLICATE_SERVICE_NAME	The name is already in use as either a service name or a service display name.
1079	0x00000437	ERROR_DIFFERENT_SERVICE_ACCOUNT	The account specified for this service is different from the account specified for other services running in the same process.
1080	0x00000438	ERROR_CANNOT_DETECT_DRIVER_FAILURE	Failure actions can only be set for Win32 services, not for drivers.
1081	0x00000439	ERROR_CANNOT_DETECT_PROCESS_ABORT	This service runs in the same process as the service control manager. Therefore, the service control manager cannot take action if this service's process terminates unexpectedly.
1082	0x0000043A	ERROR_NO_RECOVERY_PROGRAM	No recovery program has been configured for this service.
1083	0x0000043B	ERROR_SERVICE_NOT_IN_EXE	The executable program that this service is configured to run in does not implement the service.
1084	0x0000043C	ERROR_NOT_SAFEBOOT_SERVICE	This service cannot be started in Safe Mode.

Error			Description
decimal	Hexadecimal	Name	
1100	0x0000044C	ERROR_END_OF_MEDIA	The physical end of the tape has been reached.
1101	0x0000044D	ERROR_FILEMARK_DETECTED	A tape access reached a filemark.
1102	0x0000044E	ERROR_BEGINNING_OF_MEDIA	The beginning of the tape or a partition was encountered.
1103	0x0000044F	ERROR_SETMARK_DETECTED	A tape access reached the end of a set of files.
1104	0x00000450	ERROR_NO_DATA_DETECTED	No more data is on the tape.
1105	0x00000451	ERROR_PARTITION_FAILURE	Tape could not be partitioned.
1106	0x00000452	ERROR_INVALID_BLOCK_LENGTH	When accessing a new tape of a multivolume partition, the current block size is incorrect.
1107	0x00000453	ERROR_DEVICE_NOT_PARTITIONED	Tape partition information could not be found when loading a tape.
1108	0x00000454	ERROR_UNABLE_TO_LOCK_MEDIA	Unable to lock the media eject mechanism.
1109	0x00000455	ERROR_UNABLE_TO_UNLOAD_MEDIA	Unable to unload the media.
1110	0x00000456	ERROR_MEDIA_CHANGED	The media in the drive may have changed.
1111	0x00000457	ERROR_BUS_RESET	The I/O bus was reset.
1112	0x00000458	ERROR_NO_MEDIA_IN_DRIVE	No media in drive.
1113	0x00000459	ERROR_NO_UNICODE_TRANSLATION	No mapping for the Unicode character exists in the target multi-byte code page.
1114	0x0000045A	ERROR_DLL_INIT_FAILED	A dynamic link library (DLL) initialization routine failed.
1115	0x0000045B	ERROR_SHUTDOWN_IN_PROGRESS	A system shutdown is in progress.
1116	0x0000045C	ERROR_NO_SHUTDOWN_IN_PROGRESS	Unable to abort the system shutdown because no shutdown was in progress.
1117	0x0000045D	ERROR_IO_DEVICE	The request could not be performed because of an I/O device error.
1118	0x0000045E	ERROR_SERIAL_NO_DEVICE	No serial device was successfully initialized. The serial driver will unload.
1119	0x0000045F	ERROR_IRQ_BUSY	Unable to open a device that was sharing an interrupt request (IRQ) with other devices. At least one other device that uses that IRQ was already opened.
1120	0x00000460	ERROR_MORE_WRITES	A serial I/O operation was completed by another write to the serial port. (The IOCTL_SERIAL_XOFF_COUNTER reached zero.)
1121	0x00000461	ERROR_COUNTER_TIMEOUT	A serial I/O operation completed because the timeout period expired. (The IOCTL_SERIAL_XOFF_COUNTER did not reach zero.)
1122	0x00000462	ERROR_FLOPPY_ID_MARK_NOT_FOUND	No ID address mark was found on the floppy disk.
1123	0x00000463	ERROR_FLOPPY_WRONG_CYLINDER	Mismatch between the floppy disk sector ID field and the floppy disk controller track address.
1124	0x00000464	ERROR_FLOPPY_UNKNOWN_ERROR	The floppy disk controller reported an error that is not recognized by the floppy disk driver.
1125	0x00000465	ERROR_FLOPPY_BAD_REGISTERS	The floppy disk controller returned inconsistent results in its registers.
1126	0x00000466	ERROR_DISK_RECALIBRATE_FAILED	While accessing the hard disk, a recalibrate operation failed, even after retries.
1127	0x00000467	ERROR_DISK_OPERATION_FAILED	While accessing the hard disk, a disk operation failed even after retries.
1128	0x00000468	ERROR_DISK_RESET_FAILED	While accessing the hard disk, a disk controller reset was needed, but even that failed.
1129	0x00000469	ERROR_EOM_OVERFLOW	Physical end of tape encountered.
1130	0x0000046A	ERROR_NOT_ENOUGH_SERVER_MEMORY	Not enough server storage is available to process this command.
1131	0x0000046B	ERROR_POSSIBLE_DEADLOCK	A potential deadlock condition has been detected.
1132	0x0000046C	ERROR_MAPPED_ALIGNMENT	The base address or the file offset specified does not have the proper alignment.
1140	0x00000474	ERROR_SET_POWER_STATE_VETOED	An attempt to change the system power state was vetoed by another application or driver.
1141	0x00000475	ERROR_SET_POWER_STATE_FAILED	The system BIOS failed an attempt to change the system power state.
1142	0x00000476	ERROR_TOO_MANY_LINKS	An attempt was made to create more links on a file than the file system supports.
1150	0x0000047E	ERROR_OLD_WIN_VERSION	The specified program requires a newer version of Windows.

Error			Description
decimal	Hexadecimal	Name	
1151	0x0000047F	ERROR_APP_WRONG_OS	The specified program is not a Windows or MS-DOS program.
1152	0x00000480	ERROR_SINGLE_INSTANCE_APP	Cannot start more than one instance of the specified program.
1153	0x00000481	ERROR_RMODE_APP	The specified program was written for an earlier version of Windows.
1154	0x00000482	ERROR_INVALID_DLL	One of the library files needed to run this application is damaged.
1155	0x00000483	ERROR_NO_ASSOCIATION	No application is associated with the specified file for this operation.
1156	0x00000484	ERROR_DDE_FAIL	An error occurred in sending the command to the application.
1157	0x00000485	ERROR_DLL_NOT_FOUND	One of the library files needed to run this application cannot be found.
1158	0x00000486	ERROR_NO_MORE_USER_HANDLES	The current process has used all of its system allowance of handles for Window Manager objects.
1159	0x00000487	ERROR_MESSAGE_SYNC_ONLY	The message can be used only with synchronous operations.
1160	0x00000488	ERROR_SOURCE_ELEMENT_EMPTY	The indicated source element has no media.
1161	0x00000489	ERROR_DESTINATION_ELEMENT_FULL	The indicated destination element already contains media.
1162	0x0000048A	ERROR_ILLEGAL_ELEMENT_ADDRESS	The indicated element does not exist.
1163	0x0000048B	ERROR_MAGAZINE_NOT_PRESENT	The indicated element is part of a magazine that is not present.
1164	0x0000048C	ERROR_DEVICE_REINITIALIZATION_NEEDED	The indicated device requires reinitialization due to hardware errors.
1165	0x0000048D	ERROR_DEVICE_REQUIRES_CLEANING	The device has indicated that cleaning is required before further operations are attempted.
1166	0x0000048E	ERROR_DEVICE_DOOR_OPEN	The device has indicated that its door is open.
1167	0x0000048F	ERROR_DEVICE_NOT_CONNECTED	The device is not connected.
1168	0x00000490	ERROR_NOT_FOUND	Element not found.
1169	0x00000491	ERROR_NO_MATCH	There was no match for the specified key in the index.
1170	0x00000492	ERROR_SET_NOT_FOUND	The property set specified does not exist on the object.
1171	0x00000493	ERROR_POINT_NOT_FOUND	The point passed to GetMouseMovePointsEx is not in the buffer.
1172	0x00000494	ERROR_NO_TRACKING_SERVICE	The tracking (workstation) service is not running.
1173	0x00000495	ERROR_NO_VOLUME_ID	The Volume ID could not be found.
1175	0x00000497	ERROR_UNABLE_TO_REMOVE_REPLACED	Unable to remove the file to be replaced.
1176	0x00000498	ERROR_UNABLE_TO_MOVE_REPLACEMENT	Unable to move the replacement file to the file to be replaced. The file to be replaced has retained its original name.
1177	0x00000499	ERROR_UNABLE_TO_MOVE_REPLACEMENT_2	Unable to move the replacement file to the file to be replaced. The file to be replaced has been renamed using the backup name.
1178	0x0000049A	ERROR_JOURNAL_DELETE_IN_PROGRESS	The volume change journal is being deleted.
1179	0x0000049B	ERROR_JOURNAL_NOT_ACTIVE	The volume change journal is not active.
1180	0x0000049C	ERROR_POTENTIAL_FILE_FOUND	A file was found, but it may not be the correct file.
1181	0x0000049D	ERROR_JOURNAL_ENTRY_DELETED	The journal entry has been deleted from the journal.

Error			Description
decimal	Hexadecimal	Name	
1200	0x000004B0	ERROR_BAD_DEVICE	The specified device name is invalid.
1201	0x000004B1	ERROR_CONNECTION_UNAVAIL	The device is not currently connected but it is a remembered connection.
1202	0x000004B2	ERROR_DEVICE_ALREADY_REMEMBERED	The local device name has a remembered connection to another network resource.
1203	0x000004B3	ERROR_NO_NET_OR_BAD_PATH	No network provider accepted the given network path.
1204	0x000004B4	ERROR_BAD_PROVIDER	The specified network provider name is invalid.
1205	0x000004B5	ERROR_CANNOT_OPEN_PROFILE	Unable to open the network connection profile.
1206	0x000004B6	ERROR_BAD_PROFILE	The network connection profile is corrupted.
1207	0x000004B7	ERROR_NOT_CONTAINER	Cannot enumerate a noncontainer.
1208	0x000004B8	ERROR_EXTENDED_ERROR	An extended error has occurred.
1209	0x000004B9	ERROR_INVALID_GROUPNAME	The format of the specified group name is invalid.
1210	0x000004BA	ERROR_INVALID_COMPUTERNAME	The format of the specified computer name is invalid.
1211	0x000004BB	ERROR_INVALID_EVENTNAME	The format of the specified event name is invalid.
1212	0x000004BC	ERROR_INVALID_DOMAINNAME	The format of the specified domain name is invalid.
1213	0x000004BD	ERROR_INVALID_SERVICENAME	The format of the specified service name is invalid.
1214	0x000004BE	ERROR_INVALID_NETNAME	The format of the specified network name is invalid.
1215	0x000004BF	ERROR_INVALID_SHARENAME	The format of the specified share name is invalid.
1216	0x000004C0	ERROR_INVALID_PASSWORDNAME	The format of the specified password is invalid.
1217	0x000004C1	ERROR_INVALID_MESSAGE_NAME	The format of the specified message name is invalid.
1218	0x000004C2	ERROR_INVALID_MESSAGEDEST	The format of the specified message destination is invalid.
1219	0x000004C3	ERROR_SESSION_CREDENTIAL_CONFLICT	The credentials supplied conflict with an existing set of credentials.
1220	0x000004C4	ERROR_REMOTE_SESSION_LIMIT_EXCEEDED	An attempt was made to establish a session to a network server, but there are already too many sessions established to that server.
1221	0x000004C5	ERROR_DUP_DOMAINNAME	The workgroup or domain name is already in use by another computer on the network.
1222	0x000004C6	ERROR_NO_NETWORK	The network is not present or not started.
1223	0x000004C7	ERROR_CANCELLED	The operation was canceled by the user.
1224	0x000004C8	ERROR_USER_MAPPED_FILE	The requested operation cannot be performed on a file with a user-mapped section open.
1225	0x000004C9	ERROR_CONNECTION_REFUSED	The remote system refused the network connection.
1226	0x000004CA	ERROR_GRACEFUL_DISCONNECT	The network connection was gracefully closed.
1227	0x000004CB	ERROR_ADDRESS_ALREADY_ASSOCIATED	The network transport endpoint already has an address associated with it.
1228	0x000004CC	ERROR_ADDRESS_NOT_ASSOCIATED	An address has not yet been associated with the network endpoint.
1229	0x000004CD	ERROR_CONNECTION_INVALID	An operation was attempted on a nonexistent network connection.
1230	0x000004CE	ERROR_CONNECTION_ACTIVE	An invalid operation was attempted on an active network connection.
1231	0x000004CF	ERROR_NETWORK_UNREACHABLE	The network location cannot be reached. For information about network troubleshooting, see Windows Help.
1232	0x000004D0	ERROR_HOST_UNREACHABLE	The network location cannot be reached. For information about network troubleshooting, see Windows Help.
1233	0x000004D1	ERROR_PROTOCOL_UNREACHABLE	The network location cannot be reached. For information about network troubleshooting, see Windows Help.
1234	0x000004D2	ERROR_PORT_UNREACHABLE	No service is operating at the destination network endpoint on the remote system.
1235	0x000004D3	ERROR_REQUEST_ABORTED	The request was aborted.
1236	0x000004D4	ERROR_CONNECTION_ABORTED	The network connection was aborted by the local system.

Error			Description
decimal	Hexadecimal	Name	
1237	0x000004D5	ERROR_RETRY	The operation could not be completed. A retry should be performed.
1238	0x000004D6	ERROR_CONNECTION_COUNT_LIMIT	A connection to the server could not be made because the limit on the number of concurrent connections for this account has been reached.
1239	0x000004D7	ERROR_LOGIN_TIME_RESTRICTION	Attempting to log in during an unauthorized time of day for this account.
1240	0x000004D8	ERROR_LOGIN_WKSTA_RESTRICTION	The account is not authorized to log in from this station.
1241	0x000004D9	ERROR_INCORRECT_ADDRESS	The network address could not be used for the operation requested.
1242	0x000004DA	ERROR_ALREADY_REGISTERED	The service is already registered.
1243	0x000004DB	ERROR_SERVICE_NOT_FOUND	The specified service does not exist.
1244	0x000004DC	ERROR_NOT_AUTHENTICATED	The operation being requested was not performed because the user has not been authenticated.
1245	0x000004DD	ERROR_NOT_LOGGED_ON	The operation being requested was not performed because the user has not logged on to the network. The specified service does not exist.
1246	0x000004DE	ERROR_CONTINUE	Continue with work in progress.
1247	0x000004DF	ERROR_ALREADY_INITIALIZED	An attempt was made to perform an initialization operation when initialization has already been completed.
1248	0x000004E0	ERROR_NO_MORE_DEVICES	No more local devices.
1249	0x000004E1	ERROR_NO_SUCH_SITE	The specified site does not exist.
1250	0x000004E2	ERROR_DOMAIN_CONTROLLER_EXISTS	A domain controller with the specified name already exists.
1251	0x000004E3	ERROR_ONLY_IF_CONNECTED	This operation is supported only when you are connected to the server.
1252	0x000004E4	ERROR_OVERRIDE_NOCHANGES	The group policy framework should call the extension even if there are no changes.
1253	0x000004E5	ERROR_BAD_USER_PROFILE	The specified user does not have a valid profile.
1254	0x000004E6	ERROR_NOT_SUPPORTED_ON_SBS	This operation is not supported on a Microsoft Small Business Server.
1255	0x000004E7	ERROR_SERVER_SHUTDOWN_IN_PROGRESS	The server machine is shutting down.
1256	0x000004E8	ERROR_HOST_DOWN	The remote system is not available. For information about network troubleshooting, see Windows Help.
1257	0x000004E9	ERROR_NON_ACCOUNT_SID	The security identifier provided is not from an account domain.
1258	0x000004EA	ERROR_NON_DOMAIN_SID	The security identifier provided does not have a domain component.
1259	0x000004EB	ERROR_APPHELP_BLOCK	AppHelp dialog canceled thus preventing the application from starting.
1260	0x000004EC	ERROR_ACCESS_DISABLED_BY_POLICY	Access to the requested resource has been disabled by your administrator.
1261	0x000004ED	ERROR_REG_NAT_CONSUMPTION	A program attempt to use an invalid register value. Normally caused by an uninitialized register. This error is Itanium specific.
1262	0x000004EE	ERROR_CSCSHARE_OFFLINE	The share is currently offline or does not exist.
1300	0x00000514	ERROR_NOT_ALL_ASSIGNED	Not all privileges referenced are assigned to the caller.
1301	0x00000515	ERROR_SOME_NOT_MAPPED	Some mapping between account names and security IDs was not done.
1302	0x00000516	ERROR_NO_QUOTAS_FOR_ACCOUNT	No system quota limits are specifically set for this account.
1303	0x00000517	ERROR_LOCAL_USER_SESSION_KEY	No encryption key is available. A well-known encryption key was returned.
1304	0x00000518	ERROR_NULL_LM_PASSWORD	The password is too complex to be converted to a LAN Manager password. The LAN Manager password returned is a NULL string.
1305	0x00000519	ERROR_UNKNOWN_REVISION	The revision level is unknown.
1306	0x0000051A	ERROR_REVISION_MISMATCH	Indicates two revision levels are incompatible.
1307	0x0000051B	ERROR_INVALID_OWNER	This security ID may not be assigned as the owner of this object.

Error			Description
decimal	Hexadecimal	Name	
1308	0x0000051C	ERROR_INVALID_PRIMARY_GROUP	This security ID may not be assigned as the primary group of an object.
1309	0x0000051D	ERROR_NO_IMPERSONATION_TOKEN	An attempt has been made to operate on an impersonation token by a thread that is not currently impersonating a client.
1310	0x0000051E	ERROR_CANT_DISABLE_MANDATORY	The group may not be disabled.
1311	0x0000051F	ERROR_NO_LOGON_SERVERS	There are currently no logon servers available to service the logon request.
1312	0x00000520	ERROR_NO_SUCH_LOGON_SESSION	A specified logon session does not exist. It may already have been terminated.
1313	0x00000521	ERROR_NO_SUCH_PRIVILEGE	A specified privilege does not exist.
1314	0x00000522	ERROR_PRIVILEGE_NOT_HELD	A required privilege is not held by the client.
1315	0x00000523	ERROR_INVALID_ACCOUNT_NAME	The name provided is not a properly formed account name.
1316	0x00000524	ERROR_USER_EXISTS	The specified user already exists.
1317	0x00000525	ERROR_NO_SUCH_USER	The specified user does not exist.
1318	0x00000526	ERROR_GROUP_EXISTS	The specified group already exists.
1319	0x00000527	ERROR_NO_SUCH_GROUP	The specified group does not exist.
1320	0x00000528	ERROR_MEMBER_IN_GROUP	Either the specified user account is already a member of the specified group, or the specified group cannot be deleted because it contains a member.
1321	0x00000529	ERROR_MEMBER_NOT_IN_GROUP	The specified user account is not a member of the specified group account.
1322	0x0000052A	ERROR_LAST_ADMIN	The last remaining administration account cannot be disabled or deleted.
1323	0x0000052B	ERROR_WRONG_PASSWORD	Unable to update the password. The value provided as the current password is incorrect.
1324	0x0000052C	ERROR_ILL_FORMED_PASSWORD	Unable to update the password. The value provided for the new password contains values that are not allowed in passwords.
1325	0x0000052D	ERROR_PASSWORD_RESTRICTION	Unable to update the password. The value provided for the new password does not meet the length, complexity, or history requirement of the domain.
1326	0x0000052E	ERROR_LOGON_FAILURE	Logon failure: unknown user name or bad password.
1327	0x0000052F	ERROR_ACCOUNT_RESTRICTION	Logon failure: user account restriction.
1328	0x00000530	ERROR_INVALID_LOGON_HOURS	Logon failure: account logon time restriction violation.
1329	0x00000531	ERROR_INVALID_WORKSTATION	Logon failure: user not allowed to log on to this computer.
1330	0x00000532	ERROR_PASSWORD_EXPIRED	Logon failure: the specified account password has expired.
1331	0x00000533	ERROR_ACCOUNT_DISABLED	Logon failure: account currently disabled.
1332	0x00000534	ERROR_NONE_MAPPED	No mapping between account names and security IDs was done.
1333	0x00000535	ERROR_TOO_MANY_LUIDS_REQUESTED	Too many local user identifiers (LUIDs) were requested at one time.
1334	0x00000536	ERROR_LUIDS_EXHAUSTED	No more local user identifiers (LUIDs) are available.
1335	0x00000537	ERROR_INVALID_SUB_AUTHORITY	The subauthority part of a security ID is invalid for this particular use.
1336	0x00000538	ERROR_INVALID_ACL	The access control list (ACL) structure is invalid.
1337	0x00000539	ERROR_INVALID_SID	The security ID structure is invalid.
1338	0x0000053A	ERROR_INVALID_SECURITY_DESCR	The security descriptor structure is invalid.
1340	0x0000053C	ERROR_BAD_INHERITANCE_ACL	The inherited access control list (ACL) or access control entry (ACE) could not be built.
1341	0x0000053D	ERROR_SERVER_DISABLED	The server is currently disabled.
1342	0x0000053E	ERROR_SERVER_NOT_DISABLED	The server is currently enabled.
1343	0x0000053F	ERROR_INVALID_ID_AUTHORITY	The value provided was an invalid value for an identifier authority.
1344	0x00000540	ERROR_ALLOTTED_SPACE_EXCEEDED	No more memory is available for security information updates.

Error			Description
decimal	Hexadecimal	Name	
1345	0x00000541	ERROR_INVALID_GROUP_ATTRIBUTES	The specified attributes are invalid, or incompatible with the attributes for the group as a whole.
1346	0x00000542	ERROR_BAD_IMPERSONATION_LEVEL	Either a required impersonation level was not provided, or the provided impersonation level is invalid.
1347	0x00000543	ERROR_CANT_OPEN_ANONYMOUS	Cannot open an anonymous level security token.
1348	0x00000544	ERROR_BAD_VALIDATION_CLASS	The validation information class requested was invalid.
1349	0x00000545	ERROR_BAD_TOKEN_TYPE	The type of the token is inappropriate for its attempted use.
1350	0x00000546	ERROR_NO_SECURITY_ON_OBJECT	Unable to perform a security operation on an object that has no associated security.
1351	0x00000547	ERROR_CANT_ACCESS_DOMAIN_INFO	Configuration information could not be read from the domain controller, either because the machine is unavailable, or access has been denied.
1352	0x00000548	ERROR_INVALID_SERVER_STATE	The security account manager (SAM) or local security authority (LSA) server was in the wrong state to perform the security operation.
1353	0x00000549	ERROR_INVALID_DOMAIN_STATE	The domain was in the wrong state to perform the security operation.
1354	0x0000054A	ERROR_INVALID_DOMAIN_ROLE	This operation is only allowed for the Primary Domain Controller of the domain.
1355	0x0000054B	ERROR_NO_SUCH_DOMAIN	The specified domain either does not exist or could not be contacted.
1356	0x0000054C	ERROR_DOMAIN_EXISTS	The specified domain already exists.
1357	0x0000054D	ERROR_DOMAIN_LIMIT_EXCEEDED	An attempt was made to exceed the limit on the number of domains per server.
1358	0x0000054E	ERROR_INTERNAL_DB_CORRUPTION	Unable to complete the requested operation because of either a catastrophic media failure or a data structure corruption on the disk.
1359	0x0000054F	ERROR_INTERNAL_ERROR	An internal error occurred.
1360	0x00000550	ERROR_GENERIC_NOT_MAPPED	Generic access types were contained in an access mask which should already be mapped to nongeneric types.
1361	0x00000551	ERROR_BAD_DESCRIPTOR_FORMAT	A security descriptor is not in the right format (absolute or self-relative).
1362	0x00000552	ERROR_NOT_LOGON_PROCESS	The requested action is restricted for use by logon processes only. The calling process has not registered as a logon process.
1363	0x00000553	ERROR_LOGON_SESSION_EXISTS	Cannot start a new logon session with an ID that is already in use.
1364	0x00000554	ERROR_NO_SUCH_PACKAGE	A specified authentication package is unknown.
1365	0x00000555	ERROR_BAD_LOGON_SESSION_STATE	The logon session is not in a state that is consistent with the requested operation.
1366	0x00000556	ERROR_LOGON_SESSION_COLLISION	The logon session ID is already in use.
1367	0x00000557	ERROR_INVALID_LOGON_TYPE	A logon request contained an invalid logon type value.
1368	0x00000558	ERROR_CANNOT_IMPERSONATE	Unable to impersonate using a named pipe until data has been read from that pipe.
1369	0x00000559	ERROR_RXACT_INVALID_STATE	The transaction state of a registry subtree is incompatible with the requested operation.
1370	0x0000055A	ERROR_RXACT_COMMIT_FAILURE	An internal security database corruption has been encountered.
1371	0x0000055B	ERROR_SPECIAL_ACCOUNT	Cannot perform this operation on built-in accounts.
1372	0x0000055C	ERROR_SPECIAL_GROUP	Cannot perform this operation on this built-in special group.
1373	0x0000055D	ERROR_SPECIAL_USER	Cannot perform this operation on this built-in special user.
1374	0x0000055E	ERROR_MEMBERS_PRIMARY_GROUP	The user cannot be removed from a group because the group is currently the user's primary group.
1375	0x0000055F	ERROR_TOKEN_ALREADY_IN_USE	The token is already in use as a primary token.
1376	0x00000560	ERROR_NO_SUCH_ALIAS	The specified local group does not exist.

Error			Description
decimal	Hexadecimal	Name	
1377	0x00000561	ERROR_MEMBER_NOT_IN_ALIAS	The specified account name is not a member of the local group.
1378	0x00000562	ERROR_MEMBER_IN_ALIAS	The specified account name is already a member of the local group.
1379	0x00000563	ERROR_ALIAS_EXISTS	The specified local group already exists.
1380	0x00000564	ERROR_LOGON_NOT_GRANTED	Logon failure: the user has not been granted the requested logon type at this computer.
1381	0x00000565	ERROR_TOO_MANY_SECRETS	The maximum number of secrets that may be stored in a single system has been exceeded.
1382	0x00000566	ERROR_SECRET_TOO_LONG	The length of a secret exceeds the maximum length allowed.
1383	0x00000567	ERROR_INTERNAL_DB_ERROR	The local security authority database contains an internal inconsistency.
1384	0x00000568	ERROR_TOO_MANY_CONTEXT_IDS	During a logon attempt, the user's security context accumulated too many security IDs.
1385	0x00000569	ERROR_LOGON_TYPE_NOT_GRANTED	Logon failure: the user has not been granted the requested logon type at this computer.
1386	0x0000056A	ERROR_NT_CROSS_ENCRYPTION_REQUIRED	A cross-encrypted password is necessary to change a user password.
1387	0x0000056B	ERROR_NO_SUCH_MEMBER	A new member could not be added to or removed from the local group because the member does not exist.
1388	0x0000056C	ERROR_INVALID_MEMBER	A new member could not be added to a local group because the member has the wrong account type.
1389	0x0000056D	ERROR_TOO_MANY_SIDS	Too many security IDs have been specified.
1390	0x0000056E	ERROR_LM_CROSS_ENCRYPTION_REQUIRED	A cross-encrypted password is necessary to change this user password.
1391	0x0000056F	ERROR_NO_INHERITANCE	Indicates an ACL contains no inheritable components.
1392	0x00000570	ERROR_FILE_CORRUPT	The file or directory is corrupted and unreadable.
1393	0x00000571	ERROR_DISK_CORRUPT	The disk structure is corrupted and unreadable.
1394	0x00000572	ERROR_NO_USER_SESSION_KEY	There is no user session key for the specified logon session.
1395	0x00000573	ERROR_LICENSE_QUOTA_EXCEEDED	The service being accessed is licensed for a particular number of connections. No more connections can be made to the service at this time because there are already as many connections as the service can accept.
1396	0x00000574	ERROR_WRONG_TARGET_NAME	Logon Failure: The target account name is incorrect.
1397	0x00000575	ERROR_MUTUAL_AUTH_FAILED	Mutual Authentication failed. The server's password is out of date at the domain controller.
1398	0x00000576	ERROR_TIME_SKEW	There is a time difference between the client and server.
1399	0x00000577	ERROR_CURRENT_DOMAIN_NOT_ALLOWED	This operation can not be performed on the current domain.

		Error	Description
decimal	Hexadecimal	Name	
1400	0x00000578	ERROR_INVALID_WINDOW_HANDLE	Invalid window handle.
1401	0x00000579	ERROR_INVALID_MENU_HANDLE	Invalid menu handle.
1402	0x0000057A	ERROR_INVALID_CURSOR_HANDLE	Invalid cursor handle.
1403	0x0000057B	ERROR_INVALID_ACCEL_HANDLE	Invalid accelerator table handle.
1404	0x0000057C	ERROR_INVALID_HOOK_HANDLE	Invalid hook handle.
1405	0x0000057D	ERROR_INVALID_DWP_HANDLE	Invalid handle to a multiple-window position structure.
1406	0x0000057E	ERROR_TLW_WITH_WSCHILD	Cannot create a top-level child window.
1407	0x0000057F	ERROR_CANNOT_FIND_WND_CLASS	Cannot find window class.
1408	0x00000580	ERROR_WINDOW_OF_OTHER_THREAD	Invalid window; it belongs to other thread.
1409	0x00000581	ERROR_HOTKEY_ALREADY_REGISTERED	Hot key is already registered.
1410	0x00000582	ERROR_CLASS_ALREADY_EXISTS	Class already exists.
1411	0x00000583	ERROR_CLASS_DOES_NOT_EXIST	Class does not exist.
1412	0x00000584	ERROR_CLASS_HAS_WINDOWS	Class still has open windows.
1413	0x00000585	ERROR_INVALID_INDEX	Invalid index.
1414	0x00000586	ERROR_INVALID_ICON_HANDLE	Invalid icon handle.
1415	0x00000587	ERROR_PRIVATE_DIALOG_INDEX	Using private DIALOG window words.
1416	0x00000588	ERROR_LISTBOX_ID_NOT_FOUND	The list box identifier was not found.
1417	0x00000589	ERROR_NO_WILDCARD_CHARACTERS	No wildcards were found.
1418	0x0000058A	ERROR_CLIPBOARD_NOT_OPEN	Thread does not have a clipboard open.
1419	0x0000058B	ERROR_HOTKEY_NOT_REGISTERED	Hot key is not registered.
1420	0x0000058C	ERROR_WINDOW_NOT_DIALOG	The window is not a valid dialog window.
1421	0x0000058D	ERROR_CONTROL_ID_NOT_FOUND	Control ID not found.
1422	0x0000058E	ERROR_INVALID_COMBOBOX_MESSAGE	Invalid message for a combo box because it does not have an edit control.
1423	0x0000058F	ERROR_WINDOW_NOT_COMBOBOX	The window is not a combo box.
1424	0x00000590	ERROR_INVALID_EDIT_HEIGHT	Height must be less than 256.
1425	0x00000591	ERROR_DC_NOT_FOUND	Invalid device context (DC) handle.
1426	0x00000592	ERROR_INVALID_HOOK_FILTER	Invalid hook procedure type.
1427	0x00000593	ERROR_INVALID_FILTER_PROC	Invalid hook procedure.
1428	0x00000594	ERROR_HOOK_NEEDS_HMOD	Cannot set nonlocal hook without a module handle.
1429	0x00000595	ERROR_GLOBAL_ONLY_HOOK	This hook procedure can only be set globally.
1430	0x00000596	ERROR_JOURNAL_HOOK_SET	The journal hook procedure is already installed.
1431	0x00000597	ERROR_HOOK_NOT_INSTALLED	The hook procedure is not installed.
1432	0x00000598	ERROR_INVALID_LB_MESSAGE	Invalid message for single-selection list box.
1433	0x00000599	ERROR_SETCOUNT_ON_BAD_LB	LB_SETCOUNT sent to non-lazy list box.
1434	0x0000059A	ERROR_LB_WITHOUT_TABSTOPS	This list box does not support tab stops.
1435	0x0000059B	ERROR_DESTROY_OBJECT_OF_OTHER_THREAD	Cannot destroy object created by another thread.
1436	0x0000059C	ERROR_CHILD_WINDOW_MENU	Child windows cannot have menus.
1437	0x0000059D	ERROR_NO_SYSTEM_MENU	The window does not have a system menu.
1438	0x0000059E	ERROR_INVALID_MSGBOX_STYLE	Invalid message box style.
1439	0x0000059F	ERROR_INVALID_SPI_VALUE	Invalid system-wide (SPI_*) parameter.
1440	0x000005A0	ERROR_SCREEN_ALREADY_LOCKED	Screen already locked.
1441	0x000005A1	ERROR_HWNDS_HAVE_DIFF_PARENT	All handles to windows in a multiple-window position structure must have the same parent.
1442	0x000005A2	ERROR_NOT_CHILD_WINDOW	The window is not a child window.
1443	0x000005A3	ERROR_INVALID_GW_COMMAND	Invalid GW_* command.
1444	0x000005A4	ERROR_INVALID_THREAD_ID	Invalid thread identifier.
1445	0x000005A5	ERROR_NON_MDICHILD_WINDOW	Cannot process a message from a window that is not a multiple document interface (MDI) window.
1446	0x000005A6	ERROR_POPUP_ALREADY_ACTIVE	Popup menu already active.
1447	0x000005A7	ERROR_NO_SCROLLBARS	The window does not have scroll bars.
1448	0x000005A8	ERROR_INVALID_SCROLLBAR_RANGE	Scroll bar range cannot be greater than MAX-LONG.
1449	0x000005A9	ERROR_INVALID_SHOWWIN_COMMAND	Cannot show or remove the window in the way specified.

Error			Description
decimal	Hexadecimal	Name	
1450	0x000005AA	ERROR_NO_SYSTEM_RESOURCES	Insufficient system resources exist to complete the requested service.
1451	0x000005AB	ERROR_NONPAGED_SYSTEM_RESOURCES	Insufficient system resources exist to complete the requested service.
1452	0x000005AC	ERROR_PAGED_SYSTEM_RESOURCES	Insufficient system resources exist to complete the requested service.
1453	0x000005AD	ERROR_WORKING_SET_QUOTA	Insufficient quota to complete the requested service.
1454	0x000005AE	ERROR_PAGEFILE_QUOTA	Insufficient quota to complete the requested service.
1455	0x000005AF	ERROR_COMMITMENT_LIMIT	The paging file is too small for this operation to complete.
1456	0x000005B0	ERROR_MENU_ITEM_NOT_FOUND	A menu item was not found.
1457	0x000005B1	ERROR_INVALID_KEYBOARD_HANDLE	Invalid keyboard layout handle.
1458	0x000005B2	ERROR_HOOK_TYPE_NOT_ALLOWED	Hook type not allowed.
1459	0x000005B3	ERROR_REQUIRES_INTERACTIVE_WINDOW-STATION	This operation requires an interactive window station.
1460	0x000005B4	ERROR_TIMEOUT	This operation returned because the timeout period expired.
1461	0x000005B5	ERROR_INVALID_MONITOR_HANDLE	Invalid monitor handle.
1500	0x000005DC	ERROR_EVENTLOG_FILE_CORRUPT	The event log file is corrupted.
1501	0x000005DD	ERROR_EVENTLOG_CANT_START	No event log file could be opened, so the event logging service did not start.
1502	0x000005DE	ERROR_LOG_FILE_FULL	The event log file is full.
1503	0x000005DF	ERROR_EVENTLOG_FILE_CHANGED	The event log file has changed between read operations.

Error			Description
decimal	Hexadecimal	Name	
1601	0x00000641	ERROR_INSTALL_SERVICE_FAILURE	The Windows Installer service could not be accessed. Contact your support personnel to verify that the Windows Installer service is properly registered.
1602	0x00000642	ERROR_INSTALL_USEREXIT	User cancelled installation.
1603	0x00000643	ERROR_INSTALL_FAILURE	Fatal error during installation.
1604	0x00000644	ERROR_INSTALL_SUSPEND	Installation suspended, incomplete.
1605	0x00000645	ERROR_UNKNOWN_PRODUCT	This action is only valid for products that are currently installed.
1606	0x00000646	ERROR_UNKNOWN_FEATURE	Feature ID not registered.
1607	0x00000647	ERROR_UNKNOWN_COMPONENT	Component ID not registered.
1608	0x00000648	ERROR_UNKNOWN_PROPERTY	Unknown property.
1609	0x00000649	ERROR_INVALID_HANDLE_STATE	Handle is in an invalid state.
1610	0x0000064A	ERROR_BAD_CONFIGURATION	The configuration data for this product is corrupt. Contact your support personnel.
1611	0x0000064B	ERROR_INDEX_ABSENT	Component qualifier not present.
1612	0x0000064C	ERROR_INSTALL_SOURCE_ABSENT	The installation source for this product is not available. Verify that the source exists and that you can access it.
1613	0x0000064D	ERROR_INSTALL_PACKAGE_VERSION	This installation package cannot be installed by the Windows Installer service. You must install a Windows service pack that contains a newer version of the Windows Installer service.
1614	0x0000064E	ERROR_PRODUCT_UNINSTALLED	Product is uninstalled.
1615	0x0000064F	ERROR_BAD_QUERY_SYNTAX	SQL query syntax invalid or unsupported.
1616	0x00000650	ERROR_INVALID_FIELD	Record field does not exist.
1617	0x00000651	ERROR_DEVICE_REMOVED	The device has been removed.
1618	0x00000652	ERROR_INSTALL_ALREADY_RUNNING	Another installation is already in progress. Complete that installation before proceeding with this install.
1619	0x00000653	ERROR_INSTALL_PACKAGE_OPEN_FAILED	This installation package could not be opened. Verify that the package exists and that you can access it, or contact the application vendor to verify that this is a valid Windows Installer package.
1620	0x00000654	ERROR_INSTALL_PACKAGE_INVALID	This installation package could not be opened. Contact the application vendor to verify that this is a valid Windows Installer package.
1621	0x00000655	ERROR_INSTALL_UI_FAILURE	There was an error starting the Windows Installer service user interface. Contact your support personnel.
1622	0x00000656	ERROR_INSTALL_LOG_FAILURE	Error opening installation log file. Verify that the specified log file location exists and that you can write to it.
1623	0x00000657	ERROR_INSTALL_LANGUAGE_UNSUPPORTED	The language of this installation package is not supported by your system.
1624	0x00000658	ERROR_INSTALL_TRANSFORM_FAILURE	Error applying transforms. Verify that the specified transform paths are valid.
1625	0x00000659	ERROR_INSTALL_PACKAGE_REJECTED	This installation is forbidden by system policy. Contact your system administrator.
1626	0x0000065A	ERROR_FUNCTION_NOT_CALLED	Function could not be executed.
1627	0x0000065B	ERROR_FUNCTION_FAILED	Function failed during execution.
1628	0x0000065C	ERROR_INVALID_TABLE	Invalid or unknown table specified.
1629	0x0000065D	ERROR_DATATYPE_MISMATCH	Data supplied is of wrong type.
1630	0x0000065E	ERROR_UNSUPPORTED_TYPE	Data of this type is not supported.
1631	0x0000065F	ERROR_CREATE_FAILED	The Windows Installer service failed to start. Contact your support personnel.
1632	0x00000660	ERROR_INSTALL_TEMP_UNWRITABLE	The temp folder is either full or inaccessible. Verify that the temp folder exists and that you can write to it.
1633	0x00000661	ERROR_INSTALL_PLATFORM_UNSUPPORTED	This installation package is not supported by this processor type. Contact your product vendor.
1634	0x00000662	ERROR_INSTALL_NOTUSED	Component not used on this computer.

		Error		Description
decimal	Hexadecimal	Name		
1635	0x00000663	ERROR_PATCH_PACKAGE_OPEN_FAILED		This patch package could not be opened. Verify that the patch package exists and that you can access it, or contact the application vendor to verify that this is a valid Windows Installer patch package.
1636	0x00000664	ERROR_PATCH_PACKAGE_INVALID		This patch package could not be opened. Contact the application vendor to verify that this is a valid Windows Installer patch package.
1637	0x00000665	ERROR_PATCH_PACKAGE_UNSUPPORTED.		This patch package cannot be processed by the Windows Installer service. You must install a Windows service pack that contains a newer version of the Windows Installer service.
1638	0x00000666	ERROR_PRODUCT_VERSION		Another version of this product is already installed. Installation of this version cannot continue. To configure or remove the existing version of this product, use Add/Remove Programs on the Control Panel.
1639	0x00000667	ERROR_INVALID_COMMAND_LINE		Invalid command line argument. Consult the Windows Installer SDK for detailed command line help.
1640	0x00000668	ERROR_INSTALL_REMOTE_DISALLOWED		Only administrators have permission to add, remove, or configure server software during a Terminal Services remote session. If you want to install or configure software on the server, contact your network administrator.
1641	0x00000669	ERROR_SUCCESS_REBOOT_INITIATED		The requested operation completed successfully. The system will be restarted so the changes can take effect.
1642	0x0000066A	ERROR_PATCH_TARGET_NOT_FOUND		The upgrade patch cannot be installed by the Windows Installer service because the program to be upgraded may be missing, or the upgrade patch may update a different version of the program. Verify that the program to be upgraded exists on your computer and that you have the correct upgrade patch.
1643	0x0000066B	ERROR_PATCH_PACKAGE_REJECTED		The patch package is not permitted by system policy. It is not signed with an appropriate certificate.
1644	0x0000066C	ERROR_INSTALL_TRANSFORM_REJECTED		One or more customizations are not permitted by system policy. They are not signed with an appropriate certificate.
1700	0x000006A4	RPC_S_INVALID_STRING_BINDING		The string binding is invalid.
1701	0x000006A5	RPC_S_WRONG_KIND_OF_BINDING		The binding handle is not the correct type.
1702	0x000006A6	RPC_S_INVALID_BINDING		The binding handle is invalid.
1703	0x000006A7	RPC_S_PROTSEQ_NOT_SUPPORTED		The RPC protocol sequence is not supported.
1704	0x000006A8	RPC_S_INVALID_RPC_PROTSEQ		The RPC protocol sequence is invalid.
1705	0x000006A9	RPC_S_INVALID_STRING_UUID		The string universal unique identifier (UUID) is invalid.
1706	0x000006AA	RPC_S_INVALID_ENDPOINT_FORMAT		The endpoint format is invalid.
1707	0x000006AB	RPC_S_INVALID_NET_ADDR		The network address is invalid.
1708	0x000006AC	RPC_S_NO_ENDPOINT_FOUND		No endpoint was found.
1709	0x000006AD	RPC_S_INVALID_TIMEOUT		The timeout value is invalid.
1710	0x000006AE	RPC_S_OBJECT_NOT_FOUND		The object universal unique identifier (UUID) was not found.
1711	0x000006AF	RPC_S_ALREADY_REGISTERED		The object universal unique identifier (UUID) has already been registered.
1712	0x000006B0	RPC_S_TYPE_ALREADY_REGISTERED		The type universal unique identifier (UUID) has already been registered.
1713	0x000006B1	RPC_S_ALREADY_LISTENING		The RPC server is already listening.
1714	0x000006B2	RPC_S_NO_PROTSEQS_REGISTERED		No protocol sequences have been registered.
1715	0x000006B3	RPC_S_NOT_LISTENING		The RPC server is not listening.
1716	0x000006B4	RPC_S_UNKNOWN_MGR_TYPE		The manager type is unknown.
1717	0x000006B5	RPC_S_UNKNOWN_IF		The interface is unknown.
1718	0x000006B6	RPC_S_NO_BINDINGS		There are no bindings.
1719	0x000006B7	RPC_S_NO_PROTSEQS		There are no protocol sequences.
1720	0x000006B8	RPC_S_CANT_CREATE_ENDPOINT		The endpoint cannot be created.

Error			Description
decimal	Hexadecimal	Name	
1721	0x000006B9	RPC_S_OUT_OF_RESOURCES	Not enough resources are available to complete this operation.
1722	0x000006BA	RPC_S_SERVER_UNAVAILABLE	The RPC server is unavailable.
1723	0x000006BB	RPC_S_SERVER_TOO_BUSY	The RPC server is too busy to complete this operation.
1724	0x000006BC	RPC_S_INVALID_NETWORK_OPTIONS	The network options are invalid.
1725	0x000006BD	RPC_S_NO_CALL_ACTIVE	There are no remote procedure calls active on this thread.
1726	0x000006BE	RPC_S_CALL_FAILED	The remote procedure call failed.
1727	0x000006BF	RPC_S_CALL_FAILED_DNE	The remote procedure call failed and did not execute.
1728	0x000006C0	RPC_S_PROTOCOL_ERROR	A remote procedure call (RPC) protocol error occurred.
1730	0x000006C2	RPC_S_UNSUPPORTED_TRANS_SYN	The transfer syntax is not supported by the RPC server.
1732	0x000006C4	RPC_S_UNSUPPORTED_TYPE	The universal unique identifier (UUID) type is not supported.
1733	0x000006C5	RPC_S_INVALID_TAG	The tag is invalid.
1734	0x000006C6	RPC_S_INVALID_BOUND	The array bounds are invalid.
1735	0x000006C7	RPC_S_NO_ENTRY_NAME	The binding does not contain an entry name.
1736	0x000006C8	RPC_S_INVALID_NAME_SYNTAX	The name syntax is invalid.
1737	0x000006C9	RPC_S_UNSUPPORTED_NAME_SYNTAX	The name syntax is not supported.
1739	0x000006CB	RPC_S_UUID_NO_ADDRESS	No network address is available to use to construct a universal unique identifier (UUID).
1740	0x000006CC	RPC_S_DUPLICATE_ENDPOINT	The endpoint is a duplicate.
1741	0x000006CD	RPC_S_UNKNOWN_AUTHN_TYPE	The authentication type is unknown.
1742	0x000006CE	RPC_S_MAX_CALLS_TOO_SMALL	The maximum number of calls is too small.
1743	0x000006CF	RPC_S_STRING_TOO_LONG	The string is too long.
1744	0x000006D0	RPC_S_PROTSEQ_NOT_FOUND	The RPC protocol sequence was not found.
1745	0x000006D1	RPC_S_PROCNUM_OUT_OF_RANGE	The procedure number is out of range.
1746	0x000006D2	RPC_S_BINDING_HAS_NO_AUTH	The binding does not contain any authentication information.
1747	0x000006D3	RPC_S_UNKNOWN_AUTHN_SERVICE	The authentication service is unknown.
1748	0x000006D4	RPC_S_UNKNOWN_AUTHN_LEVEL	The authentication level is unknown.
1749	0x000006D5	RPC_S_INVALID_AUTH_IDENTITY	The security context is invalid.
1750	0x000006D6	RPC_S_UNKNOWN_AUTHZ_SERVICE	The authorization service is unknown.
1751	0x000006D7	EPT_S_INVALID_ENTRY	The entry is invalid.
1752	0x000006D8	EPT_S_CANT_PERFORM_OP	The server endpoint cannot perform the operation.
1753	0x000006D9	EPT_S_NOT_REGISTERED	There are no more endpoints available from the endpoint mapper.
1754	0x000006DA	RPC_S_NOTHING_TO_EXPORT	No interfaces have been exported.
1755	0x000006DB	RPC_S_INCOMPLETE_NAME	The entry name is incomplete.
1756	0x000006DC	RPC_S_INVALID_VERS_OPTION	The version option is invalid.
1757	0x000006DD	RPC_S_NO_MORE_MEMBERS	There are no more members.
1758	0x000006DE	RPC_S_NOT_ALL_OBJS_UNEXPORTED	There is nothing to unexport.
1759	0x000006DF	RPC_S_INTERFACE_NOT_FOUND	The interface was not found.
1760	0x000006E0	RPC_S_ENTRY_ALREADY_EXISTS	The entry already exists.
1761	0x000006E1	RPC_S_ENTRY_NOT_FOUND	The entry is not found.
1762	0x000006E2	RPC_S_NAME_SERVICE_UNAVAILABLE	The name service is unavailable.
1763	0x000006E3	RPC_S_INVALID_NAF_ID	The network address family is invalid.
1764	0x000006E4	RPC_S_CANNOT_SUPPORT	The requested operation is not supported.
1765	0x000006E5	RPC_S_NO_CONTEXT_AVAILABLE	No security context is available to allow impersonation.
1766	0x000006E6	RPC_S_INTERNAL_ERROR	An internal error occurred in a remote procedure call (RPC).
1767	0x000006E7	RPC_S_ZERO_DIVIDE	The RPC server attempted an integer division by zero.
1768	0x000006E8	RPC_S_ADDRESS_ERROR	An addressing error occurred in the RPC server.
1769	0x000006E9	RPC_S_FP_DIV_ZERO	A floating-point operation at the RPC server caused a division by zero.

Error			Description
decimal	Hexadecimal	Name	
1770	0x000006EA	RPC_S_FP_UNDERFLOW	A floating-point underflow occurred at the RPC server.
1771	0x000006EB	RPC_S_FP_OVERFLOW	A floating-point overflow occurred at the RPC server.
1772	0x000006EC	RPC_X_NO_MORE_ENTRIES	The list of RPC servers available for the binding of auto handles has been exhausted.
1773	0x000006ED	RPC_X_SS_CHAR_TRANS_OPEN_FAIL	Unable to open the character translation table file.
1774	0x000006EE	RPC_X_SS_CHAR_TRANS_SHORT_FILE	The file containing the character translation table has fewer than 512 bytes.
1775	0x000006EF	RPC_X_SS_IN_NULL_CONTEXT	A null context handle was passed from the client to the host during a remote procedure call.
1777	0x000006F1	RPC_X_SS_CONTEXT_DAMAGED	The context handle changed during a remote procedure call.
1778	0x000006F2	RPC_X_SS_HANDLES_MISMATCH	The binding handles passed to a remote procedure call do not match.
1779	0x000006F3	RPC_X_SS_CANNOT_GET_CALL_HANDLE	The stub is unable to get the remote procedure call handle.
1780	0x000006F4	RPC_X_NULL_REF_POINTER	A null reference pointer was passed to the stub.
1781	0x000006F5	RPC_X_ENUM_VALUE_OUT_OF_RANGE	The enumeration value is out of range.
1782	0x000006F6	RPC_X_BYTE_COUNT_TOO_SMALL	The byte count is too small.
1783	0x000006F7	RPC_X_BAD_STUB_DATA	The stub received bad data.
1784	0x000006F8	ERROR_INVALID_USER_BUFFER	The supplied user buffer is not valid for the requested operation.
1785	0x000006F9	ERROR_UNRECOGNIZED_MEDIA	The disk media is not recognized. It may not be formatted.
1786	0x000006FA	ERROR_NO_TRUST_LSA_SECRET	The workstation does not have a trust secret.
1787	0x000006FB	ERROR_NO_TRUST_SAM_ACCOUNT	The security database on the server does not have a computer account for this workstation trust relationship.
1788	0x000006FC	ERROR_TRUSTED_DOMAIN_FAILURE	The trust relationship between the primary domain and the trusted domain failed.
1789	0x000006FD	ERROR_TRUSTED_RELATIONSHIP_FAILURE	The trust relationship between this workstation and the primary domain failed.
1790	0x000006FE	ERROR_TRUST_FAILURE	The network logon failed.
1791	0x000006FF	RPC_S_CALL_IN_PROGRESS	A remote procedure call is already in progress for this thread.
1792	0x00000700	ERROR_NETLOGON_NOT_STARTED	An attempt was made to logon, but the network logon service was not started.
1793	0x00000701	ERROR_ACCOUNT_EXPIRED	The user's account has expired.
1794	0x00000702	ERROR_REDIRECTOR_HAS_OPEN_HANDLES	The redirector is in use and cannot be unloaded.
1795	0x00000703	ERROR_PRINTER_DRIVER_ALREADY_INSTALLED	The specified printer driver is already installed.
1796	0x00000704	ERROR_UNKNOWN_PORT	The specified port is unknown.
1797	0x00000705	ERROR_UNKNOWN_PRINTER_DRIVER	The printer driver is unknown.
1798	0x00000706	ERROR_UNKNOWN_PRINTPROCESSOR	The print processor is unknown.
1799	0x00000707	ERROR_INVALID_SEPARATOR_FILE	The specified separator file is invalid.

Error			Description
decimal	Hexadecimal	Name	
1800	0x00000708	ERROR_INVALID_PRIORITY	The specified priority is invalid.
1801	0x00000709	ERROR_INVALID_PRINTER_NAME	The printer name is invalid.
1802	0x0000070A	ERROR_PRINTER_ALREADY_EXISTS	The printer already exists.
1803	0x0000070B	ERROR_INVALID_PRINTER_COMMAND	The printer command is invalid.
1804	0x0000070C	ERROR_INVALID_DATATYPE	The specified datatype is invalid.
1805	0x0000070D	ERROR_INVALID_ENVIRONMENT	The environment specified is invalid.
1806	0x0000070E	RPC_S_NO_MORE_BINDINGS	There are no more bindings.
1807	0x0000070F	ERROR_NOLOGON_INTERDOMAIN_TRUST_ACCOUNT	The account used is an interdomain trust account. Use your global user account or local user account to access this server.
1808	0x00000710	ERROR_NOLOGON_WORKSTATION_TRUST_ACCOUNT	The account used is a computer account. Use your global user account or local user account to access this server.
1809	0x00000711	ERROR_NOLOGON_SERVER_TRUST_ACCOUNT	The account used is a server trust account. Use your global user account or local user account to access this server.
1810	0x00000712	ERROR_DOMAIN_TRUST_INCONSISTENT	The name or security ID (SID) of the domain specified is inconsistent with the trust information for that domain.
1811	0x00000713	ERROR_SERVER_HAS_OPEN_HANDLES	The server is in use and cannot be unloaded.
1812	0x00000714	ERROR_RESOURCE_DATA_NOT_FOUND	The specified image file did not contain a resource section.
1813	0x00000715	ERROR_RESOURCE_TYPE_NOT_FOUND	The specified resource type cannot be found in the image file.
1814	0x00000716	ERROR_RESOURCE_NAME_NOT_FOUND	The specified resource name cannot be found in the image file.
1815	0x00000717	ERROR_RESOURCE_LANG_NOT_FOUND	The specified resource language ID cannot be found in the image file.
1816	0x00000718	ERROR_NOT_ENOUGH_QUOTA	Not enough quota is available to process this command.
1817	0x00000719	RPC_S_NO_INTERFACES	No interfaces have been registered.
1818	0x0000071A	RPC_S_CALL_CANCELLED	The remote procedure call was cancelled.
1819	0x0000071B	RPC_S_BINDING_INCOMPLETE	The binding handle does not contain all required information.
1820	0x0000071C	RPC_S_COMM_FAILURE	A communications failure occurred during a remote procedure call.
1821	0x0000071D	RPC_S_UNSUPPORTED_AUTHN_LEVEL	The requested authentication level is not supported.
1822	0x0000071E	RPC_S_NO_PRINC_NAME	No principal name registered.
1823	0x0000071F	RPC_S_NOT_RPC_ERROR	The error specified is not a valid Windows RPC error code.
1824	0x00000720	RPC_S_UUID_LOCAL_ONLY	A UUID that is valid only on this computer has been allocated.
1825	0x00000721	RPC_S_SEC_PKG_ERROR	A security package specific error occurred.
1826	0x00000722	RPC_S_NOT_CANCELLED	Thread is not canceled.
1827	0x00000723	RPC_X_INVALID_ES_ACTION	Invalid operation on the encoding/decoding handle.
1828	0x00000724	RPC_X_WRONG_ES_VERSION	Incompatible version of the serializing package.
1829	0x00000725	RPC_X_WRONG_STUB_VERSION	Incompatible version of the RPC stub.
1830	0x00000726	RPC_X_INVALID_PIPE_OBJECT	The RPC pipe object is invalid or corrupted.
1831	0x00000727	RPC_X_WRONG_PIPE_ORDER	An invalid operation was attempted on an RPC pipe object.
1832	0x00000728	RPC_X_WRONG_PIPE_VERSION	Unsupported RPC pipe version.
1898	0x0000076A	RPC_S_GROUP_MEMBER_NOT_FOUND	The group member was not found.
1899	0x0000076B	EPT_S_CANT_CREATE	The endpoint mapper database entry could not be created.
1900	0x0000076C	RPC_S_INVALID_OBJECT	The object universal unique identifier (UUID) is the nil UUID.
1901	0x0000076D	ERROR_INVALID_TIME	The specified time is invalid.
1902	0x0000076E	ERROR_INVALID_FORM_NAME	The specified form name is invalid.
1903	0x0000076F	ERROR_INVALID_FORM_SIZE	The specified form size is invalid.
1904	0x00000770	ERROR_ALREADY_WAITING	The specified printer handle is already being waited on

Error			Description
decimal	Hexadecimal	Name	
1905	0x00000771	ERROR_PRINTER_DELETED	The specified printer has been deleted.
1906	0x00000772	ERROR_INVALID_PRINTER_STATE	The state of the printer is invalid.
1907	0x00000773	ERROR_PASSWORD_MUST_CHANGE	The user's password must be changed before logging on the first time.
1908	0x00000774	ERROR_DOMAIN_CONTROLLER_NOT_FOUND	Could not find the domain controller for this domain.
1909	0x00000775	ERROR_ACCOUNT_LOCKED_OUT	The referenced account is currently locked out and may not be logged on to.
1910	0x00000776	OR_INVALID_OXID	The object exporter specified was not found.
1911	0x00000777	OR_INVALID_OID	The object specified was not found.
1912	0x00000778	OR_INVALID_SET	The object resolver set specified was not found.
1913	0x00000779	RPC_S_SEND_INCOMPLETE	Some data remains to be sent in the request buffer.
1914	0x0000077A	RPC_S_INVALID_ASYNC_HANDLE	Invalid asynchronous remote procedure call handle.
1915	0x0000077B	RPC_S_INVALID_ASYNC_CALL	Invalid asynchronous RPC call handle for this operation.
1916	0x0000077C	RPC_X_PIPE_CLOSED	The RPC pipe object has already been closed.
1917	0x0000077D	RPC_X_PIPE_DISCIPLINE_ERROR	The RPC call completed before all pipes were processed.
1918	0x0000077E	RPC_X_PIPE_EMPTY	No more data is available from the RPC pipe.
1919	0x0000077F	ERROR_NO_SITENAME	No site name is available for this machine.
1920	0x00000780	ERROR_CANT_ACCESS_FILE	The file can not be accessed by the system.
1921	0x00000781	ERROR_CANT_RESOLVE_FILENAME	The name of the file cannot be resolved by the system.
1922	0x00000782	RPC_S_ENTRY_TYPE_MISMATCH	The entry is not of the expected type.
1923	0x00000783	RPC_S_NOT_ALL_OBJS_EXPORTED	Not all object UUIDs could be exported to the specified entry.
1924	0x00000784	RPC_S_INTERFACE_NOT_EXPORTED	Interface could not be exported to the specified entry.
1925	0x00000785	RPC_S_PROFILE_NOT_ADDED	The specified profile entry could not be added.
1926	0x00000786	RPC_S_PRF_ELT_NOT_ADDED	The specified profile element could not be added.
1927	0x00000787	RPC_S_PRF_ELT_NOT_REMOVED	The specified profile element could not be removed.
1928	0x00000788	RPC_S_GRP_ELT_NOT_ADDED	The group element could not be added.
1929	0x00000789	RPC_S_GRP_ELT_NOT_REMOVED	The group element could not be removed.
1930	0x0000078A	ERROR_KM_DRIVER_BLOCKED	The printer driver is not compatible with a policy enabled on your computer that blocks NT 4.0 drivers.

Error			Description
decimal	Hexadecimal	Name	
2000	0x000007D0	ERROR_INVALID_PIXEL_FORMAT	The pixel format is invalid.
2001	0x000007D1	ERROR_BAD_DRIVER	The specified driver is invalid.
2002	0x000007D2	ERROR_INVALID_WINDOW_STYLE	The window style or class attribute is invalid for this operation.
2003	0x000007D3	ERROR_METAFILE_NOT_SUPPORTED	The requested metafile operation is not supported.
2004	0x000007D4	ERROR_TRANSFORM_NOT_SUPPORTED	The requested transformation operation is not supported.
2005	0x000007D5	ERROR_CLIPPING_NOT_SUPPORTED	The requested clipping operation is not supported.
2010	0x000007DA	ERROR_INVALID_CMM	The specified color management module is invalid.
2011	0x000007DB	ERROR_INVALID_PROFILE	The specified color profile is invalid.
2012	0x000007DC	ERROR_TAG_NOT_FOUND	The specified tag was not found.
2013	0x000007DD	ERROR_TAG_NOT_PRESENT	A required tag is not present.
2014	0x000007DE	ERROR_DUPLICATE_TAG	The specified tag is already present.
2015	0x000007DF	ERROR_PROFILE_NOT_ASSOCIATED_WITH_DEVICE	The specified color profile is not associated with any device.
2016	0x000007E0	ERROR_PROFILE_NOT_FOUND	The specified color profile was not found.
2017	0x000007E1	ERROR_INVALID_COLORSPACE	The specified color space is invalid.
2018	0x000007E2	ERROR_ICM_NOT_ENABLED	Image Color Management is not enabled.
2019	0x000007E3	ERROR_DELETING_ICM_XFORM	There was an error while deleting the color transform.
2020	0x000007E4	ERROR_INVALID_TRANSFORM	The specified color transform is invalid.
2021	0x000007E5	ERROR_COLORSPACE_MISMATCH	The specified transform does not match the bitmap's color space.
2022	0x000007E6	ERROR_INVALID_COLORINDEX	The specified named color index is not present in the profile.
2108	0x0000083C	ERROR_CONNECTED_OTHER_PASSWORD	The network connection was made successfully, but the user had to be prompted for a password other than the one originally specified.
2202	0x0000089A	ERROR_BAD_USERNAME	The specified username is invalid.
2250	0x000008CA	ERROR_NOT_CONNECTED	This network connection does not exist.
2401	0x00000961	ERROR_OPEN_FILES	This network connection has files open or requests pending.
2402	0x00000962	ERROR_ACTIVE_CONNECTIONS	Active connections still exist.
2404	0x00000964	ERROR_DEVICE_IN_USE	The device is in use by an active process and cannot be disconnected.
2500	0x000009C4	ERROR_PKINIT_FAILURE	The kerberos protocol encountered an error while validating the KDC certificate during smartcard logon.
2501	0x000009C5	ERROR_SMARTCARD_SUBSYSTEM_FAILURE	The kerberos protocol encountered an error while attempting to utilize the smartcard subsystem.

		Error	Description
decimal	Hexadecimal	Name	
3000	0x00000BB8	ERROR_UNKNOWN_PRINT_MONITOR	The specified print monitor is unknown.
3001	0x00000BB9	ERROR_PRINTER_DRIVER_IN_USE	The specified printer driver is currently in use.
3002	0x00000BBA	ERROR_SPOOL_FILE_NOT_FOUND	The spool file was not found.
3003	0x00000BBB	ERROR_SPL_NO_STARTDOC	A StartDocPrinter call was not issued.
3004	0x00000BBC	ERROR_SPL_NO_ADDJOB	An AddJob call was not issued.
3005	0x00000BBD	ERROR_PRINT_PROCESSOR_ALREADY_INSTALLED	The specified print processor has already been installed.
3006	0x00000BBE	ERROR_PRINT_MONITOR_ALREADY_INSTALLED	The specified print monitor has already been installed.
3007	0x00000BBF	ERROR_INVALID_PRINT_MONITOR	The specified print monitor does not have the required functions.
3008	0x00000BC0	ERROR_PRINT_MONITOR_IN_USE	The specified print monitor is currently in use.
3009	0x00000BC1	ERROR_PRINTER_HAS_JOBS_QUEUED	The requested operation is not allowed when there are jobs queued to the printer.
3010	0x00000BC2	ERROR_SUCCESS_REBOOT_REQUIRED	The requested operation is successful. Changes will not be effective until the system is rebooted.
3011	0x00000BC3	ERROR_SUCCESS_RESTART_REQUIRED	The requested operation is successful. Changes will not be effective until the service is restarted.
3012	0x00000BC4	ERROR_PRINTER_NOT_FOUND	No printers were found.
4000	0x00000FA0	ERROR_WINS_INTERNAL	WINS encountered an error while processing the command.
4001	0x00000FA1	ERROR_CAN_NOT_DEL_LOCAL_WINS	The local WINS can not be deleted.
4002	0x00000FA2	ERROR_STATIC_INIT	The importation from the file failed.
4003	0x00000FA3	ERROR_INC_BACKUP	The backup failed. Was a full backup done before?
4004	0x00000FA4	ERROR_FULL_BACKUP	The backup failed. Check the directory to which you are backing the database.
4005	0x00000FA5	ERROR_REC_NON_EXISTENT	The name does not exist in the WINS database.
4006	0x00000FA6	ERROR_RPL_NOT_ALLOWED	Replication with a nonconfigured partner is not allowed.
4100	0x00001004	ERROR_DHCP_ADDRESS_CONFLICT	The DHCP client has obtained an IP address that is already in use on the network. The local interface will be disabled until the DHCP client can obtain a new address.
4200	0x00001068	ERROR_WMI_GUID_NOT_FOUND	The GUID passed was not recognized as valid by a WMI data provider.
4201	0x00001069	ERROR_WMI_INSTANCE_NOT_FOUND	The instance name passed was not recognized as valid by a WMI data provider.
4202	0x0000106A	ERROR_WMI_ITEMID_NOT_FOUND	The data item ID passed was not recognized as valid by a WMI data provider.
4203	0x0000106B	ERROR_WMI_TRY_AGAIN	The WMI request could not be completed and should be retried.
4204	0x0000106C	ERROR_WMI_DP_NOT_FOUND	The WMI data provider could not be located.
4205	0x0000106D	ERROR_WMI_UNRESOLVED_INSTANCE_REF	The WMI data provider references an instance set that has not been registered.
4206	0x0000106E	ERROR_WMI_ALREADY_ENABLED	The WMI data block or event notification has already been enabled.
4207	0x0000106F	ERROR_WMI_GUID_DISCONNECTED	The WMI data block is no longer available.
4208	0x00001070	ERROR_WMI_SERVER_UNAVAILABLE	The WMI data service is not available.
4209	0x00001071	ERROR_WMI_DP_FAILED	The WMI data provider failed to carry out the request.
4210	0x00001072	ERROR_WMI_INVALID_MOF	The WMI MOF information is not valid.
4211	0x00001073	ERROR_WMI_INVALID_REGINFO	The WMI registration information is not valid.
4212	0x00001074	ERROR_WMI_ALREADY_DISABLED	The WMI data block or event notification has already been disabled.
4213	0x00001075	ERROR_WMI_READ_ONLY	The WMI data item or data block is read only.
4214	0x00001076	ERROR_WMI_SET_FAILURE	The WMI data item or data block could not be changed.
4300	0x000010CC	ERROR_INVALID_MEDIA	The media identifier does not represent a valid medium.
4301	0x000010CD	ERROR_INVALID_LIBRARY	The library identifier does not represent a valid library.

Error			Description
decimal	Hexadecimal	Name	
4302	0x000010CE	ERROR_INVALID_MEDIA_POOL	The media pool identifier does not represent a valid media pool.
4303	0x000010CF	ERROR_DRIVE_MEDIA_MISMATCH	The drive and medium are not compatible or exist in different libraries.
4304	0x000010D0	ERROR_MEDIA_OFFLINE	The medium currently exists in an offline library and must be online to perform this operation.
4305	0x000010D1	ERROR_LIBRARY_OFFLINE	The operation cannot be performed on an offline library.
4306	0x000010D2	ERROR_EMPTY	The library, drive, or media pool is empty.
4307	0x000010D3	ERROR_NOT_EMPTY	The library, drive, or media pool must be empty to perform this operation.
4308	0x000010D4	ERROR_MEDIA_UNAVAILABLE	No media is currently available in this media pool or library.
4309	0x000010D5	ERROR_RESOURCE_DISABLED	A resource required for this operation is disabled.
4310	0x000010D6	ERROR_INVALID_CLEANER	The media identifier does not represent a valid cleaner.
4311	0x000010D7	ERROR_UNABLE_TO_CLEAN	The drive cannot be cleaned or does not support cleaning.
4312	0x000010D8	ERROR_OBJECT_NOT_FOUND	The object identifier does not represent a valid object.
4313	0x000010D9	ERROR_DATABASE_FAILURE	Unable to read from or write to the database.
4314	0x000010DA	ERROR_DATABASE_FULL	The database is full.
4315	0x000010DB	ERROR_MEDIA_INCOMPATIBLE	The medium is not compatible with the device or media pool.
4316	0x000010DC	ERROR_RESOURCE_NOT_PRESENT	The resource required for this operation does not exist.
4317	0x000010DD	ERROR_INVALID_OPERATION	The operation identifier is not valid.
4318	0x000010DE	ERROR_MEDIA_NOT_AVAILABLE	The media is not mounted or ready for use.
4319	0x000010DF	ERROR_DEVICE_NOT_AVAILABLE	The device is not ready for use.
4320	0x000010E0	ERROR_REQUEST_REFUSED	The operator or administrator has refused the request.
4321	0x000010E1	ERROR_INVALID_DRIVE_OBJECT	The drive identifier does not represent a valid drive.
4322	0x000010E2	ERROR_LIBRARY_FULL	Library is full. No slot is available for use.
4323	0x000010E3	ERROR_MEDIUM_NOT_ACCESSIBLE	The transport cannot access the medium.
4324	0x000010E4	ERROR_UNABLE_TO_LOAD_MEDIUM	Unable to load the medium into the drive.
4325	0x000010E5	ERROR_UNABLE_TO_INVENTORY_DRIVE	Unable to retrieve status about the drive.
4326	0x000010E6	ERROR_UNABLE_TO_INVENTORY_SLOT	Unable to retrieve status about the slot.
4327	0x000010E7	ERROR_UNABLE_TO_INVENTORY_TRANSPORT	Unable to retrieve status about the transport.
4328	0x000010E8	ERROR_TRANSPORT_FULL	Cannot use the transport because it is already in use.
4329	0x000010E9	ERROR_CONTROLLING_IEPORT	Unable to open or close the inject/eject port.
4330	0x000010EA	ERROR_UNABLE_TO_EJECT_MOUNTED_MEDIA	Unable to eject the media because it is in a drive.
4331	0x000010EB	ERROR_CLEANER_SLOT_SET	A cleaner slot is already reserved.
4332	0x000010EC	ERROR_CLEANER_SLOT_NOT_SET	A cleaner slot is not reserved.
4333	0x000010ED	ERROR_CLEANER_CARTRIDGE_SPENT	The cleaner cartridge has performed the maximum number of drive cleanings.
4334	0x000010EE	ERROR_UNEXPECTED_OMID	Unexpected on-medium identifier.
4335	0x000010EF	ERROR_CANT_DELETE_LAST_ITEM	The last remaining item in this group or resource cannot be deleted.
4336	0x000010F0	ERROR_MESSAGE_EXCEEDS_MAX_SIZE	The message provided exceeds the maximum size allowed for this parameter.
4337	0x000010F1	ERROR_VOLUME_CONTAINS_SYS_FILES	The volume contains system or paging files.
4338	0x000010F2	ERROR_INDIGENOUS_TYPE	The media type cannot be removed from this library since at least one drive in the library reports it can support this media type.
4339	0x000010F3	ERROR_NO_SUPPORTING_DRIVES	This offline media cannot be mounted on this system since no enabled drives are present which can be used.
4340	0x000010F4	ERROR_CLEANER_CARTRIDGE_INSTALLED	A cleaner cartridge is present in the tape library.
4350	0x000010FE	ERROR_FILE_OFFLINE	The remote storage service was not able to recall the file.

Error			Description
decimal	Hexadecimal	Name	
4351	0x000010FF	ERROR_REMOTE_STORAGE_NOT_ACTIVE	The remote storage service is not operational at this time.
4352	0x00001100	ERROR_REMOTE_STORAGE_MEDIA_ERROR	The remote storage service encountered a media error.
4390	0x00001126	ERROR_NOT_A_REPARSE_POINT	The file or directory is not a reparse point.
4391	0x00001127	ERROR_REPARSE_ATTRIBUTE_CONFLICT	The reparse point attribute cannot be set because it conflicts with an existing attribute.
4392	0x00001128	ERROR_INVALID_REPARSE_DATA	The data present in the reparse point buffer is invalid.
4393	0x00001129	ERROR_REPARSE_TAG_INVALID	The tag present in the reparse point buffer is invalid.
4394	0x0000112A	ERROR_REPARSE_TAG_MISMATCH	There is a mismatch between the tag specified in the request and the tag present in the reparse point.
4500	0x00001194	ERROR_VOLUME_NOT_SIS_ENABLED	Single Instance Storage is not available on this volume.

		Error		Description
decimal	Hexadecimal	Name		
5001	0x00001389	ERROR_DEPENDENT_RESOURCE_EXISTS		The cluster resource cannot be moved to another group because other resources are dependent on it.
5002	0x0000138A	ERROR_DEPENDENCY_NOT_FOUND		The cluster resource dependency cannot be found.
5003	0x0000138B	ERROR_DEPENDENCY_ALREADY_EXISTS		The cluster resource cannot be made dependent on the specified resource because it is already dependent.
5004	0x0000138C	ERROR_RESOURCE_NOT_ONLINE		The cluster resource is not online.
5005	0x0000138D	ERROR_HOST_NODE_NOT_AVAILABLE		A cluster node is not available for this operation.
5006	0x0000138E	ERROR_RESOURCE_NOT_AVAILABLE		The cluster resource is not available.
5007	0x0000138F	ERROR_RESOURCE_NOT_FOUND		The cluster resource could not be found.
5008	0x00001390	ERROR_SHUTDOWN_CLUSTER		The cluster is being shut down.
5009	0x00001391	ERROR_CANT_EVICT_ACTIVE_NODE		A cluster node cannot be evicted from the cluster unless the node is down.
5010	0x00001392	ERROR_OBJECT_ALREADY_EXISTS		The object already exists.
5011	0x00001393	ERROR_OBJECT_IN_LIST		The object is already in the list.
5012	0x00001394	ERROR_GROUP_NOT_AVAILABLE		The cluster group is not available for any new requests.
5013	0x00001395	ERROR_GROUP_NOT_FOUND		The cluster group could not be found.
5014	0x00001396	ERROR_GROUP_NOT_ONLINE		The operation could not be completed because the cluster group is not online.
5015	0x00001397	ERROR_HOST_NODE_NOT_RESOURCE_OWNER		The cluster node is not the owner of the resource.
5016	0x00001398	ERROR_HOST_NODE_NOT_GROUP_OWNER		The cluster node is not the owner of the group.
5017	0x00001399	ERROR_RESMON_CREATE_FAILED		The cluster resource could not be created in the specified resource monitor.
5018	0x0000139A	ERROR_RESMON_ONLINE_FAILED		The cluster resource could not be brought online by the resource monitor.
5019	0x0000139B	ERROR_RESOURCE_ONLINE		The operation could not be completed because the cluster resource is online.
5020	0x0000139C	ERROR_QUORUM_RESOURCE		The cluster resource could not be deleted or brought offline because it is the quorum resource.
5021	0x0000139D	ERROR_NOT_QUORUM_CAPABLE		The cluster could not make the specified resource a quorum resource because it is not capable of being a quorum resource.
5022	0x0000139E	ERROR_CLUSTER_SHUTTING_DOWN		The cluster software is shutting down.
5023	0x0000139F	ERROR_INVALID_STATE		The group or resource is not in the correct state to perform the requested operation.
5024	0x000013A0	ERROR_RESOURCE_PROPERTIES_STORED		The properties were stored but not all changes will take effect until the next time the resource is brought online.
5025	0x000013A1	ERROR_NOT_QUORUM_CLASS		The cluster could not make the specified resource a quorum resource because it does not belong to a shared storage class.
5026	0x000013A2	ERROR_CORE_RESOURCE		The cluster resource could not be deleted since it is a core resource.
5027	0x000013A3	ERROR_QUORUM_RESOURCE_ONLINE_FAILED		The quorum resource failed to come online.
5028	0x000013A4	ERROR_QUORUMLOG_OPEN_FAILED		The quorum log could not be created or mounted successfully.
5029	0x000013A5	ERROR_CLUSTERLOG_CORRUPT		The cluster log is corrupt.
5030	0x000013A6	ERROR_CLUSTERLOG_RECORD_EXCEEDS_MAXSIZE		The record could not be written to the cluster log since it exceeds the maximum size.
5031	0x000013A7	ERROR_CLUSTERLOG_EXCEEDS_MAXSIZE		The cluster log exceeds its maximum size.
5032	0x000013A8	ERROR_CLUSTERLOG_CHKPOINT_NOT_FOUND		No checkpoint record was found in the cluster log.
5033	0x000013A9	ERROR_CLUSTERLOG_NOT_ENOUGH_SPACE		The minimum required disk space needed for logging is not available.
5034	0x000013AA	ERROR_QUORUM_OWNER_ALIVE		The cluster node failed to take control of the quorum resource because the resource is owned by another active node.
5035	0x000013AB	ERROR_NETWORK_NOT_AVAILABLE		A cluster network is not available for this operation.
5036	0x000013AC	ERROR_NODE_NOT_AVAILABLE		A cluster node is not available for this operation.

		Error		Description
decimal	Hexadecimal	Name		
5037	0x000013AD	ERROR_ALL_NODES_NOT_AVAILABLE		All cluster nodes must be running to perform this operation.
5038	0x000013AE	ERROR_RESOURCE_FAILED		A cluster resource failed.
5039	0x000013AF	ERROR_CLUSTER_INVALID_NODE		The cluster node is not valid.
5040	0x000013B0	ERROR_CLUSTER_NODE_EXISTS		The cluster node already exists.
5041	0x000013B1	ERROR_CLUSTER_JOIN_IN_PROGRESS		A node is in the process of joining the cluster.
5042	0x000013B2	ERROR_CLUSTER_NODE_NOT_FOUND		The cluster node was not found.
5043	0x000013B3	ERROR_CLUSTER_LOCAL_NODE_NOT_FOUND		The cluster local node information was not found.
5044	0x000013B4	ERROR_CLUSTER_NETWORK_EXISTS		The cluster network already exists.
5045	0x000013B5	ERROR_CLUSTER_NETWORK_NOT_FOUND		The cluster network was not found.
5046	0x000013B6	ERROR_CLUSTER_NETINTERFACE_EXISTS		The cluster network interface already exists.
5047	0x000013B7	ERROR_CLUSTER_NETINTER- FACE_NOT_FOUND		The cluster network interface was not found.
5048	0x000013B8	ERROR_CLUSTER_INVALID_REQUEST		The cluster request is not valid for this object.
5049	0x000013B9	ERROR_CLUSTER_INVALID_NET- WORK_PROVIDER		The cluster network provider is not valid.
5050	0x000013BA	ERROR_CLUSTER_NODE_DOWN		The cluster node is down.
5051	0x000013BB	ERROR_CLUSTER_NODE_UNREACHABLE		The cluster node is not reachable.
5052	0x000013BC	ERROR_CLUSTER_NODE_NOT_MEMBER		The cluster node is not a member of the cluster.
5053	0x000013BD	ERROR_CLUSTER_JOIN_NOT_IN_PROGRESS		A cluster join operation is not in progress.
5054	0x000013BE	ERROR_CLUSTER_INVALID_NETWORK		The cluster network is not valid.
5056	0x000013C0	ERROR_CLUSTER_NODE_UP		The cluster node is up.
5057	0x000013C1	ERROR_CLUSTER_IPADDR_IN_USE		The cluster IP address is already in use.
5058	0x000013C2	ERROR_CLUSTER_NODE_NOT_PAUSED		The cluster node is not paused.
5059	0x000013C3	ERROR_CLUSTER_NO_SECURITY_CONTEXT		No cluster security context is available.
5060	0x000013C4	ERROR_CLUSTER_NETWORK_NOT_INTERNAL		The cluster network is not configured for internal cluster communication.
5061	0x000013C5	ERROR_CLUSTER_NODE_ALREADY_UP		The cluster node is already up.
5062	0x000013C6	ERROR_CLUSTER_NODE_ALREADY_DOWN		The cluster node is already down.
5063	0x000013C7	ERROR_CLUSTER_NETWORK_ALREADY_ON- LINE		The cluster network is already online.
5064	0x000013C8	ERROR_CLUSTER_NETWORK_ALREADY_OFF- LINE		The cluster network is already offline.
5065	0x000013C9	ERROR_CLUSTER_NODE_ALREADY_MEMBER		The cluster node is already a member of the cluster.
5066	0x000013CA	ERROR_CLUSTER_LAST_INTERNAL_NETWORK		The cluster network is the only one configured for internal cluster communication between two or more active cluster nodes. The internal communication capability cannot be removed from the network.
5067	0x000013CB	ERROR_CLUSTER_NETWORK_HAS_DEPEN- DENTS		One or more cluster resources depend on the network to provide service to clients. The client access capability cannot be removed from the network.
5068	0x000013CC	ERROR_INVALID_OPERATION_ON_QUORUM		This operation cannot be performed on the cluster resource as it the quorum resource. You may not bring the quorum resource offline or modify its possible owners list.
5069	0x000013CD	ERROR_DEPENDENCY_NOT_ALLOWED		The cluster quorum resource is not allowed to have any dependencies.
5070	0x000013CE	ERROR_CLUSTER_NODE_PAUSED		The cluster node is paused.
5071	0x000013CF	ERROR_NODE_CANT_HOST_RESOURCE		The cluster resource cannot be brought online. The owner node cannot run this resource.
5072	0x000013D0	ERROR_CLUSTER_NODE_NOT_READY		The cluster node is not ready to perform the requested operation.
5073	0x000013D1	ERROR_CLUSTER_NODE_SHUTTING_DOWN		The cluster node is shutting down.
5074	0x000013D2	ERROR_CLUSTER_JOIN_ABORTED		The cluster join operation was aborted.
5075	0x000013D3	ERROR_CLUSTER_INCOMPATIBLE_VERSIONS		The cluster join operation failed due to incompatible software versions between the joining node and its sponsor.
5076	0x000013D4	ERROR_CLUSTER_MAXNUM_OF_RE- SOURCEES_EXCEEDED		This resource cannot be created because the cluster has reached the limit on the number of resources it can monitor.

Error			Description
decimal	Hexadecimal	Name	
5077	0x000013D5	ERROR_CLUSTER_SYSTEM_CONFIG_CHANGED	The system configuration changed during the cluster join or form operation. The join or form operation was aborted.
5078	0x000013D6	ERROR_CLUSTER_RESOURCE_TYPE_NOT_FOUND	The specified resource type was not found.
5079	0x000013D7	ERROR_CLUSTER_RESTYPE_NOT_SUPPORTED	The specified node does not support a resource of this type. This may be due to version inconsistencies or due to the absence of the resource DLL on this node.
5080	0x000013D8	ERROR_CLUSTER_RESNAME_NOT_FOUND	The specified resource name is supported by this resource DLL. This may be due to a bad (or changed) name supplied to the resource DLL.
5081	0x000013D9	ERROR_CLUSTER_NO_RPC_PACKAGES_REGISTERED	No authentication package could be registered with the RPC server.
5082	0x000013DA	ERROR_CLUSTER_OWNER_NOT_IN_PREFLIST	You cannot bring the group online because the owner of the group is not in the preferred list for the group. To change the owner node for the group, move the group.
5083	0x000013DB	ERROR_CLUSTER_DATABASE_SEQMISMATCH	The join operation failed because the cluster database sequence number has changed or is incompatible with the locker node. This may happen during a join operation if the cluster database was changing during the join.
5084	0x000013DC	ERROR_RESMON_INVALID_STATE	The resource monitor will not allow the fail operation to be performed while the resource is in its current state. This may happen if the resource is in a pending state.
5085	0x000013DD	ERROR_CLUSTER_GUM_NOT_LOCKER	A non locker code got a request to reserve the lock for making global updates.
5086	0x000013DE	ERROR_QUORUM_DISK_NOT_FOUND	The quorum disk could not be located by the cluster service.
5087	0x000013DF	ERROR_DATABASE_BACKUP_CORRUPT	The backup up cluster database is possibly corrupt.
5088	0x000013E0	ERROR_CLUSTER_NODE_ALREADY_HAS_DFS_ROOT	A DFS root already exists in this cluster node.
5089	0x000013E1	ERROR_RESOURCE_PROPERTY_UNCHANGEABLE	An attempt to modify a resource property failed because it conflicts with another existing property.
5890	0x00001702	ERROR_CLUSTER_MEMBERSHIP_INVALID_STATE	An operation was attempted that is incompatible with the current membership state of the node.
5891	0x00001703	ERROR_CLUSTER_QUORUMLOG_NOT_FOUND	The quorum resource does not contain the quorum log.
5892	0x00001704	ERROR_CLUSTER_MEMBERSHIP_HALT	The membership engine requested shutdown of the cluster service on this node.
5893	0x00001705	ERROR_CLUSTER_INSTANCE_ID_MISMATCH	The join operation failed because the cluster instance ID of the joining node does not match the cluster instance ID of the sponsor node.
5894	0x00001706	ERROR_CLUSTER_NETWORK_NOT_FOUND_FOR_IP	A matching network for the specified IP address could not be found. Please also specify a subnet mask and a cluster network.
5895	0x00001707	ERROR_CLUSTER_PROPERTY_DATA_TYPE_MISMATCH	The actual data type of the property did not match the expected data type of the property.
5896	0x00001708	ERROR_CLUSTER_EVICT_WITHOUT_CLEANUP	The cluster node was evicted from the cluster successfully. The node was not cleaned up because it does not support the evict cleanup functionality.

		Error		Description
decimal	Hexadecimal	Name		
6000	0x00001770	ERROR_ENCRYPTION_FAILED		The specified file could not be encrypted.
6001	0x00001771	ERROR_DECRYPTION_FAILED		The specified file could not be decrypted.
6002	0x00001772	ERROR_FILE_ENCRYPTED		The specified file is encrypted and the user does not have the ability to decrypt it.
6003	0x00001773	ERROR_NO_RECOVERY_POLICY		There is no valid encryption recovery policy configured for this system.
6004	0x00001774	ERROR_NO_EFS		The required encryption driver is not loaded for this system.
6005	0x00001775	ERROR_WRONG_EFS		The file was encrypted with a different encryption driver than is currently loaded.
6006	0x00001776	ERROR_NO_USER_KEYS		There are no EFS keys defined for the user.
6007	0x00001777	ERROR_FILE_NOT_ENCRYPTED		The specified file is not encrypted.
6008	0x00001778	ERROR_NOT_EXPORT_FORMAT		The specified file is not in the defined EFS export format.
6009	0x00001779	ERROR_FILE_READ_ONLY		The specified file is read only.
6010	0x0000177A	ERROR_DIR_EFS_DISALLOWED		The directory has been disabled for encryption.
6011	0x0000177B	ERROR_EFS_SERVER_NOT_TRUSTED		The server is not trusted for remote encryption operation.
6012	0x0000177C	ERROR_BAD_RECOVERY_POLICY		Recovery policy configured for this system contains invalid recovery certificate.
6013	0x0000177D	ERROR_EFS_ALG_BLOB_TOO_BIG		The encryption algorithm used on the source file needs a bigger key buffer than the one on the destination file.
6014	0x0000177E	ERROR_VOLUME_NOT_SUPPORT_EFS		The disk partition does not support file encryption.
6118	0x000017E6	ERROR_NO_BROWSER_SERVERS_FOUND		The list of servers for this workgroup is not currently available.
6200	0x00001838	SCHED_E_SERVICE_NOT_LOCALSYSTEM		The Task Scheduler service must be configured to run in the System account to function properly. Individual tasks may be configured to run in other accounts.
7001	0x00001B59	ERROR_CTX_WINSTATION_NAME_INVALID		The specified session name is invalid.
7002	0x00001B5A	ERROR_CTX_INVALID_PD		The specified protocol driver is invalid.
7003	0x00001B5B	ERROR_CTX_PD_NOT_FOUND		The specified protocol driver was not found in the system path.
7004	0x00001B5C	ERROR_CTX_WD_NOT_FOUND		The specified terminal connection driver was not found in the system path.
7005	0x00001B5D	ERROR_CTX_CANNOT_MAKE_EVENTLOG_ENTRY		A registry key for event logging could not be created for this session.
7006	0x00001B5E	ERROR_CTX_SERVICE_NAME_COLLISION		A service with the same name already exists on the system.
7007	0x00001B5F	ERROR_CTX_CLOSE_PENDING		A close operation is pending on the session.
7008	0x00001B60	ERROR_CTX_NO_OUTBUF		There are no free output buffers available.
7009	0x00001B61	ERROR_CTX_MODEM_INF_NOT_FOUND		The MODEM.INF file was not found.
7010	0x00001B62	ERROR_CTX_INVALID_MODEMNAME		The modem name was not found in MODEM.INF.
7011	0x00001B63	ERROR_CTX_MODEM_RESPONSE_ERROR		The modem did not accept the command sent to it. Verify that the configured modem name matches the attached modem.
7012	0x00001B64	ERROR_CTX_MODEM_RESPONSE_TIMEOUT		The modem did not respond to the command sent to it. Verify that the modem is properly cabled and powered on.
7013	0x00001B65	ERROR_CTX_MODEM_RESPONSE_NO_CARRIER		Carrier detect has failed or carrier has been dropped due to disconnect.
7014	0x00001B66	ERROR_CTX_MODEM_RESPONSE_NO_DIALTONE		Dial tone not detected within the required time. Verify that the phone cable is properly attached and functional.
7015	0x00001B67	ERROR_CTX_MODEM_RESPONSE_BUSY		Busy signal detected at remote site on callback.
7016	0x00001B68	ERROR_CTX_MODEM_RESPONSE_VOICE		Voice detected at remote site on callback.
7017	0x00001B69	ERROR_CTX_TD_ERROR		Transport driver error
7022	0x00001B6E	ERROR_CTX_WINSTATION_NOT_FOUND		The specified session cannot be found.
7023	0x00001B6F	ERROR_CTX_WINSTATION_ALREADY_EXISTS		The specified session name is already in use.
7024	0x00001B70	ERROR_CTX_WINSTATION_BUSY		The requested operation cannot be completed because the terminal connection is currently busy processing a connect, disconnect, reset, or delete operation.

Error			Description
decimal	Hexadecimal	Name	
7025	0x00001B71	ERROR_CTX_BAD_VIDEO_MODE	An attempt has been made to connect to a session whose video mode is not supported by the current client.
7035	0x00001B7B	ERROR_CTX_GRAPHICS_INVALID	The application attempted to enable DOS graphics mode. DOS graphics mode is not supported.
7037	0x00001B7D	ERROR_CTX_LOGON_DISABLED	Your interactive logon privilege has been disabled. Please contact your administrator.
7038	0x00001B7E	ERROR_CTX_NOT_CONSOLE	The requested operation can be performed only on the system console. This is most often the result of a driver or system DLL requiring direct console access.
7040	0x00001B80	ERROR_CTX_CLIENT_QUERY_TIMEOUT	The client failed to respond to the server connect message.
7041	0x00001B81	ERROR_CTX_CONSOLE_DISCONNECT	Disconnecting the console session is not supported.
7042	0x00001B82	ERROR_CTX_CONSOLE_CONNECT	Reconnecting a disconnected session to the console is not supported.
7044	0x00001B84	ERROR_CTX_SHADOW_DENIED	The request to control another session remotely was denied.
7045	0x00001B85	ERROR_CTX_WINSTATION_ACCESS_DENIED	The requested session access is denied.
7049	0x00001B89	ERROR_CTX_INVALID_WD	The specified terminal connection driver is invalid.
7050	0x00001B8A	ERROR_CTX_SHADOW_INVALID	The requested session cannot be controlled remotely. This may be because the session is disconnected or does not currently have a user logged on.
7051	0x00001B8B	ERROR_CTX_SHADOW_DISABLED	The requested session is not configured to allow remote control.
7052	0x00001B8C	ERROR_CTX_CLIENT_LICENSE_IN_USE	Your request to connect to this Terminal Server has been rejected. Your Terminal Server client license number is currently being used by another user. Please call your system administrator to obtain a unique license number.
7053	0x00001B8D	ERROR_CTX_CLIENT_LICENSE_NOT_SET	Your request to connect to this Terminal Server has been rejected. Your Terminal Server client license number has not been entered for this copy of the Terminal Server client. Please contact your system administrator.
7054	0x00001B8E	ERROR_CTX_LICENSE_NOT_AVAILABLE	The system has reached its licensed logon limit. Please try again later.
7055	0x00001B8F	ERROR_CTX_LICENSE_CLIENT_INVALID	The client you are using is not licensed to use this system. Your logon request is denied.
7056	0x00001B90	ERROR_CTX_LICENSE_EXPIRED	The system license has expired. Your logon request is denied.
7057	0x00001B91	ERROR_CTX_SHADOW_NOT_RUNNING	Remote control could not be terminated because the specified session is not currently being remotely controlled.

		Error	Description
decimal	Hexadecimal	Name	
8001	0x00001F41	FRS_ERR_INVALID_API_SEQUENCE	The file replication service API was called incorrectly.
8002	0x00001F42	FRS_ERR_STARTING_SERVICE	The file replication service cannot be started.
8003	0x00001F43	FRS_ERR_STOPPING_SERVICE	The file replication service cannot be stopped.
8004	0x00001F44	FRS_ERR_INTERNAL_API	The file replication service API terminated the request. The event log may have more information.
8005	0x00001F45	FRS_ERR_INTERNAL	The file replication service terminated the request. The event log may have more information.
8006	0x00001F46	FRS_ERR_SERVICE_COMM	The file replication service cannot be contacted. The event log may have more information.
8007	0x00001F47	FRS_ERR_INSUFFICIENT_PRIV	The file replication service cannot satisfy the request because the user has insufficient privileges. The event log may have more information.
8008	0x00001F48	FRS_ERR_AUTHENTICATION	The file replication service cannot satisfy the request because authenticated RPC is not available. The event log may have more information.
8009	0x00001F49	FRS_ERR_PARENT_INSUFFICIENT_PRIV	The file replication service cannot satisfy the request because the user has insufficient privileges on the domain controller. The event log may have more information.
8010	0x00001F4A	FRS_ERR_PARENT_AUTHENTICATION	The file replication service cannot satisfy the request because authenticated RPC is not available on the domain controller. The event log may have more information.
8011	0x00001F4B	FRS_ERR_CHILD_TO_PARENT_COMM	The file replication service cannot communicate with the file replication service on the domain controller. The event log may have more information.
8012	0x00001F4C	FRS_ERR_PARENT_TO_CHILD_COMM	The file replication service on the domain controller cannot communicate with the file replication service on this computer. The event log may have more information.
8013	0x00001F4D	FRS_ERR_SYSVOL_POPULATE	The file replication service cannot populate the system volume because of an internal error. The event log may have more information.
8014	0x00001F4E	FRS_ERR_SYSVOL_POPULATE_TIMEOUT	The file replication service cannot populate the system volume because of an internal timeout. The event log may have more information.
8015	0x00001F4F	FRS_ERR_SYSVOL_IS_BUSY	The file replication service cannot process the request. The system volume is busy with a previous request.
8016	0x00001F50	FRS_ERR_SYSVOL_DEMOTE	The file replication service cannot stop replicating the system volume because of an internal error. The event log may have more information.
8017	0x00001F51	FRS_ERR_INVALID_SERVICE_PARAMETER	The file replication service detected an invalid parameter.
8200	0x00002008	ERROR_DS_NOT_INSTALLED	An error occurred while installing the directory service. For more information, see the event log.
8201	0x00002009	ERROR_DS_MEMBERSHIP_EVALUATED_LOCALLY	The directory service evaluated group memberships locally.
8202	0x0000200A	ERROR_DS_NO_ATTRIBUTE_OR_VALUE	The specified directory service attribute or value does not exist.
8203	0x0000200B	ERROR_DS_INVALID_ATTRIBUTE_SYNTAX	The attribute syntax specified to the directory service is invalid.
8204	0x0000200C	ERROR_DS_ATTRIBUTE_TYPE_UNDEFINED	The attribute type specified to the directory service is not defined.
8205	0x0000200D	ERROR_DS_ATTRIBUTE_OR_VALUE_EXISTS	The specified directory service attribute or value already exists.
8206	0x0000200E	ERROR_DS_BUSY	The directory service is busy.
8207	0x0000200F	ERROR_DS_UNAVAILABLE	The directory service is unavailable.
8208	0x00002010	ERROR_DS_NO_RIDS_ALLOCATED	The directory service was unable to allocate a relative identifier.
8209	0x00002011	ERROR_DS_NO_MORE_RIDS	The directory service has exhausted the pool of relative identifiers.
8210	0x00002012	ERROR_DS_INCORRECT_ROLE_OWNER	The requested operation could not be performed because the directory service is not the master for that type of operation.

		Error	Description
decimal	Hexadecimal	Name	
8211	0x00002013	ERROR_DS_RIDMGR_INIT_ERROR	The directory service was unable to initialize the subsystem that allocates relative identifiers.
8212	0x00002014	ERROR_DS_OBJ_CLASS_VIOLATION	The requested operation did not satisfy one or more constraints associated with the class of the object.
8213	0x00002015	ERROR_DS_CANT_ON_NON_LEAF	The directory service can perform the requested operation only on a leaf object.
8214	0x00002016	ERROR_DS_CANT_ON_RDN	The directory service cannot perform the requested operation on the RDN attribute of an object.
8215	0x00002017	ERROR_DS_CANT_MOD_OBJ_CLASS	The directory service detected an attempt to modify the object class of an object.
8216	0x00002018	ERROR_DS_CROSS_DOM_MOVE_ERROR	The requested cross-domain move operation could not be performed.
8217	0x00002019	ERROR_DS_GC_NOT_AVAILABLE	Unable to contact the global catalog server.
8218	0x0000201A	ERROR_SHARED_POLICY	The policy object is shared and can only be modified at the root.
8219	0x0000201B	ERROR_POLICY_OBJECT_NOT_FOUND	The policy object does not exist.
8220	0x0000201C	ERROR_POLICY_ONLY_IN_DS	The requested policy information is only in the directory service.
8221	0x0000201D	ERROR_PROMOTION_ACTIVE	A domain controller promotion is currently active.
8222	0x0000201E	ERROR_NO_PROMOTION_ACTIVE	A domain controller promotion is not currently active.
8224	0x00002020	ERROR_DS_OPERATIONS_ERROR	An operations error occurred.
8225	0x00002021	ERROR_DS_PROTOCOL_ERROR	A protocol error occurred.
8226	0x00002022	ERROR_DS_TIMELIMIT_EXCEEDED	The time limit for this request was exceeded.
8227	0x00002023	ERROR_DS_SIZELIMIT_EXCEEDED	The size limit for this request was exceeded.
8228	0x00002024	ERROR_DS_ADMIN_LIMIT_EXCEEDED	The administrative limit for this request was exceeded.
8229	0x00002025	ERROR_DS_COMPARE_FALSE	The compare response was false.
8230	0x00002026	ERROR_DS_COMPARE_TRUE	The compare response was true.
8231	0x00002027	ERROR_DS_AUTH_METHOD_NOT_SUPPORTED	The requested authentication method is not supported by the server.
8232	0x00002028	ERROR_DS_STRONG_AUTH_REQUIRED	A more secure authentication method is required for this server.
8233	0x00002029	ERROR_DS_INAPPROPRIATE_AUTH	Inappropriate authentication.
8234	0x0000202A	ERROR_DS_AUTH_UNKNOWN	The authentication mechanism is unknown.
8235	0x0000202B	ERROR_DS_REFERRAL	A referral was returned from the server.
8236	0x0000202C	ERROR_DS_UNAVAILABLE_CRIT_EXTENSION	The server does not support the requested critical extension.
8237	0x0000202D	ERROR_DS_CONFIDENTIALITY_REQUIRED	This request requires a secure connection.
8238	0x0000202E	ERROR_DS_INAPPROPRIATE_MATCHING	Inappropriate matching.
8239	0x0000202F	ERROR_DS_CONSTRAINT_VIOLATION	A constraint violation occurred.
8240	0x00002030	ERROR_DS_NO_SUCH_OBJECT	There is no such object on the server.
8241	0x00002031	ERROR_DS_ALIAS_PROBLEM	There is an alias problem.
8242	0x00002032	ERROR_DS_INVALID_DN_SYNTAX	An invalid dn syntax has been specified.
8243	0x00002033	ERROR_DS_IS_LEAF	The object is a leaf object.
8244	0x00002034	ERROR_DS_ALIAS_DEREF_PROBLEM	There is an alias dereferencing problem.
8245	0x00002035	ERROR_DS_UNWILLING_TO_PERFORM	The server is unwilling to process the request.
8246	0x00002036	ERROR_DS_LOOP_DETECT	A loop has been detected.
8247	0x00002037	ERROR_DS_NAMING_VIOLATION	There is a naming violation.
8248	0x00002038	ERROR_DS_OBJECT_RESULTS_TOO_LARGE	The result set is too large.
8249	0x00002039	ERROR_DS_AFFECTS_MULTIPLE_DSAS	The operation affects multiple DSAs.
8250	0x0000203A	ERROR_DS_SERVER_DOWN	The server is not operational.
8251	0x0000203B	ERROR_DS_LOCAL_ERROR	A local error has occurred.
8252	0x0000203C	ERROR_DS_ENCODING_ERROR	An encoding error has occurred.
8253	0x0000203D	ERROR_DS_DECODING_ERROR	A decoding error has occurred.
8254	0x0000203E	ERROR_DS_FILTER_UNKNOWN	The search filter cannot be recognized.
8255	0x0000203F	ERROR_DS_PARAM_ERROR	One or more parameters are illegal.
8256	0x00002040	ERROR_DS_NOT_SUPPORTED	The specified method is not supported.
8257	0x00002041	ERROR_DS_NO_RESULTS_RETURNED	No results were returned.

		Error		Description
decimal	Hexadecimal	Name		
8258	0x00002042	ERROR_DS_CONTROL_NOT_FOUND		The specified control is not supported by the server.
8259	0x00002043	ERROR_DS_CLIENT_LOOP		A referral loop was detected by the client.
8260	0x00002044	ERROR_DS_REFERRAL_LIMIT_EXCEEDED		The preset referral limit was exceeded.
8261	0x00002045	ERROR_DS_SORT_CONTROL_MISSING		The search requires a SORT control.
8262	0x00002046	ERROR_DS_OFFSET_RANGE_ERROR		The search results exceed the offset range specified.
8301	0x0000206D	ERROR_DS_ROOT_MUST_BE_NC		The root object must be the head of a naming context. The root object cannot have an instantiated parent.
8302	0x0000206E	ERROR_DS_ADD_REPLICA_INHIBITED		The add replica operation cannot be performed. The naming context must be writable in order to create the replica.
8303	0x0000206F	ERROR_DS_ATT_NOT_DEF_IN_SCHEMA		A reference to an attribute that is not defined in the schema occurred.
8304	0x00002070	ERROR_DS_MAX_OBJ_SIZE_EXCEEDED		The maximum size of an object has been exceeded.
8305	0x00002071	ERROR_DS_OBJ_STRING_NAME_EXISTS		An attempt was made to add an object to the directory with a name that is already in use.
8306	0x00002072	ERROR_DS_NO_RDN_DEFINED_IN_SCHEMA		An attempt was made to add an object of a class that does not have an RDN defined in the schema.
8307	0x00002073	ERROR_DS_RDN_DOESNT_MATCH_SCHEMA		An attempt was made to add an object using an RDN that is not the RDN defined in the schema.
8308	0x00002074	ERROR_DS_NO_REQUESTED_ATTRS_FOUND		None of the requested attributes were found on the objects.
8309	0x00002075	ERROR_DS_USER_BUFFER_TOO_SMALL		The user buffer is too small.
8310	0x00002076	ERROR_DS_ATT_IS_NOT_ON_OBJ		The attribute specified in the operation is not present on the object.
8311	0x00002077	ERROR_DS_ILLEGAL_MOD_OPERATION		Illegal modify operation. Some aspect of the modification is not permitted.
8312	0x00002078	ERROR_DS_OBJ_TOO_LARGE		The specified object is too large.
8313	0x00002079	ERROR_DS_BAD_INSTANCE_TYPE		The specified instance type is not valid.
8314	0x0000207A	ERROR_DS_MASTERDSA_REQUIRED		The operation must be performed at a master DSA.
8315	0x0000207B	ERROR_DS_OBJECT_CLASS_REQUIRED		The object class attribute must be specified.
8316	0x0000207C	ERROR_DS_MISSING_REQUIRED_ATT		A required attribute is missing.
8317	0x0000207D	ERROR_DS_ATT_NOT_DEF_FOR_CLASS		An attempt was made to modify an object to include an attribute that is not legal for its class.
8318	0x0000207E	ERROR_DS_ATT_ALREADY_EXISTS		The specified attribute is already present on the object.
8320	0x00002080	ERROR_DS_CANT_ADD_ATT_VALUES		The specified attribute is not present, or has no values.
8321	0x00002081	ERROR_DS_SINGLE_VALUE_CONSTRAINT		Multiple values were specified for an attribute that can have only one value.
8322	0x00002082	ERROR_DS_RANGE_CONSTRAINT		A value for the attribute was not in the acceptable range of values.
8323	0x00002083	ERROR_DS_ATT_VAL_ALREADY_EXISTS		The specified value already exists.
8324	0x00002084	ERROR_DS_CANT_REM_MISSING_ATT		The attribute cannot be removed because it is not present on the object.
8325	0x00002085	ERROR_DS_CANT_REM_MISSING_ATT_VAL		The attribute value cannot be removed because it is not present on the object.
8326	0x00002086	ERROR_DS_ROOT_CANT_BE_SUBREF		The specified root object cannot be a subref.
8327	0x00002087	ERROR_DS_NO_CHAINING		Chaining is not permitted.
8328	0x00002088	ERROR_DS_NO_CHAINED_EVAL		Chained evaluation is not permitted.
8329	0x00002089	ERROR_DS_NO_PARENT_OBJECT		The operation could not be performed because the object's parent is either uninstantiated or deleted.
8330	0x0000208A	ERROR_DS_PARENT_IS_AN_ALIAS		Having a parent that is an alias is not permitted. Aliases are leaf objects.
8331	0x0000208B	ERROR_DS_CANT_MIX_MASTER_AND_REPS		The object and parent must be of the same type, either both masters or both replicas.

		Error	Description
decimal	Hexadecimal	Name	
8332	0x0000208C	ERROR_DS_CHILDREN_EXIST	The operation cannot be performed because child objects exist. This operation can only be performed on a leaf object.
8333	0x0000208D	ERROR_DS_OBJ_NOT_FOUND	Directory object not found.
8334	0x0000208E	ERROR_DS_ALIASED_OBJ_MISSING	The aliased object is missing.
8335	0x0000208F	ERROR_DS_BAD_NAME_SYNTAX	The object name has bad syntax.
8336	0x00002090	ERROR_DS_ALIAS_POINTS_TO_ALIAS	It is not permitted for an alias to refer to another alias.
8337	0x00002091	ERROR_DS_CANT_DEREF_ALIAS	The alias cannot be dereferenced.
8338	0x00002092	ERROR_DS_OUT_OF_SCOPE	The operation is out of scope.
8339	0x00002093	ERROR_DS_OBJECT_BEING_REMOVED	The operation cannot continue because the object is in the process of being removed.
8340	0x00002094	ERROR_DS_CANT_DELETE_DSA_OBJ	The DSA object cannot be deleted.
8341	0x00002095	ERROR_DS_GENERIC_ERROR	A directory service error has occurred.
8342	0x00002096	ERROR_DS_DSA_MUST_BE_INT_MASTER	The operation can only be performed on an internal master DSA object.
8343	0x00002097	ERROR_DS_CLASS_NOT_DSA	The object must be of class DSA.
8344	0x00002098	ERROR_DS_INSUFF_ACCESS_RIGHTS	Insufficient access rights to perform the operation.
8345	0x00002099	ERROR_DS_ILLEGAL_SUPERIOR	The object cannot be added because the parent is not on the list of possible superiors.
8346	0x0000209A	ERROR_DS_ATTRIBUTE_OWNED_BY_SAM	Access to the attribute is not permitted because the attribute is owned by the Security Accounts Manager (SAM).
8347	0x0000209B	ERROR_DS_NAME_TOO_MANY_PARTS	The name has too many parts.
8348	0x0000209C	ERROR_DS_NAME_TOO_LONG	The name is too long.
8349	0x0000209D	ERROR_DS_NAME_VALUE_TOO_LONG	The name value is too long.
8350	0x0000209E	ERROR_DS_NAME_UNPARSEABLE	The directory service encountered an error parsing a name.
8351	0x0000209F	ERROR_DS_NAME_TYPE_UNKNOWN	The directory service cannot get the attribute type for a name.
8352	0x000020A0	ERROR_DS_NOT_AN_OBJECT	The name does not identify an object; the name identifies a phantom.
8353	0x000020A1	ERROR_DS_SEC_DESC_TOO_SHORT	The security descriptor is too short.
8354	0x000020A2	ERROR_DS_SEC_DESC_INVALID	The security descriptor is invalid.
8355	0x000020A3	ERROR_DS_NO_DELETED_NAME	Failed to create name for deleted object.
8356	0x000020A4	ERROR_DS_SUBREF_MUST_HAVE_PARENT	The parent of a new subref must exist.
8357	0x000020A5	ERROR_DS_NCNAME_MUST_BE_NC	The object must be a naming context.
8358	0x000020A6	ERROR_DS_CANT_ADD_SYSTEM_ONLY	It is not permitted to add an attribute which is owned by the system.
8359	0x000020A7	ERROR_DS_CLASS_MUST_BE_CONCRETE	The class of the object must be structural; you cannot instantiate an abstract class.
8360	0x000020A8	ERROR_DS_INVALID_DMD	The schema object could not be found.
8361	0x000020A9	ERROR_DS_OBJ_GUID_EXISTS	A local object with this GUID (dead or alive) already exists.
8362	0x000020AA	ERROR_DS_NOT_ON_BACKLINK	The operation cannot be performed on a back link.
8363	0x000020AB	ERROR_DS_NO_CROSSREF_FOR_NC	The cross reference for the specified naming context could not be found.
8364	0x000020AC	ERROR_DS_SHUTTING_DOWN	The operation could not be performed because the directory service is shutting down.
8365	0x000020AD	ERROR_DS_UNKNOWN_OPERATION	The directory service request is invalid.
8366	0x000020AE	ERROR_DS_INVALID_ROLE_OWNER	The role owner attribute could not be read.
8367	0x000020AF	ERROR_DS_COULDNT_CONTACT_FSMO	The requested FSMO operation failed. The current FSMO holder could not be reached.
8368	0x000020B0	ERROR_DS_CROSS_NC_DN_RENAME	Modification of a DN across a naming context is not permitted.
8369	0x000020B1	ERROR_DS_CANT_MOD_SYSTEM_ONLY	The attribute cannot be modified because it is owned by the system.
8370	0x000020B2	ERROR_DS_REPLICATOR_ONLY	Only the replicator can perform this function.
8371	0x000020B3	ERROR_DS_OBJ_CLASS_NOT_DEFINED	The specified class is not defined.
8372	0x000020B4	ERROR_DS_OBJ_CLASS_NOT_SUBCLASS	The specified class is not a subclass.
8373	0x000020B5	ERROR_DS_NAME_REFERENCE_INVALID	The name reference is invalid.

		Error		Description
decimal	Hexadecimal	Name		
8374	0x000020B6	ERROR_DS_CROSS_REF_EXISTS		A cross reference already exists.
8375	0x000020B7	ERROR_DS_CANT_DEL_MASTER_CROSSREF		It is not permitted to delete a master cross reference.
8376	0x000020B8	ERROR_DS_SUBTREE_NOTIFY_NOT_NC_HEAD		Subtree notifications are only supported on NC heads.
8377	0x000020B9	ERROR_DS_NOTIFY_FILTER_TOO_COMPLEX		Notification filter is too complex.
8378	0x000020BA	ERROR_DS_DUP_RDN		Schema update failed: duplicate RDN.
8379	0x000020BB	ERROR_DS_DUP_OID		Schema update failed: duplicate OID
8380	0x000020BC	ERROR_DS_DUP_MAPI_ID		Schema update failed: duplicate MAPI identifier.
8381	0x000020BD	ERROR_DS_DUP_SCHEMA_ID_GUID		Schema update failed: duplicate schema-id GUID.
8382	0x000020BE	ERROR_DS_DUP_LDAP_DISPLAY_NAME		Schema update failed: duplicate LDAP display name.
8383	0x000020BF	ERROR_DS_SEMANTIC_ATT_TEST		Schema update failed: range-lower less than range upper
8384	0x000020C0	ERROR_DS_SYNTAX_MISMATCH		Schema update failed: syntax mismatch
8385	0x000020C1	ERROR_DS_EXISTS_IN_MUST_HAVE		Schema deletion failed: attribute is used in must-contain
8386	0x000020C2	ERROR_DS_EXISTS_IN_MAY_HAVE		Schema deletion failed: attribute is used in may-contain
8387	0x000020C3	ERROR_DS_NONEXISTENT_MAY_HAVE		Schema update failed: attribute in may-contain does not exist
8388	0x000020C4	ERROR_DS_NONEXISTENT_MUST_HAVE		Schema update failed: attribute in must-contain does not exist
8389	0x000020C5	ERROR_DS_AUX_CLS_TEST_FAIL		Schema update failed: class in aux-class list does not exist or is not an auxiliary class
8390	0x000020C6	ERROR_DS_NONEXISTENT_POSS_SUP		Schema update failed: class in poss-superiors does not exist
8391	0x000020C7	ERROR_DS_SUB_CLS_TEST_FAIL		Schema update failed: class in subclassof list does not exist or does not satisfy hierarchy rules
8392	0x000020C8	ERROR_DS_BAD_RDN_ATT_ID_SYNTAX		Schema update failed: Rdn-Att-Id has wrong syntax
8393	0x000020C9	ERROR_DS_EXISTS_IN_AUX_CLS		Schema deletion failed: class is used as auxiliary class
8394	0x000020CA	ERROR_DS_EXISTS_IN_SUB_CLS		Schema deletion failed: class is used as sub class
8395	0x000020CB	ERROR_DS_EXISTS_IN_POSS_SUP		Schema deletion failed: class is used as poss superior
8396	0x000020CC	ERROR_DS_RECALCSHEMA_FAILED		Schema update failed in recalculating validation cache.
8397	0x000020CD	ERROR_DS_TREE_DELETE_NOT_FINISHED		The tree deletion is not finished.
8398	0x000020CE	ERROR_DS_CANT_DELETE		The requested delete operation could not be performed.
8399	0x000020CF	ERROR_DS_ATT_SCHEMA_REQ_ID		Cannot read the governs class identifier for the schema record.
8400	0x000020D0	ERROR_DS_BAD_ATT_SCHEMA_SYNTAX		The attribute schema has bad syntax.
8401	0x000020D1	ERROR_DS_CANT_CACHE_ATT		The attribute could not be cached.
8402	0x000020D2	ERROR_DS_CANT_CACHE_CLASS		The class could not be cached.
8403	0x000020D3	ERROR_DS_CANT_REMOVE_ATT_CACHE		The attribute could not be removed from the cache.
8404	0x000020D4	ERROR_DS_CANT_REMOVE_CLASS_CACHE		The class could not be removed from the cache.
8405	0x000020D5	ERROR_DS_CANT_RETRIEVE_DN		The distinguished name attribute could not be read.
8406	0x000020D6	ERROR_DS_MISSING_SUPREF		A required subref is missing.
8407	0x000020D7	ERROR_DS_CANT_RETRIEVE_INSTANCE		The instance type attribute could not be retrieved.
8408	0x000020D8	ERROR_DS_CODE_INCONSISTENCY		An internal error has occurred.
8409	0x000020D9	ERROR_DS_DATABASE_ERROR		A database error has occurred.
8410	0x000020DA	ERROR_DS_GOVERNSID_MISSING		The attribute GOVERNSID is missing.
8411	0x000020DB	ERROR_DS_MISSING_EXPECTED_ATT		An expected attribute is missing.
8412	0x000020DC	ERROR_DS_NCNAME_MISSING_CR_REF		The specified naming context is missing a cross reference.
8413	0x000020DD	ERROR_DS_SECURITY_CHECKING_ERROR		A security checking error has occurred.
8414	0x000020DE	ERROR_DS_SCHEMA_NOT_LOADED		The schema is not loaded.

		Error	Description
decimal	Hexadecimal	Name	
8415	0x000020DF	ERROR_DS_SCHEMA_ALLOC_FAILED	Schema allocation failed. Please check if the machine is running low on memory.
8416	0x000020E0	ERROR_DS_ATT_SCHEMA_REQ_SYNTAX	Failed to obtain the required syntax for the attribute schema.
8417	0x000020E1	ERROR_DS_GCVERIFY_ERROR	The global catalog verification failed. The global catalog is not available or does not support the operation. Some part of the directory is currently not available.
8418	0x000020E2	ERROR_DS_DRA_SCHEMA_MISMATCH	The replication operation failed because of a schema mismatch between the servers involved.
8419	0x000020E3	ERROR_DS_CANT_FIND_DSA_OBJ	The DSA object could not be found.
8420	0x000020E4	ERROR_DS_CANT_FIND_EXPECTED_NC	The naming context could not be found.
8421	0x000020E5	ERROR_DS_CANT_FIND_NC_IN_CACHE	The naming context could not be found in the cache.
8422	0x000020E6	ERROR_DS_CANT_RETRIEVE_CHILD	The child object could not be retrieved.
8423	0x000020E7	ERROR_DS_SECURITY_ILLEGAL_MODIFY	The modification was not permitted for security reasons.
8424	0x000020E8	ERROR_DS_CANT_REPLACE_HIDDEN_REC	The operation cannot replace the hidden record.
8425	0x000020E9	ERROR_DS_BAD_HIERARCHY_FILE	The hierarchy file is invalid.
8426	0x000020EA	ERROR_DS_BUILD_HIERARCHY_TABLE_FAILED	The attempt to build the hierarchy table failed.
8427	0x000020EB	ERROR_DS_CONFIG_PARAM_MISSING	The directory configuration parameter is missing from the registry.
8428	0x000020EC	ERROR_DS_COUNTING_AB_INDICES_FAILED	The attempt to count the address book indices failed.
8429	0x000020ED	ERROR_DS_HIERARCHY_TABLE_MALLOC_FAILED	The allocation of the hierarchy table failed.
8430	0x000020EE	ERROR_DS_INTERNAL_FAILURE	The directory service encountered an internal failure.
8431	0x000020EF	ERROR_DS_UNKNOWN_ERROR	The directory service encountered an unknown failure.
8432	0x000020F0	ERROR_DS_ROOT_REQUIRES_CLASS_TOP	A root object requires a class of 'top'.
8433	0x000020F1	ERROR_DS_REFUSING_FSMO_ROLES	This directory server is shutting down, and cannot take ownership of new floating single-master operation roles.
8434	0x000020F2	ERROR_DS_MISSING_FSMO_SETTINGS	The directory service is missing mandatory configuration information, and is unable to determine the ownership of floating single-master operation roles.
8435	0x000020F3	ERROR_DS_UNABLE_TO_SURRENDER_ROLES	The directory service was unable to transfer ownership of one or more floating single-master operation roles to other servers.
8436	0x000020F4	ERROR_DS_DRA_GENERIC	The replication operation failed.
8437	0x000020F5	ERROR_DS_DRA_INVALID_PARAMETER	An invalid parameter was specified for this replication operation.
8438	0x000020F6	ERROR_DS_DRA_BUSY	The directory service is too busy to complete the replication operation at this time.
8439	0x000020F7	ERROR_DS_DRA_BAD_DN	The distinguished name specified for this replication operation is invalid.
8440	0x000020F8	ERROR_DS_DRA_BAD_NC	The naming context specified for this replication operation is invalid.
8441	0x000020F9	ERROR_DS_DRA_DN_EXISTS	The distinguished name specified for this replication operation already exists.
8442	0x000020FA	ERROR_DS_DRA_INTERNAL_ERROR	The replication system encountered an internal error.
8443	0x000020FB	ERROR_DS_DRA_INCONSISTENT_DIT	The replication operation encountered a database inconsistency.
8444	0x000020FC	ERROR_DS_DRA_CONNECTION_FAILED	The server specified for this replication operation could not be contacted.
8445	0x000020FD	ERROR_DS_DRA_BAD_INSTANCE_TYPE	The replication operation encountered an object with an invalid instance type.
8446	0x000020FE	ERROR_DS_DRA_OUT_OF_MEM	The replication operation failed to allocate memory.
8447	0x000020FF	ERROR_DS_DRA_MAIL_PROBLEM	The replication operation encountered an error with the mail system.

Error			Description
decimal	Hexadecimal	Name	
8448	0x00002100	ERROR_DS_DRA_REF_ALREADY_EXISTS	The replication reference information for the target server already exists.
8449	0x00002101	ERROR_DS_DRA_REF_NOT_FOUND	The replication reference information for the target server does not exist.
8450	0x00002102	ERROR_DS_DRA_OBJ_IS_REP_SOURCE	The naming context cannot be removed because it is replicated to another server.
8451	0x00002103	ERROR_DS_DRA_DB_ERROR	The replication operation encountered a database error.
8452	0x00002104	ERROR_DS_DRA_NO_REPLICA	The naming context is in the process of being removed or is not replicated from the specified server.
8453	0x00002105	ERROR_DS_DRA_ACCESS_DENIED	Replication access was denied.
8454	0x00002106	ERROR_DS_DRA_NOT_SUPPORTED	The requested operation is not supported by this version of the directory service.
8455	0x00002107	ERROR_DS_DRA_RPC_CANCELLED	The replication remote procedure call was cancelled.
8456	0x00002108	ERROR_DS_DRA_SOURCE_DISABLED	The source server is currently rejecting replication requests.
8457	0x00002109	ERROR_DS_DRA_SINK_DISABLED	The destination server is currently rejecting replication requests.
8458	0x0000210A	ERROR_DS_DRA_NAME_COLLISION	The replication operation failed due to a collision of object names.
8459	0x0000210B	ERROR_DS_DRA_SOURCE_REINSTALLED	The replication source has been reinstalled.
8460	0x0000210C	ERROR_DS_DRA_MISSING_PARENT	The replication operation failed because a required parent object is missing.
8461	0x0000210D	ERROR_DS_DRA_PREEMPTED	The replication operation was preempted.
8462	0x0000210E	ERROR_DS_DRA_ABANDON_SYNC	The replication synchronization attempt was abandoned because of a lack of updates.
8463	0x0000210F	ERROR_DS_DRA_SHUTDOWN	The replication operation was terminated because the system is shutting down.
8464	0x00002110	ERROR_DS_DRA_INCOMPATIBLE_PARTIAL_SET	The replication synchronization attempt failed as the destination partial attribute set is not a subset of source partial attribute set.
8465	0x00002111	ERROR_DS_DRA_SOURCE_IS_PARTIAL_REPLICA	The replication synchronization attempt failed because a master replica attempted to sync from a partial replica.
8466	0x00002112	ERROR_DS_DRA_EXTN_CONNECTION_FAILED	The server specified for this replication operation was contacted, but that server was unable to contact an additional server needed to complete the operation.
8467	0x00002113	ERROR_DS_INSTALL_SCHEMA_MISMATCH	The version of the Active Directory schema of the source forest is not compatible with the version of Active Directory on this computer. You must upgrade the operating system on a domain controller in the source forest before this computer can be added as a domain controller to that forest.
8468	0x00002114	ERROR_DS_DUP_LINK_ID	Schema update failed: An attribute with the same link identifier already exists.
8469	0x00002115	ERROR_DS_NAME_ERROR_RESOLVING	Name translation: Generic processing error.
8470	0x00002116	ERROR_DS_NAME_ERROR_NOT_FOUND	Name translation: Could not find the name or insufficient right to see name.
8471	0x00002117	ERROR_DS_NAME_ERROR_NOT_UNIQUE	Name translation: Input name mapped to more than one output name.
8472	0x00002118	ERROR_DS_NAME_ERROR_NO_MAPPING	Name translation: Input name found, but not the associated output format.
8473	0x00002119	ERROR_DS_NAME_ERROR_DOMAIN_ONLY	Name translation: Unable to resolve completely, only the domain was found.
8474	0x0000211A	ERROR_DS_NAME_ERROR_NO_SYNTACTICAL_MAPPING	Name translation: Unable to perform purely syntactical mapping at the client without going out to the wire.
8475	0x0000211B	ERROR_DS_CONSTRUCTED_ATT_MOD	Modification of a constructed att is not allowed.
8476	0x0000211C	ERROR_DS_WRONG_OM_OBJ_CLASS	The OM-Object-Class specified is incorrect for an attribute with the specified syntax.
8477	0x0000211D	ERROR_DS_DRA_REPL_PENDING	The replication request has been posted; waiting for reply.

		Error		Description
decimal	Hexadecimal	Name		
8478	0x0000211E	ERROR_DS_DS_REQUIRED		The requested operation requires a directory service, and none was available.
8479	0x0000211F	ERROR_DS_INVALID_LDAP_DISPLAY_NAME		The LDAP display name of the class or attribute contains non-ASCII characters.
8480	0x00002120	ERROR_DS_NON_BASE_SEARCH		The requested search operation is only supported for base searches.
8481	0x00002121	ERROR_DS_CANT_RETRIEVE_ATTS		The search failed to retrieve attributes from the database.
8482	0x00002122	ERROR_DS_BACKLINK_WITHOUT_LINK		The schema update operation tried to add a backward link attribute that has no corresponding forward link.
8483	0x00002123	ERROR_DS_EPOCH_MISMATCH		Source and destination of a cross domain move do not agree on the object's epoch number. Either source or destination does not have the latest version of the object.
8484	0x00002124	ERROR_DS_SRC_NAME_MISMATCH		Source and destination of a cross domain move do not agree on the object's current name. Either source or destination does not have the latest version of the object.
8485	0x00002125	ERROR_DS_SRC_AND_DST_NC_IDENTICAL		Source and destination of a cross domain move operation are identical. Caller should use local move operation instead of cross domain move operation.
8486	0x00002126	ERROR_DS_DST_NC_MISMATCH		Source and destination for a cross domain move are not in agreement on the naming contexts in the forest. Either source or destination does not have the latest version of the Partitions container.
8487	0x00002127	ERROR_DS_NOT_AUTHORITY_FOR_DST_NC		Destination of a cross domain move is not authoritative for the destination naming context.
8488	0x00002128	ERROR_DS_SRC_GUID_MISMATCH		Source and destination of a cross domain move do not agree on the identity of the source object. Either source or destination does not have the latest version of the source object.
8489	0x00002129	ERROR_DS_CANT_MOVE_DELETED_OBJECT		Object being moved across domains is already known to be deleted by the destination server. The source server does not have the latest version of the source object.
8490	0x0000212A	ERROR_DS_PDC_OPERATION_IN_PROGRESS		Another operation which requires exclusive access to the PDC PSMO is already in progress.
8491	0x0000212B	ERROR_DS_CROSS_DOMAIN_CLEANUP_REQD		A cross domain move operation failed such that the two versions of the moved object exist - one each in the source and destination domains. The destination object needs to be removed to restore the system to a consistent state.
8492	0x0000212C	ERROR_DS_ILLEGAL_XDOM_MOVE_OPERATION		This object may not be moved across domain boundaries either because cross domain moves for this class are disallowed, or the object has some special characteristics, eg: trust account or restricted RID, which prevent its move.
8493	0x0000212D	ERROR_DS_CANT_WITH_ACCT_GROUP_MEMBERSHPS		Can't move objects with memberships across domain boundaries as once moved, this would violate the membership conditions of the account group. Remove the object from any account group memberships and retry.
8494	0x0000212E	ERROR_DS_NC_MUST_HAVE_NC_PARENT		A naming context head must be the immediate child of another naming context head, not of an interior node.
8495	0x0000212F	ERROR_DS_CR_IMPOSSIBLE_TO_VALIDATE		The directory cannot validate the proposed naming context name because it does not hold a replica of the naming context above the proposed naming context. Please ensure that the domain naming master role is held by a server that is configured as a global catalog server, and that the server is up to date with its replication partners. (Applies only to Windows 2000 Domain Naming masters)
8496	0x00002130	ERROR_DS_DST_DOMAIN_NOT_NATIVE		Destination domain must be in native mode.

Error			Description
decimal	Hexadecimal	Name	
8497	0x00002131	ERROR_DS_MISSING_INFRASTRUCTURE_CONTAINER	The operation can not be performed because the server does not have an infrastructure container in the domain of interest.
8498	0x00002132	ERROR_DS_CANT_MOVE_ACCOUNT_GROUP	Cross-domain move of non-empty account groups is not allowed.
8499	0x00002133	ERROR_DS_CANT_MOVE_RESOURCE_GROUP	Cross-domain move of non-empty resource groups is not allowed.

		Error	Description
decimal	Hexadecimal	Name	
8500	0x00002134	ERROR_DS_INVALID_SEARCH_FLAG	The search flags for the attribute are invalid. The ANR bit is valid only on attributes of Unicode or Teletex strings.
8501	0x00002135	ERROR_DS_NO_TREE_DELETE_ABOVE_NC	Tree deletions starting at an object which has an NC head as a descendant are not allowed.
8502	0x00002136	ERROR_DS_COULDNT_LOCK_TREE_FOR_DELETE	The directory service failed to lock a tree in preparation for a tree deletion because the tree was in use.
8503	0x00002137	ERROR_DS_COULDNT_IDENTIFY_OBJECTS_FOR_TREE_DELETE	The directory service failed to identify the list of objects to delete while attempting a tree deletion.
8504	0x00002138	ERROR_DS_SAM_INIT_FAILURE	Security Accounts Manager initialization failed because of the following error: %1. Error Status: 0x%2. Click OK to shut down the system and reboot into Directory Services Restore Mode. Check the event log for detailed information.
8505	0x00002139	ERROR_DS_SENSITIVE_GROUP_VIOLATION	Only an administrator can modify the membership list of an administrative group.
8506	0x0000213A	ERROR_DS_CANT_MOD_PRIMARYGROUPID	Cannot change the primary group ID of a domain controller account.
8507	0x0000213B	ERROR_DS_ILLEGAL_BASE_SCHEMA_MOD	An attempt is made to modify the base schema.
8508	0x0000213C	ERROR_DS_NONSAFE_SCHEMA_CHANGE	Adding a new mandatory attribute to an existing class, deleting a mandatory attribute from an existing class, or adding an optional attribute to the special class Top that is not a backlink attribute (directly or through inheritance, for example, by adding or deleting an auxiliary class) is not allowed.
8509	0x0000213D	ERROR_DS_SCHEMA_UPDATE_DISALLOWED	Schema update is not allowed on this DC because the DC is not the schema FSMO Role Owner.
8510	0x0000213E	ERROR_DS_CANT_CREATE_UNDER_SCHEMA	An object of this class cannot be created under the schema container. You can only create attribute-schema and class-schema objects under the schema container.
8511	0x0000213F	ERROR_DS_INSTALL_NO_SRC_SCH_VERSION	The replica/child install failed to get the objectVersion attribute on the schema container on the source DC. Either the attribute is missing on the schema container or the credentials supplied do not have permission to read it.
8512	0x00002140	ERROR_DS_INSTALL_NO_SCH_VERSION_IN_INIFILE	The replica/child install failed to read the objectVersion attribute in the SCHEMA section of the file schema.ini in the system32 directory.
8513	0x00002141	ERROR_DS_INVALID_GROUP_TYPE	The specified group type is invalid.
8514	0x00002142	ERROR_DS_NO_NEST_GLOBAL_GROUP_IN_MIXEDDOMAIN	Cannot nest global groups in a mixed domain if the group is security-enabled.
8515	0x00002143	ERROR_DS_NO_NEST_LOCAL_GROUP_IN_MIXEDDOMAIN	Cannot nest local groups in a mixed domain if the group is security-enabled.
8516	0x00002144	ERROR_DS_GLOBAL_CANT_HAVE_LOCAL_MEMBER	A global group cannot have a local group as a member.
8517	0x00002145	ERROR_DS_GLOBAL_CANT_HAVE_UNIVERSAL_MEMBER	A global group cannot have a universal group as a member.
8518	0x00002146	ERROR_DS_UNIVERSAL_CANT_HAVE_LOCAL_MEMBER	A universal group cannot have a local group as a member.
8519	0x00002147	ERROR_DS_GLOBAL_CANT_HAVE_CROSSDOMAIN_MEMBER	A global group cannot have a cross-domain member.
8520	0x00002148	ERROR_DS_LOCAL_CANT_HAVE_CROSSDOMAIN_LOCAL_MEMBER	A local group cannot have another cross-domain local group as a member.
8521	0x00002149	ERROR_DS_HAVE_PRIMARY_MEMBERS	A group with primary members cannot change to a security-disabled group.
8522	0x0000214A	ERROR_DS_STRING_SD_CONVERSION_FAILED	The schema cache load failed to convert the string default SD on a class-schema object.
8523	0x0000214B	ERROR_DS_NAMING_MASTER_GC	Only DSAs configured to be Global Catalog servers should be allowed to hold the Domain Naming Master FSMO role. (Applies only to Windows 2000 servers)
8524	0x0000214C	ERROR_DS_LOOKUP_FAILURE	The DSA operation is unable to proceed because of a DNS lookup failure.

		Error		Description
decimal	Hexadecimal	Name		
8525	0x0000214D	ERROR_DS_COULDNT_UPDATE_SPNS		While processing a change to the DNS Host Name for an object, the Service Principal Name values could not be kept in sync.
8526	0x0000214E	ERROR_DS_CANT_RETRIEVE_SD		The Security Descriptor attribute could not be read.
8527	0x0000214F	ERROR_DS_KEY_NOT_UNIQUE.		The object requested was not found, but an object with that key was found.
8528	0x00002150	ERROR_DS_WRONG_LINKED_ATT_SYNTAX		The syntax of the linked attributed being added is incorrect. Forward links can only have syntax 2.5.5.1, 2.5.5.7, and 2.5.5.14, and backlinks can only have syntax 2.5.5.1.
8529	0x00002151	ERROR_DS_SAM_NEED_BOOTKEY_PASS-WORD		Security Account Manager needs to get the boot password.
8530	0x00002152	ERROR_DS_SAM_NEED_BOOTKEY_FLOPPY		Security Account Manager needs to get the boot key from floppy disk.
8531	0x00002153	ERROR_DS_CANT_START		Directory Service cannot start.
8532	0x00002154	ERROR_DS_INIT_FAILURE		Directory Services could not start.
8533	0x00002155	ERROR_DS_NO_PKT_PRIVACY_ON_CONNEC-TION		The connection between client and server re-quires packet privacy or better.
8534	0x00002156	ERROR_DS_SOURCE_DOMAIN_IN_FOREST		The source domain may not be in the same forest as destination.
8535	0x00002157	ERROR_DS_DESTINATION_DO-MAIN_NOT_IN_FOREST		The destination domain must be in the forest.
8536	0x00002158	ERROR_DS_DESTINATION_AUDITING_NOT_EN-ABLED		The operation requires that destination domain auditing be enabled.
8537	0x00002159	ERROR_DS_CANT_FIND_DC_FOR_SRC_DO-MAIN		The operation couldn't locate a DC for the source domain.
8538	0x0000215A	ERROR_DS_SRC_OBJ_NOT_GROUP_OR_USER		The source object must be a group or user.
8539	0x0000215B	ERROR_DS_SRC_SID_EXISTS_IN_FOREST		The source object's SID already exists in destina-tion forest.
8540	0x0000215C	ERROR_DS_SRC_AND_DST_OB-JECT_CLASS_MISMATCH		The source and destination object must be of the same type.
8541	0x0000215D	ERROR_SAM_INIT_FAILURE		Security Accounts Manager initialization failed be-cause of the following error: %1. Error Status: 0x%2. Click OK to shut down the system and re-boot into Safe Mode. Check the event log for de-tailed information.
8542	0x0000215E	ERROR_DS_DRA_SCHEMA_INFO_SHIP		Schema information could not be included in the replication request.
8543	0x0000215F	ERROR_DS_DRA_SCHEMA_CONFLICT		The replication operation could not be completed due to a schema incompatibility.
8544	0x00002160	ERROR_DS_DRA_EARLIER_SCHEMA_CONFLICT		The replication operation could not be completed due to a previous schema incompatibility.
8545	0x00002161	ERROR_DS_DRA_OBJ_NC_MISMATCH		The replication update could not be applied be-cause either the source or the destination has not yet received information regarding a recent cross-domain move operation.
8546	0x00002162	ERROR_DS_NC_STILL_HAS_DSAS		The requested domain could not be deleted be-cause there exist domain controllers that still host this domain.
8547	0x00002163	ERROR_DS_GC_REQUIRED		The requested operation can be performed only on a global catalog server.
8548	0x00002164	ERROR_DS_LOCAL_MEMBER_OF_LO-CAL_ONLY		A local group can only be a member of other local groups in the same domain.
8549	0x00002165	ERROR_DS_NO_FPO_IN_UNIVERSAL_GROUPS		Foreign security principals cannot be members of universal groups.
8550	0x00002166	ERROR_DS_CANT_ADD_TO_GC		The attribute is not allowed to be replicated to the GC because of security reasons.
8551	0x00002167	ERROR_DS_NO_CHECKPOINT_WITH_PDC		The checkpoint with the PDC could not be taken because there are too many modifications being processed currently.
8552	0x00002168	ERROR_DS_SOURCE_AUDITING_NOT_EN-ABLED		The operation requires that source domain audit-ing be enabled.
8553	0x00002169	ERROR_DS_CANT_CREATE_IN_NONDO-MAIN_NC		Security principal objects can only be created in-side domain naming contexts.

		Error	Description
decimal	Hexadecimal	Name	
8554	0x0000216A	ERROR_DS_INVALID_NAME_FOR_SPN	A Service Principal Name (SPN) could not be constructed because the provided hostname is not in the necessary format.
8555	0x0000216B	ERROR_DS_FILTER_USES_CONSTRUCTED_ATTRIBUTES	A Filter was passed that uses constructed attributes.
8556	0x0000216C	ERROR_DS_UNICODEPWD_NOT_IN_QUOTES	The unicodePwd attribute value must be enclosed in double quotes.
8557	0x0000216D	ERROR_DS_MACHINE_ACCOUNT_QUOTA_EXCEEDED	Your computer could not be joined to the domain. You have exceeded the maximum number of computer accounts you are allowed to create in this domain. Contact your system administrator to have this limit reset or increased.
8558	0x0000216E	ERROR_DS_MUST_BE_RUN_ON_DST_DC	For security reasons, the operation must be run on the destination DC.
8559	0x0000216F	ERROR_DS_SRC_DC_MUST_BE_SP4_OR_GREATER	For security reasons, the source DC must be NT4SP4 or greater.
8560	0x00002170	ERROR_DS_CANT_TREE_DELETE_CRITICAL_OBJ	Critical Directory Service System objects cannot be deleted during tree delete operations. The tree delete may have been partially performed.
8561	0x00002171	ERROR_DS_INIT_FAILURE_CONSOLE	Directory Services could not start because of the following error: %1. Error Status: 0x%2. Please click OK to shutdown the system. You can use the recovery console to diagnose the system further.
8562	0x00002172	ERROR_DS_SAM_INIT_FAILURE_CONSOLE	Security Accounts Manager initialization failed because of the following error: %1. Error Status: 0x%2. Please click OK to shutdown the system. You can use the recovery console to diagnose the system further.
8563	0x00002173	ERROR_DS_FOREST_VERSION_TOO_HIGH	This version of Windows is too old to support the current directory forest behavior. You must upgrade the operating system on this server before it can become a domain controller in this forest.
8564	0x00002174	ERROR_DS_DOMAIN_VERSION_TOO_HIGH	This version of Windows is too old to support the current domain behavior. You must upgrade the operating system on this server before it can become a domain controller in this domain.
8565	0x00002175	ERROR_DS_FOREST_VERSION_TOO_LOW	This version of Windows no longer supports the behavior version in use in this directory forest. You must advance the forest behavior version before this server can become a domain controller in the forest.
8566	0x00002176	ERROR_DS_DOMAIN_VERSION_TOO_LOW	This version of Windows no longer supports the behavior version in use in this domain. You must advance the domain behavior version before this server can become a domain controller in the domain.
8567	0x00002177	ERROR_DS_INCOMPATIBLE_VERSION	The version of Windows is incompatible with the behavior version of the domain or forest.
8568	0x00002178	ERROR_DS_LOW_DSA_VERSION	The behavior version cannot be increased to the requested value because Domain Controllers still exist with versions lower than the requested value.
8569	0x00002179	ERROR_DS_NO_BEHAVIOR_VERSION_IN_MIXEDDOMAIN	The behavior version value cannot be increased while the domain is still in mixed domain mode. You must first change the domain to native mode before increasing the behavior version.
8570	0x0000217A	ERROR_DS_NOT_SUPPORTED_SORT_ORDER	The sort order requested is not supported.
8571	0x0000217B	ERROR_DS_NAME_NOT_UNIQUE	Found an object with a non unique name.
8572	0x0000217C	ERROR_DS_MACHINE_ACCOUNT_CREATED_PRENT4	The machine account was created pre-NT4. The account needs to be recreated.
8573	0x0000217D	ERROR_DS_OUT_OF_VERSION_STORE	The database is out of version store.
8574	0x0000217E	ERROR_DS_INCOMPATIBLE_CONTROLS_USED	Unable to continue operation because multiple conflicting controls were used.
8575	0x0000217F	ERROR_DS_NO_REF_DOMAIN	Unable to find a valid security descriptor reference domain for this partition.

		Error	Description
decimal	Hexadecimal	Name	
8576	0x00002180	ERROR_DS_RESERVED_LINK_ID	Schema update failed: The link identifier is reserved.
8577	0x00002181	ERROR_DS_LINK_ID_NOT_AVAILABLE	Schema update failed: There are no link identifiers available.
8578	0x00002182	ERROR_DS_AG_CANT_HAVE_UNIVERSAL_MEMBER	An account group can not have a universal group as a member.
8579	0x00002183	ERROR_DS_MODIFYDN_DISALLOWED_BY_INSTANCE_TYPE	Rename or move operations on naming context heads or read-only objects are not allowed.
8580	0x00002184	ERROR_DS_NO_OBJECT_MOVE_IN_SCHEMA_NC	Move operations on objects in the schema naming context are not allowed.
8581	0x00002185	ERROR_DS_MODIFYDN_DISALLOWED_BY_FLAG	A system flag has been set on the object and does not allow the object to be moved or renamed.
8582	0x00002186	ERROR_DS_MODIFYDN_WRONG_GRANDPARENT	This object is not allowed to change its grandparent container. Moves are not forbidden on this object, but are restricted to sibling containers.
8583	0x00002187	ERROR_DS_NAME_ERROR_TRUST_REFERRAL	Unable to resolve completely, a referral to another forest is generated.
8584	0x00002188	ERROR_NOT_SUPPORTED_ON_STANDARD_SERVER	The requested action is not supported on standard server.
8585	0x00002189	ERROR_DS_CANT_ACCESS_REMOTE_PART_OF_AD	Could not access a partition of the Active Directory located on a remote server. Make sure at least one server is running for the partition in question.
8586	0x0000218A	ERROR_DS_CR_IMPOSSIBLE_TO_VALIDATE_V2	The directory cannot validate the proposed naming context (or partition) name because it does not hold a replica nor can it contact a replica of the naming context above the proposed naming context. Please ensure that the parent naming context is properly registered in DNS, and at least one replica of this naming context is reachable by the Domain Naming master.
8587	0x0000218B	ERROR_DS_THREAD_LIMIT_EXCEEDED	The thread limit for this request was exceeded.
8588	0x0000218C	ERROR_DS_NOT_CLOSEST	The Global catalog server is not in the closet site.

		Error	Description
decimal	Hexadecimal	Name	
9001	0x00002329	DNS_ERROR_RCODE_FORMAT_ERROR	DNS server unable to interpret format.
9002	0x0000232A	DNS_ERROR_RCODE_SERVER_FAILURE	DNS server failure.
9003	0x0000232B	DNS_ERROR_RCODE_NAME_ERROR	DNS name does not exist.
9004	0x0000232C	DNS_ERROR_RCODE_NOT_IMPLEMENTED	DNS request not supported by name server.
9005	0x0000232D	DNS_ERROR_RCODE_REFUSED	DNS operation refused.
9006	0x0000232E	DNS_ERROR_RCODE_YXDOMAIN	DNS name that ought not exist, does exist.
9007	0x0000232F	DNS_ERROR_RCODE_YXRRSET	DNS RR set that ought not exist, does exist.
9008	0x00002330	DNS_ERROR_RCODE_NXRRSET	DNS RR set that ought to exist, does not exist.
9009	0x00002331	DNS_ERROR_RCODE_NOTAUTH	DNS server not authoritative for zone.
9010	0x00002332	DNS_ERROR_RCODE_NOTZONE	DNS name in update or prereq is not in zone.
9016	0x00002338	DNS_ERROR_RCODE_BADSIG	DNS signature failed to verify.
9017	0x00002339	DNS_ERROR_RCODE_BADKEY	DNS bad key.
9018	0x0000233A	DNS_ERROR_RCODE_BADTIME	DNS signature validity expired.
9501	0x0000251D	DNS_INFO_NO_RECORDS	No records found for given DNS query.
9502	0x0000251E	DNS_ERROR_BAD_PACKET	Bad DNS packet.
9503	0x0000251F	DNS_ERROR_NO_PACKET	No DNS packet.
9504	0x00002520	DNS_ERROR_RCODE	DNS error, check rcode.
9505	0x00002521	DNS_ERROR_UNSECURE_PACKET	Unsecured DNS packet.
9551	0x0000254F	DNS_ERROR_INVALID_TYPE	Invalid DNS type.
9552	0x00002550	DNS_ERROR_INVALID_IP_ADDRESS	Invalid IP address.
9553	0x00002551	DNS_ERROR_INVALID_PROPERTY	Invalid property.
9554	0x00002552	DNS_ERROR_TRY_AGAIN_LATER	Try DNS operation again later.
9555	0x00002553	DNS_ERROR_NOT_UNIQUE	Record for given name and type is not unique.
9556	0x00002554	DNS_ERROR_NON_RFC_NAME	DNS name does not comply with RFC specifications.
9557	0x00002555	DNS_STATUS_FQDN	DNS name is a fully-qualified DNS name.
9558	0x00002556	DNS_STATUS_DOTTED_NAME	DNS name is dotted (multi-label).
9559	0x00002557	DNS_STATUS_SINGLE_PART_NAME	DNS name is a single-part name.
9560	0x00002558	DNS_ERROR_INVALID_NAME_CHAR	DSN name contains an invalid character.
9561	0x00002559	DNS_ERROR_NUMERIC_NAME	DNS name is entirely numeric.
9601	0x00002581	DNS_ERROR_ZONE_DOES_NOT_EXIST	DNS zone does not exist.
9602	0x00002582	DNS_ERROR_NO_ZONE_INFO	DNS zone information not available.
9603	0x00002583	DNS_ERROR_INVALID_ZONE_OPERATION	Invalid operation for DNS zone.
9604	0x00002584	DNS_ERROR_ZONE_CONFIGURATION_ERROR	Invalid DNS zone configuration.
9605	0x00002585	DNS_ERROR_ZONE_HAS_NO_SOA_RECORD	DNS zone has no start of authority (SOA) record.
9606	0x00002586	DNS_ERROR_ZONE_HAS_NO_NS_RECORDS	DNS zone has no name server (NS) record.
9607	0x00002587	DNS_ERROR_ZONE_LOCKED	DNS zone is locked.
9608	0x00002588	DNS_ERROR_ZONE_CREATION_FAILED	DNS zone creation failed.
9609	0x00002589	DNS_ERROR_ZONE_ALREADY_EXISTS	DNS zone already exists.
9610	0x0000258A	DNS_ERROR_AUTOZONE_ALREADY_EXISTS	DNS automatic zone already exists.
9611	0x0000258B	DNS_ERROR_INVALID_ZONE_TYPE	Invalid DNS zone type.
9612	0x0000258C	DNS_ERROR_SECONDARY_REQUIRES_MASTER_IP	Secondary DNS zone requires master IP address.
9613	0x0000258D	DNS_ERROR_ZONE_NOT_SECONDARY	DNS zone not secondary.
9614	0x0000258E	DNS_ERROR_NEED_SECONDARY_ADDRESSES	Need secondary IP address.
9615	0x0000258F	DNS_ERROR_WINS_INIT_FAILED	WINS initialization failed.
9616	0x00002590	DNS_ERROR_NEED_WINS_SERVERS	Need WINS servers.
9617	0x00002591	DNS_ERROR_NBSTAT_INIT_FAILED	NBSTAT initialization call failed.
9618	0x00002592	DNS_ERROR_SOA_DELETE_INVALID	Invalid delete of start of authority (SOA)
9619	0x00002593	DNS_ERROR_FORWARDER_ALREADY_EXISTS	A conditional forwarding zone already exists for that name.
9651	0x000025B3	DNS_ERROR_PRIMARY_REQUIRES_DATAFILE	Primary DNS zone requires datafile.
9652	0x000025B4	DNS_ERROR_INVALID_DATAFILE_NAME	Invalid datafile name for DNS zone.
9653	0x000025B5	DNS_ERROR_DATAFILE_OPEN_FAILURE	Failed to open datafile for DNS zone.
9654	0x000025B6	DNS_ERROR_FILE_WRITEBACK_FAILED	Failed to write datafile for DNS zone.
9655	0x000025B7	DNS_ERROR_DATAFILE_PARSING	Failure while reading datafile for DNS zone.
9701	0x000025E5	DNS_ERROR_RECORD_DOES_NOT_EXIST	DNS record does not exist.
9702	0x000025E6	DNS_ERROR_RECORD_FORMAT	DNS record format error.

		Error	Description
decimal	Hexadecimal	Name	
9703	0x000025E7	DNS_ERROR_NODE_CREATION_FAILED	Node creation failure in DNS.
9704	0x000025E8	DNS_ERROR_UNKNOWN_RECORD_TYPE	Unknown DNS record type.
9705	0x000025E9	DNS_ERROR_RECORD_TIMED_OUT	DNS record timed out.
9706	0x000025EA	DNS_ERROR_NAME_NOT_IN_ZONE	Name not in DNS zone.
9707	0x000025EB	DNS_ERROR_CNAME_LOOP	CNAME loop detected.
9708	0x000025EC	DNS_ERROR_NODE_IS_CNAME	Node is a CNAME DNS record.
9709	0x000025ED	DNS_ERROR_CNAME_COLLISION	A CNAME record already exists for given name.
9710	0x000025EE	DNS_ERROR_RECORD_ONLY_AT_ZONE_ROOT	Record only at DNS zone root.
9711	0x000025EF	DNS_ERROR_RECORD_ALREADY_EXISTS	DNS record already exists.
9712	0x000025F0	DNS_ERROR_SECONDARY_DATA	Secondary DNS zone data error.
9713	0x000025F1	DNS_ERROR_NO_CREATE_CACHE_DATA	Could not create DNS cache data.
9714	0x000025F2	DNS_ERROR_NAME_DOES_NOT_EXIST	DNS name does not exist.
9715	0x000025F3	DNS_WARNING_PTR_CREATE_FAILED	Could not create pointer (PTR) record.
9716	0x000025F4	DNS_WARNING_DOMAIN_UNDELETED	DNS domain was undeleted.
9717	0x000025F5	DNS_ERROR_DS_UNAVAILABLE	The directory service is unavailable.
9718	0x000025F6	DNS_ERROR_DS_ZONE_ALREADY_EXISTS	DNS zone already exists in the directory service.
9719	0x000025F7	DNS_ERROR_NO_BOOTFILE_IF_DS_ZONE	DNS server not creating or reading the boot file for the directory service integrated DNS zone.
9751	0x00002617	DNS_INFO_AXFR_COMPLETE	DNS AXFR (zone transfer) complete.
9752	0x00002618	DNS_ERROR_AXFR	DNS zone transfer failed.
9753	0x00002619	DNS_INFO_ADDED_LOCAL_WINS	Added local WINS server.
9801	0x00002649	DNS_STATUS_CONTINUE_NEEDED	Secure update call needs to continue update request.
9851	0x0000267B	DNS_ERROR_NO_TCPIP	TCP/IP network protocol not installed.
9852	0x0000267C	DNS_ERROR_NO_DNS_SERVERS	No DNS servers configured for local system.
9901	0x000026AD	DNS_ERROR_DP_DOES_NOT_EXIST	The specified directory partition does not exist.
9902	0x000026AE	DNS_ERROR_DP_ALREADY_EXISTS	The specified directory partition already exists.
9903	0x000026AF	DNS_ERROR_DP_NOT_ENLISTED	The DS is not enlisted in the specified directory partition.
9904	0x000026B0	DNS_ERROR_DP_ALREADY_ENLISTED	The DS is already enlisted in the specified directory partition.

Error			Description
decimal	Hexadecimal	Name	
10004	0x00002714	WSAEINTR	A blocking operation was interrupted by a call to WSACancelBlockingCall.
10009	0x00002719	WSAEBADF	The file handle supplied is not valid.
10013	0x0000271D	WSAEACCES	An attempt was made to access a socket in a way forbidden by its access permissions.
10014	0x0000271E	WSAEFAULT	The system detected an invalid pointer address in attempting to use a pointer argument in a call.
10022	0x00002726	WSAEINVAL	An invalid argument was supplied.
10024	0x00002728	WSAEMFILE	Too many open sockets.
10035	0x00002733	WSAEWOULDBLOCK	A non-blocking socket operation could not be completed immediately.
10036	0x00002734	WSAEINPROGRESS	A blocking operation is currently executing.
10037	0x00002735	WSAEALREADY	An operation was attempted on a non-blocking socket that already had an operation in progress.
10038	0x00002736	WSAENOTSOCK	An operation was attempted on something that is not a socket.
10039	0x00002737	WSAEDESTADDRREQ	A required address was omitted from an operation on a socket.
10040	0x00002738	WSAEMSGSIZE	A message sent on a datagram socket was larger than the internal message buffer or some other network limit, or the buffer used to receive a datagram into was smaller than the datagram itself.
10041	0x00002739	WSAEPROTOTYPE	A protocol was specified in the socket function call that does not support the semantics of the socket type requested.
10042	0x0000273A	WSAENOPROTOOPT	An unknown, invalid, or unsupported option or level was specified in a getsockopt or setsockopt call.
10043	0x0000273B	WSAEPROTONOSUPPORT	The requested protocol has not been configured into the system, or no implementation for it exists.
10044	0x0000273C	WSAESOCKTNOSUPPORT	The support for the specified socket type does not exist in this address family.
10045	0x0000273D	WSAEOPNOTSUPP	The attempted operation is not supported for the type of object referenced.
10046	0x0000273E	WSAEPFNOSUPPORT	The protocol family has not been configured into the system or no implementation for it exists.
10047	0x0000273F	WSAEAFNOSUPPORT	An address incompatible with the requested protocol was used.
10048	0x00002740	WSAEADDRINUSE	Only one usage of each socket address (protocol/network address/port) is normally permitted.
10049	0x00002741	WSAEADDRNOTAVAIL	The requested address is not valid in its context.
10050	0x00002742	WSAENETDOWN	A socket operation encountered a dead network.
10051	0x00002743	WSAENETUNREACH	A socket operation was attempted to an unreachable network.
10052	0x00002744	WSAENETRESET	The connection has been broken due to keep-alive activity detecting a failure while the operation was in progress.
10053	0x00002745	WSAECONNABORTED	An established connection was aborted by the software in your host machine.
10054	0x00002746	WSAECONNRESET	An existing connection was forcibly closed by the remote host.
10055	0x00002747	WSAENOBUFS	An operation on a socket could not be performed because the system lacked sufficient buffer space or because a queue was full.
10056	0x00002748	WSAEISCONN	A connect request was made on an already connected socket.
10057	0x00002749	WSAENOTCONN	A request to send or receive data was disallowed because the socket is not connected and (when sending on a datagram socket using a sendto call) no address was supplied.
10058	0x0000274A	WSAESHUTDOWN	A request to send or receive data was disallowed because the socket had already been shut down in that direction with a previous shutdown call.
10059	0x0000274B	WSAETOOMANYREFS	Too many references to some kernel object.

		Error		Description
decimal	Hexadecimal	Name		
10060	0x0000274C	WSAETIMEDOUT		A connection attempt failed because the connected party did not properly respond after a period of time, or established connection failed because connected host has failed to respond.
10061	0x0000274D	WSAECONNREFUSED		No connection could be made because the target machine actively refused it.
10062	0x0000274E	WSAELOOP		Cannot translate name.
10063	0x0000274F	WSAENAMETOOLONG		Name component or name was too long.
10064	0x00002750	WSAEHOSTDOWN		A socket operation failed because the destination host was down.
10065	0x00002751	WSAEHOSTUNREACH		A socket operation was attempted to an unreachable host.
10066	0x00002752	WSAENOTEMPTY		Cannot remove a directory that is not empty.
10067	0x00002753	WSAEPROCLIM		A Windows Sockets implementation may have a limit on the number of applications that may use it simultaneously.
10068	0x00002754	WSAEUSERS		Ran out of quota.
10069	0x00002755	WSAEDQUOT		Ran out of disk quota.
10070	0x00002756	WSAESTALE		File handle reference is no longer available.
10071	0x00002757	WSAEREMOTE		Item is not available locally.
10091	0x0000276B	WSASYSNOTREADY		WSAStartup cannot function at this time because the underlying system it uses to provide network services is currently unavailable.
10092	0x0000276C	WSAVERNOTSUPPORTED		The Windows Sockets version requested is not supported.
10093	0x0000276D	WSANOTINITIALISED		Either the application has not called WSAStartup, or WSAStartup failed.
10101	0x00002775	WSAEDISCON		Returned by WSAREcv or WSAREcvFrom to indicate the remote party has initiated a graceful shutdown sequence.
10102	0x00002776	WSAENOMORE		No more results can be returned by WSA-LookupServiceNext.
10103	0x00002777	WSAECANCELLED		A call to WSALookupServiceEnd was made while this call was still processing. The call has been canceled.
10104	0x00002778	WSAEINVALIDPROCTABLE		The procedure call table is invalid.
10105	0x00002779	WSAEINVALIDPROVIDER		The requested service provider is invalid.
10106	0x0000277A	WSAEPROVIDERFAILEDINIT		The requested service provider could not be loaded or initialized.
10107	0x0000277B	WSASYSCALLFAILURE		A system call that should never fail has failed.
10108	0x0000277C	WSASERVICE_NOT_FOUND		No such service is known. The service cannot be found in the specified name space.
10109	0x0000277D	WSATYPE_NOT_FOUND		The specified class was not found.
10110	0x0000277E	WSA_E_NO_MORE		No more results can be returned by WSA-LookupServiceNext.
10111	0x0000277F	WSA_E_CANCELLED		A call to WSALookupServiceEnd was made while this call was still processing. The call has been canceled.
10112	0x00002780	WSAEREFUSED		A database query failed because it was actively refused.
11001	0x00002AF9	WSAHOST_NOT_FOUND		No such host is known.
11002	0x00002AFA	WSATRY_AGAIN		This is usually a temporary error during hostname resolution and means that the local server did not receive a response from an authoritative server.
11003	0x00002AFB	WSANO_RECOVERY		A non-recoverable error occurred during a database lookup.
11004	0x00002AFC	WSANO_DATA		The requested name is valid and was found in the database, but it does not have the correct associated data being resolved for.
11005	0x00002AFD	WSA_QOS_RECEIVERS		At least one reserve has arrived.
11006	0x00002AFE	WSA_QOS_SENDERS		At least one path has arrived.
11007	0x00002AFF	WSA_QOS_NO_SENDERS		There are no senders.
11008	0x00002B00	WSA_QOS_NO_RECEIVERS		There are no receivers.
11009	0x00002B01	WSA_QOS_REQUEST_CONFIRMED		Reserve has been confirmed.

Error			Description
decimal	Hexadecimal	Name	
11010	0x00002B02	WSA_QOS_ADMISSION_FAILURE	Error due to lack of resources.
11011	0x00002B03	WSA_QOS_POLICY_FAILURE	Rejected for administrative reasons - bad credentials.
11012	0x00002B04	WSA_QOS_BAD_STYLE	Unknown or conflicting style.
11013	0x00002B05	WSA_QOS_BAD_OBJECT	Problem with some part of the filterspec or providerspecific buffer in general.
11014	0x00002B06	WSA_QOS_TRAFFIC_CTRL_ERROR	Problem with some part of the flowspec.
11015	0x00002B07	WSA_QOS_GENERIC_ERROR	General QOS error.
11016	0x00002B08	WSA_QOS_ESERVICETYPE	An invalid or unrecognized service type was found in the flowspec.
11017	0x00002B09	WSA_QOS_EFLOWSPEC	An invalid or inconsistent flowspec was found in the QOS structure.
11018	0x00002B0A	WSA_QOS_EPROVSPECBUF	Invalid QOS provider-specific buffer.
11019	0x00002B0B	WSA_QOS_EFILTERSTYLE	An invalid QOS filter style was used.
11020	0x00002B0C	WSA_QOS_EFILTERTYPE	An invalid QOS filter type was used.
11021	0x00002B0D	WSA_QOS_EFILTERCOUNT	An incorrect number of QOS FILTERSPECs were specified in the FLOWDESCRIPTOR.
11022	0x00002B0E	WSA_QOS_EOBJLENGTH	An object with an invalid ObjectLength field was specified in the QOS provider-specific buffer.
11023	0x00002B0F	WSA_QOS_EFLOWCOUNT	An incorrect number of flow descriptors was specified in the QOS structure.
11024	0x00002B10	WSA_QOS_EUNKNOWNPSOBJ	An unrecognized object was found in the QOS provider-specific buffer.
11025	0x00002B11	WSA_QOS_EPOLICYOBJ	An invalid policy object was found in the QOS provider-specific buffer.
11026	0x00002B12	WSA_QOS_EFLOWDESC	An invalid QOS flow descriptor was found in the flow descriptor list.
11027	0x00002B13	WSA_QOS_EPSFLOWSPEC	An invalid or inconsistent flowspec was found in the QOS provider-specific buffer.
11028	0x00002B14	WSA_QOS_EPSFILTERSPEC	An invalid FILTERSPEC was found in the QOS provider-specific buffer.
11029	0x00002B15	WSA_QOS_ESDMODEOBJ	An invalid shape discard mode object was found in the QOS provider-specific buffer.
11030	0x00002B16	WSA_QOS_ESHAPERATEOBJ	An invalid shaping rate object was found in the QOS provider-specific buffer.
11031	0x00002B17	WSA_QOS_RESERVED_PETYPE	A reserved policy element was found in the QOS provider-specific buffer.

Error			Description
decimal	Hexadecimal	Name	
12000	0x00002EE0	ERROR_SXS_SECTION_NOT_FOUND	The requested section was not present in the activation context.
12001	0x00002EE1	ERROR_SXS_CANT_GEN_ACTCTX	This application has failed to start because the application configuration is incorrect. Reinstalling the application may fix this problem.
12002	0x00002EE2	ERROR_SXS_INVALID_ACTCTXDATA_FORMAT	The application binding data format is invalid.
12003	0x00002EE3	ERROR_SXS_ASSEMBLY_NOT_FOUND	The referenced assembly is not installed on your system.
12004	0x00002EE4	ERROR_SXS_MANIFEST_FORMAT_ERROR	The manifest file does not begin with the required tag and format information.
12005	0x00002EE5	ERROR_SXS_MANIFEST_PARSE_ERROR	The manifest file contains one or more syntax errors.
12006	0x00002EE6	ERROR_SXS_ACTIVATION_CONTEXT_DISABLED	The application attempted to activate a disabled activation context.
12007	0x00002EE7	ERROR_SXS_KEY_NOT_FOUND	The requested lookup key was not found in any active activation context.
12008	0x00002EE8	ERROR_SXS_VERSION_CONFLICT	A component version required by the application conflicts with another component version already active.
12009	0x00002EE9	ERROR_SXS_WRONG_SECTION_TYPE	The type requested activation context section does not match the query API used.
12010	0x00002EEA	ERROR_SXS_THREAD_QUERIES_DISABLED	Lack of system resources has required isolated activation to be disabled for the current thread of execution.
12011	0x00002EEB	ERROR_SXS_PROCESS_DEFAULT_ALREADY_SET	An attempt to set the process default activation context failed because the process default activation context was already set.
12012	0x00002EEC	ERROR_SXS_UNKNOWN_ENCODING_GROUP	The encoding group identifier specified is not recognized.
12013	0x00002EED	ERROR_SXS_UNKNOWN_ENCODING	The encoding requested is not recognized.
12014	0x00002EEE	ERROR_SXS_INVALID_XML_NAMESPACE_URI	The manifest contains a reference to an invalid URI.
12015	0x00002EEF	ERROR_SXS_ROOT_MANIFEST_DEPENDENCY_NOT_INSTALLED	The application manifest contains a reference to a dependent assembly which is not installed.
12016	0x00002EF0	ERROR_SXS_LEAF_MANIFEST_DEPENDENCY_NOT_INSTALLED	The manifest for an assembly used by the application has a reference to a dependent assembly which is not installed.
12017	0x00002EF1	ERROR_SXS_INVALID_ASSEMBLY_IDENTITY_ATTRIBUTE	The manifest contains an attribute for the assembly identity which is not valid.
12018	0x00002EF2	ERROR_SXS_MANIFEST_MISSING_REQUIRED_DEFAULT_NAMESPACE	The manifest is missing the required default namespace specification on the assembly element.
12019	0x00002EF3	ERROR_SXS_MANIFEST_INVALID_REQUIRED_DEFAULT_NAMESPACE	The manifest has a default namespace specified on the assembly element but its value is not "urn:schemas-microsoft-com:asm.v1".
12020	0x00002EF4	ERROR_SXS_PRIVATE_MANIFEST_CROSS_PATH_WITH_REPARSE_POINT	The private manifest probe has crossed the reparse-point-associated path.
12021	0x00002EF5	ERROR_SXS_DUPLICATE_DLL_NAME	Two or more components referenced directly or indirectly by the application manifest have files by the same name.
12022	0x00002EF6	ERROR_SXS_DUPLICATE_WINDOWCLASS_NAME	Two or more components referenced directly or indirectly by the application manifest have window classes with the same name.
12023	0x00002EF7	ERROR_SXS_DUPLICATE_CLSID	Two or more components referenced directly or indirectly by the application manifest have the same COM server CLSIDs.
12024	0x00002EF8	ERROR_SXS_DUPLICATE_IID	Two or more components referenced directly or indirectly by the application manifest have proxies for the same COM interface IIDs.
12025	0x00002EF9	ERROR_SXS_DUPLICATE_TLBID	Two or more components referenced directly or indirectly by the application manifest have the same COM type library TLBIDs.
12026	0x00002EFA	ERROR_SXS_DUPLICATE_PROGID	Two or more components referenced directly or indirectly by the application manifest have the same COM ProgIDs.

Error			Description
decimal	Hexadecimal	Name	
12027	0x00002EFB	ERROR_SXS_DUPLICATE_ASSEMBLY_NAME	Two or more components referenced directly or indirectly by the application manifest are different versions of the same component which is not permitted.
12028	0x00002EFC	ERROR_SXS_FILE_HASH_MISMATCH	A component's file does not match the verification information present in the component manifest.
12029	0x00002EFD	ERROR_SXS_POLICY_PARSE_ERROR	The policy manifest contains one or more syntax errors.
12030	0x00002EFE	ERROR_SXS_XML_E_MISSINGQUOTE	Manifest Parse Error : A string literal was expected, but no opening quote character was found.
12031	0x00002EFF	ERROR_SXS_XML_E_COMMENTSyntax	Manifest Parse Error : Incorrect syntax was used in a comment.
12032	0x00002F00	ERROR_SXS_XML_E_BADSTARTNAMECHAR	Manifest Parse Error : A name was started with an invalid character.
12033	0x00002F01	ERROR_SXS_XML_E_BADNAMECHAR	Manifest Parse Error : A name contained an invalid character.
12034	0x00002F02	ERROR_SXS_XML_E_BADCHARINSTRING	Manifest Parse Error : A string literal contained an invalid character.
12035	0x00002F03	ERROR_SXS_XML_E_XMLDECLSYNTAX	Manifest Parse Error : Invalid syntax for an XML declaration.
12036	0x00002F04	ERROR_SXS_XML_E_BADCHARDATA	Manifest Parse Error : An invalid character was found in text content.
12037	0x00002F05	ERROR_SXS_XML_E_MISSINGWHITESPACE	Manifest Parse Error : Required white space was missing.
12038	0x00002F06	ERROR_SXS_XML_E_EXPECTINGTAGEND	Manifest Parse Error : The character '>' was expected.
12039	0x00002F07	ERROR_SXS_XML_E_MISSINGSEMICOLON	Manifest Parse Error : A semi colon character was expected.
12040	0x00002F08	ERROR_SXS_XML_E_UNBALANCEDPAREN	Manifest Parse Error : Unbalanced parentheses.
12041	0x00002F09	ERROR_SXS_XML_E_INTERNALERROR	Manifest Parse Error : Internal error.
12042	0x00002F0A	ERROR_SXS_XML_E_UNEXPECTED_WHITESPACE	Manifest Parse Error : White space is not allowed at this location.
12043	0x00002F0B	ERROR_SXS_XML_E_INCOMPLETE_ENCODING	Manifest Parse Error : End of file reached in invalid state for current encoding.
12044	0x00002F0C	ERROR_SXS_XML_E_MISSING_PAREN	Manifest Parse Error : Missing parenthesis.
12045	0x00002F0D	ERROR_SXS_XML_E_EXPECTINGCLOSEQUOTE	Manifest Parse Error : A single or double closing quote character (' or ") is missing.
12046	0x00002F0E	ERROR_SXS_XML_E_MULTIPLE_COLONS	Manifest Parse Error : Multiple colons are not allowed in a name.
12047	0x00002F0F	ERROR_SXS_XML_E_INVALID_DECIMAL	Manifest Parse Error : Invalid character for decimal digit.
12048	0x00002F10	ERROR_SXS_XML_E_INVALID_HEXIDECIMAL	Manifest Parse Error : Invalid character for hexadecimal digit.
12049	0x00002F11	ERROR_SXS_XML_E_INVALID_UNICODE	Manifest Parse Error : Invalid Unicode character value for this platform.
12050	0x00002F12	ERROR_SXS_XML_E_WHITESPACEORQUESTIONMARK	Manifest Parse Error : Expecting white space or '?'.
12051	0x00002F13	ERROR_SXS_XML_E_UNEXPECTEDENDTAG	Manifest Parse Error : End tag was not expected at this location.
12052	0x00002F14	ERROR_SXS_XML_E_UNCLOSEDTAG	Manifest Parse Error : The following tags were not closed: %1.
12053	0x00002F15	ERROR_SXS_XML_E_DUPLICATEATTRIBUTE	Manifest Parse Error : Duplicate attribute.
12054	0x00002F16	ERROR_SXS_XML_E_MULTIPLEROOTS	Manifest Parse Error : Only one top level element is allowed in an XML document.
12055	0x00002F17	ERROR_SXS_XML_E_INVALIDATROOTLEVEL	Manifest Parse Error : Invalid at the top level of the document.
12056	0x00002F18	ERROR_SXS_XML_E_BADXMLDECL	Manifest Parse Error : Invalid XML declaration.
12057	0x00002F19	ERROR_SXS_XML_E_MISSINGROOT	Manifest Parse Error : XML document must have a top level element.
12058	0x00002F1A	ERROR_SXS_XML_E_UNEXPECTEDEOF	Manifest Parse Error : Unexpected end of file.
12059	0x00002F1B	ERROR_SXS_XML_E_BADPEREFINSUBSET	Manifest Parse Error : Parameter entities cannot be used inside markup declarations in an internal subset.
12060	0x00002F1C	ERROR_SXS_XML_E_UNCLOSEDSTARTTAG	Manifest Parse Error : Element was not closed.

		Error		Description
decimal	Hexadecimal	Name		
12061	0x00002F1D	ERROR_SXS_XML_E_UNCLOSEDENDTAG		Manifest Parse Error : End element was missing the character '>'.
12062	0x00002F1E	ERROR_SXS_XML_E_UNCLOSEDSTRING		Manifest Parse Error : A string literal was not closed.
12063	0x00002F1F	ERROR_SXS_XML_E_UNCLOSEDCOMMENT		Manifest Parse Error : A comment was not closed.
12064	0x00002F20	ERROR_SXS_XML_E_UNCLOSEDDECL		Manifest Parse Error : A declaration was not closed.
12065	0x00002F21	ERROR_SXS_XML_E_UNCLOSEDCDATA		Manifest Parse Error : A CDATA section was not closed.
12066	0x00002F22	ERROR_SXS_XML_E_RESERVEDNAMESPACE		Manifest Parse Error : The namespace prefix is not allowed to start with the reserved string "xml".
12067	0x00002F23	ERROR_SXS_XML_E_INVALIDENCODING		Manifest Parse Error : System does not support the specified encoding.
12068	0x00002F24	ERROR_SXS_XML_E_INVALIDSWITCH		Manifest Parse Error : Switch from current encoding to specified encoding not supported.
12069	0x00002F25	ERROR_SXS_XML_E_BADXMLCASE		Manifest Parse Error : The name 'xml' is reserved and must be lower case.
12070	0x00002F26	ERROR_SXS_XML_E_INVALID_STANDALONE		Manifest Parse Error : The standalone attribute must have the value 'yes' or 'no'.
12071	0x00002F27	ERROR_SXS_XML_E_UNEXPECTED_STANDALONE		Manifest Parse Error : The standalone attribute cannot be used in external entities.
12072	0x00002F28	ERROR_SXS_XML_E_INVALID_VERSION		Manifest Parse Error : Invalid version number.
12073	0x00002F29	ERROR_SXS_XML_E_MISSINGEQUALS		Manifest Parse Error : Missing equals sign between attribute and attribute value.
13000	0x000032C8	ERROR_IPSEC_QM_POLICY_EXISTS		The specified quick mode policy already exists.
13001	0x000032C9	ERROR_IPSEC_QM_POLICY_NOT_FOUND		The specified quick mode policy was not found.
13002	0x000032CA	ERROR_IPSEC_QM_POLICY_IN_USE		The specified quick mode policy is being used.
13003	0x000032CB	ERROR_IPSEC_MM_POLICY_EXISTS		The specified main mode policy already exists.
13004	0x000032CC	ERROR_IPSEC_MM_POLICY_NOT_FOUND		The specified main mode policy was not found.
13005	0x000032CD	ERROR_IPSEC_MM_POLICY_IN_USE		The specified main mode policy is being used.
13006	0x000032CE	ERROR_IPSEC_MM_FILTER_EXISTS		The specified main mode filter already exists.
13007	0x000032CF	ERROR_IPSEC_MM_FILTER_NOT_FOUND		The specified main mode filter was not found.
13008	0x000032D0	ERROR_IPSEC_TRANSPORT_FILTER_EXISTS		The specified transport mode filter already exists.
13009	0x000032D1	ERROR_IPSEC_TRANSPORT_FILTER_NOT_FOUND		The specified transport mode filter does not exist.
13010	0x000032D2	ERROR_IPSEC_MM_AUTH_EXISTS		The specified main mode authentication list exists.
13011	0x000032D3	ERROR_IPSEC_MM_AUTH_NOT_FOUND		The specified main mode authentication list was not found.
13012	0x000032D4	ERROR_IPSEC_MM_AUTH_IN_USE		The specified quick mode policy is being used.
13013	0x000032D5	ERROR_IPSEC_DEFAULT_MM_POLICY_NOT_FOUND		The specified main mode policy was not found.
13014	0x000032D6	ERROR_IPSEC_DEFAULT_MM_AUTH_NOT_FOUND		The specified quick mode policy was not found.
13015	0x000032D7	ERROR_IPSEC_DEFAULT_QM_POLICY_NOT_FOUND		The manifest file contains one or more syntax errors.
13016	0x000032D8	ERROR_IPSEC_TUNNEL_FILTER_EXISTS		The application attempted to activate a disabled activation context.
13017	0x000032D9	ERROR_IPSEC_TUNNEL_FILTER_NOT_FOUND		The requested lookup key was not found in any active activation context.
13018	0x000032DA	ERROR_IPSEC_MM_FILTER_PENDING_DELETION		The Main Mode filter is pending deletion.
13019	0x000032DB	ERROR_IPSEC_TRANSPORT_FILTER_PENDING_DELETION		The transport filter is pending deletion.
13020	0x000032DC	ERROR_IPSEC_TUNNEL_FILTER_PENDING_DELETION		The tunnel filter is pending deletion.
13021	0x000032DD	ERROR_IPSEC_MM_POLICY_PENDING_DELETION		The Main Mode policy is pending deletion.
13022	0x000032DE	ERROR_IPSEC_MM_AUTH_PENDING_DELETION		The Main Mode authentication bundle is pending deletion.
13023	0x000032DF	ERROR_IPSEC_QM_POLICY_PENDING_DELETION		The Quick Mode policy is pending deletion.

		Error	Description
decimal	Hexadecimal	Name	
13801	0x000035E9	ERROR_IPSEC_IKE_AUTH_FAIL	IKE authentication credentials are unacceptable.
13802	0x000035EA	ERROR_IPSEC_IKE_ATTRIB_FAIL	IKE security attributes are unacceptable.
13803	0x000035EB	ERROR_IPSEC_IKE_NEGOTIATION_PENDING	IKE Negotiation in progress.
13804	0x000035EC	ERROR_IPSEC_IKE_GENERAL_PROCESSING_ERROR	General processing error.
13805	0x000035ED	ERROR_IPSEC_IKE_TIMED_OUT	Negotiation timed out.
13806	0x000035EE	ERROR_IPSEC_IKE_NO_CERT	IKE failed to find valid machine certificate.
13807	0x000035EF	ERROR_IPSEC_IKE_SA_DELETED	IKE SA deleted by peer before establishment completed.
13808	0x000035F0	ERROR_IPSEC_IKE_SA_REAPED	IKE SA deleted before establishment completed.
13809	0x000035F1	ERROR_IPSEC_IKE_MM_ACQUIRE_DROP	Negotiation request sat in Queue too long.
13810	0x000035F2	ERROR_IPSEC_IKE_QM_ACQUIRE_DROP	Negotiation request sat in Queue too long.
13811	0x000035F3	ERROR_IPSEC_IKE_QUEUE_DROP_MM	Negotiation request sat in Queue too long.
13812	0x000035F4	ERROR_IPSEC_IKE_QUEUE_DROP_NO_MM	Negotiation request sat in Queue too long.
13813	0x000035F5	ERROR_IPSEC_IKE_DROP_NO_RESPONSE	No response from peer.
13814	0x000035F6	ERROR_IPSEC_IKE_MM_DELAY_DROP	Negotiation took too long.
13815	0x000035F7	ERROR_IPSEC_IKE_QM_DELAY_DROP	Negotiation took too long.
13816	0x000035F8	ERROR_IPSEC_IKE_ERROR	Unknown error occurred.
13817	0x000035F9	ERROR_IPSEC_IKE_CRL_FAILED	Certificate Revocation Check failed.
13818	0x000035FA	ERROR_IPSEC_IKE_INVALID_KEY_USAGE	Invalid certificate key usage.
13819	0x000035FB	ERROR_IPSEC_IKE_INVALID_CERT_TYPE	Invalid certificate type.
13820	0x000035FC	ERROR_IPSEC_IKE_NO_PRIVATE_KEY	No private key associated with machine certificate.
13822	0x000035FE	ERROR_IPSEC_IKE_DH_FAIL	Failure in Diffie-Helman computation.
13824	0x00003600	ERROR_IPSEC_IKE_INVALID_HEADER	Invalid header.
13825	0x00003601	ERROR_IPSEC_IKE_NO_POLICY	No policy configured.
13826	0x00003602	ERROR_IPSEC_IKE_INVALID_SIGNATURE	Failed to verify signature.
13827	0x00003603	ERROR_IPSEC_IKE_KERBEROS_ERROR	Failed to authenticate using Kerberos.
13828	0x00003604	ERROR_IPSEC_IKE_NO_PUBLIC_KEY	Peer's certificate did not have a public key.
13829	0x00003605	ERROR_IPSEC_IKE_PROCESS_ERR	Error processing error payload.
13830	0x00003606	ERROR_IPSEC_IKE_PROCESS_ERR_SA	Error processing SA payload.
13831	0x00003607	ERROR_IPSEC_IKE_PROCESS_ERR_PROP	Error processing Proposal payload.
13832	0x00003608	ERROR_IPSEC_IKE_PROCESS_ERR_TRANS	Error processing Transform payload.
13833	0x00003609	ERROR_IPSEC_IKE_PROCESS_ERR_KE	Error processing KE payload.
13834	0x0000360A	ERROR_IPSEC_IKE_PROCESS_ERR_ID	Error processing ID payload.
13835	0x0000360B	ERROR_IPSEC_IKE_PROCESS_ERR_CERT	Error processing Cert payload.
13836	0x0000360C	ERROR_IPSEC_IKE_PROCESS_ERR_CERT_REQ	Error processing Certificate Request payload.
13837	0x0000360D	ERROR_IPSEC_IKE_PROCESS_ERR_HASH	Error processing Hash payload.
13838	0x0000360E	ERROR_IPSEC_IKE_PROCESS_ERR_SIG	Error processing Signature payload.
13839	0x0000360F	ERROR_IPSEC_IKE_PROCESS_ERR_NONCE	Error processing Nonce payload.
13840	0x00003610	ERROR_IPSEC_IKE_PROCESS_ERR_NOTIFY	Error processing Notify payload.
13841	0x00003611	ERROR_IPSEC_IKE_PROCESS_ERR_DELETE	Error processing Delete Payload.
13842	0x00003612	ERROR_IPSEC_IKE_PROCESS_ERR_VENDOR	Error processing VendorId payload.
13843	0x00003613	ERROR_IPSEC_IKE_INVALID_PAYLOAD	Invalid payload received.
13844	0x00003614	ERROR_IPSEC_IKE_LOAD_SOFT_SA	Soft SA loaded.
13845	0x00003615	ERROR_IPSEC_IKE_SOFT_SA_TORN_DOWN	Soft SA torn down.
13846	0x00003616	ERROR_IPSEC_IKE_INVALID_COOKIE	Invalid cookie received..
13847	0x00003617	ERROR_IPSEC_IKE_NO_PEER_CERT	Peer failed to send valid machine certificate.
13848	0x00003618	ERROR_IPSEC_IKE_PEER_CRL_FAILED	Certification Revocation check of peer's certificate failed.
13849	0x00003619	ERROR_IPSEC_IKE_POLICY_CHANGE	New policy invalidated SAs formed with old policy.
13850	0x0000361A	ERROR_IPSEC_IKE_NO_MM_POLICY	There is no available Main Mode IKE policy.
13851	0x0000361B	ERROR_IPSEC_IKE_NOTCBPRIV	Failed to enabled TCB privilege.
13852	0x0000361C	ERROR_IPSEC_IKE_SECLOADFAIL	Failed to load SECURITY.DLL.
13853	0x0000361D	ERROR_IPSEC_IKE_FAILSSPINIT	Failed to obtain security function table dispatch address from SSPI.
13854	0x0000361E	ERROR_IPSEC_IKE_FAILQUERYSSP	Failed to query Kerberos package to obtain max token size.

		Error	Description
decimal	Hexadecimal	Name	
13855	0x0000361F	ERROR_IPSEC_IKE_SRVACQFAIL	Failed to obtain Kerberos server credentials for ISAKMP/ERROR_IPSEC_IKE service. Kerberos authentication will not function. The most likely reason for this is lack of domain membership. This is normal if your computer is a member of a workgroup.
13856	0x00003620	ERROR_IPSEC_IKE_SRVQUERYCRED	Failed to determine SSPI principal name for ISAKMP/ERROR_IPSEC_IKE service (QueryCredentialsAttributes).
13857	0x00003621	ERROR_IPSEC_IKE_GETSPIFAIL	Failed to obtain new SPI for the inbound SA from Ipsec driver. The most common cause for this is that the driver does not have the correct filter. Check your policy to verify the filters.
13858	0x00003622	ERROR_IPSEC_IKE_INVALID_FILTER	Given filter is invalid.
13859	0x00003623	ERROR_IPSEC_IKE_OUT_OF_MEMORY	Memory allocation failed.
13860	0x00003624	ERROR_IPSEC_IKE_ADD_UPDATE_KEY_FAILED	Failed to add Security Association to IPsec Driver. The most common cause for this is if the IKE negotiation took too long to complete. If the problem persists, reduce the load on the faulting machine.
13861	0x00003625	ERROR_IPSEC_IKE_INVALID_POLICY	Invalid policy.
13862	0x00003626	ERROR_IPSEC_IKE_UNKNOWN_DOI	Invalid DOI.
13863	0x00003627	ERROR_IPSEC_IKE_INVALID_SITUATION	Invalid situation.
13864	0x00003628	ERROR_IPSEC_IKE_DH_FAILURE	Diffie-Hellman failure.
13865	0x00003629	ERROR_IPSEC_IKE_INVALID_GROUP	Invalid Diffie-Hellman group.
13866	0x0000362A	ERROR_IPSEC_IKE_ENCRYPT	Error encrypting payload.
13867	0x0000362B	ERROR_IPSEC_IKE_DECRYPT	Error decrypting payload.
13868	0x0000362C	ERROR_IPSEC_IKE_POLICY_MATCH	Policy match error.
13869	0x0000362D	ERROR_IPSEC_IKE_UNSUPPORTED_ID	Unsupported ID.
13870	0x0000362E	ERROR_IPSEC_IKE_INVALID_HASH	Hash verification failed.
13871	0x0000362F	ERROR_IPSEC_IKE_INVALID_HASH_ALG	Invalid hash algorithm.
13872	0x00003630	ERROR_IPSEC_IKE_INVALID_HASH_SIZE	Invalid hash size.
13873	0x00003631	ERROR_IPSEC_IKE_INVALID_ENCRYPT_ALG	Invalid encryption algorithm.
13874	0x00003632	ERROR_IPSEC_IKE_INVALID_AUTH_ALG	Invalid authentication algorithm.
13875	0x00003633	ERROR_IPSEC_IKE_INVALID_SIG	Invalid certificate signature.
13876	0x00003634	ERROR_IPSEC_IKE_LOAD_FAILED	Load failed.
13877	0x00003635	ERROR_IPSEC_IKE_RPC_DELETE	Deleted via RPC call.
13878	0x00003636	ERROR_IPSEC_IKE_BENIGN_REINIT	Temporary state created to perform reinitialization. This is not a real failure.
13879	0x00003637	ERROR_IPSEC_IKE_INVALID_RESPONDER_LIFETIME_NOTIFY	The lifetime value received in the Responder Lifetime Notify is below the Windows 2000 configured minimum value. Please fix the policy on the peer machine.
13880	0x00003638	ERROR_IPSEC_IKE_QM_LIMIT_REAP	SA reaped because QM limit was reached.
13881	0x00003639	ERROR_IPSEC_IKE_INVALID_CERT_KEYLEN	Key length in certificate is too small for configured security requirements.
13882	0x0000363A	ERROR_IPSEC_IKE_MM_LIMIT	Max number of established MM SAs to peer exceeded.
13883	0x0000363B	ERROR_IPSEC_IKE_NEGOTIATION_DISABLED	IKE received a policy that disables negotiation.
13884	0x0000363C	ERROR_IPSEC_IKE_QM_LIMIT	Reached maximum quick mode limit for the main mode. New main mode will be started.

8.6 Support and Service

Beckhoff and their partners around the world offer comprehensive support and service, making available fast and competent assistance with all questions related to Beckhoff products and system solutions.

Beckhoff's branch offices and representatives

Please contact your Beckhoff branch office or representative for local support and service on Beckhoff products!

The addresses of Beckhoff's branch offices and representatives round the world can be found on her internet pages:

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You will also find further documentation for Beckhoff components there.

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