

[MS-CER]: Corporate Error Reporting Version 1.0 Protocol Specification

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Contents

1	Introduction	5
1.1	Glossary	5
1.2	References.....	5
1.2.1	Normative References.....	5
1.2.2	Informative References	6
1.3	Overview	6
1.4	Relationship to Other Protocols.....	7
1.5	Prerequisites/Preconditions	7
1.6	Applicability Statement.....	7
1.7	Versioning and Capability Negotiation.....	7
1.8	Vendor-Extensible Fields.....	8
1.9	Standards Assignments	8
2	Messages.....	9
2.1	Transport.....	9
2.2	Message Syntax	9
2.2.1	Count.txt.....	9
2.2.2	Tracking Files	9
2.2.2.1	Hits.log	10
2.2.2.2	Crash.log.....	10
2.2.3	CER File Share Folder Structure	11
2.2.3.1	Application Fault or Hang Reports	11
2.2.3.2	Specialized Reporting Types.....	12
2.2.3.2.1	Kernel Fault Reports	12
2.2.3.2.2	Shutdown Reports.....	12
2.2.4	Policy.txt.....	13
2.2.5	Status.txt.....	14
3	Protocol Details	17
3.1	Client to Server Detail	17
3.1.1	Abstract Data Model	17
3.1.2	Timers	17
3.1.3	Initialization	17
3.1.4	Higher-Layer Triggered Events.....	17
3.1.5	Message Processing Events and Sequencing Rules.....	17
3.1.6	Timer Events	17
3.1.7	Other Local Events	17
4	Protocol Examples.....	19
4.1	Application Fault Example	19
4.2	Kernel Fault Example	21
5	Security.....	22
5.1	Security Considerations for Implementers.....	22
5.2	Index of Security Parameters	22
6	Appendix A: Product Behavior	23
7	Change Tracking.....	25
8	Index	27

1 Introduction

This document specifies the Corporate Error Reporting Version 1.0 Protocol. This protocol is designed to enable businesses to manage all **error reporting** information within the organization. Through use of this protocol, problem reports generated on a set of client machines can be directed to a local or remote **CER file share** for analysis.

1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

American National Standards Institute (ANSI) character set

ASCII

Augmented Backus-Naur Form (ABNF)

Universal Naming Convention (UNC)

The following terms are specific to this document:

bucket: A positive integer value that represents a mapping for a particular **error signature**.

CER client: A client configured to use the Corporate Error Reporting Version 1.0 Protocol.

CER file share: A designated folder that acts as the drop location for the **error reports** copied by the Corporate Error Reporting Version 1.0 Protocol.

error report: Information contained in a set of files that describes a problem event that has occurred on the system. The report is typically compressed into a single file for transmission.

error signature: An ordered collection of strings which represents an individual error or class of errors.

error subpath: A fragment of a [Server Message Block \(SMB\) Protocol](#) file server directory path which is composed from the strings in the **error signature** and is used to direct **error reports** on the **CER file share**. For more details, see section [2.2.3](#).

tracking: A **CER client** feature that adds information to logging files during the error reporting process.

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as described in [\[RFC2119\]](#). All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2 References

References to Microsoft Open Specification documents do not include a publishing year because links are to the latest version of the documents, which are updated frequently. References to other documents include a publishing year when one is available.

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information. Please check the archive site,

<http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[ISO/IEC-8859-1] International Organization for Standardization, "Information Technology -- 8-Bit Single-Byte Coded Graphic Character Sets -- Part 1: Latin Alphabet No. 1", ISO/IEC 8859-1, 1998, <http://www.iso.org/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=28245&ICS1=35&ICS2=40&ICS3=>

Note There is a charge to download the specification.

[LAVY-MEGGITT] Lavy, M. and Meggitt, A., "Windows Management Instrumentation (WMI)", Sams, 2001, ISBN: 1578702607.

If you have any trouble finding [LAVY-MEGGITT], please check [here](#).

[MS-SMB] Microsoft Corporation, "[Server Message Block \(SMB\) Protocol Specification](#)".

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.rfc-editor.org/rfc/rfc2119.txt>

[RFC3986] Berners-Lee, T., Fielding, R., and Masinter, L., "Uniform Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986, January 2005, <http://www.ietf.org/rfc/rfc3986.txt>

[RFC4234] Crocker, D., Ed., and Overell, P., "Augmented BNF for Syntax Specifications: ABNF", RFC 4234, October 2005, <http://www.ietf.org/rfc/rfc4234.txt>

1.2.2 Informative References

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)".

[MSDN-CAB] Microsoft Corporation, "Microsoft Cabinet SDK", March 1997, <http://msdn.microsoft.com/en-us/library/ms974336.aspx>

[MSDN-FILE] Microsoft Corporation, "Naming a File", <http://msdn.microsoft.com/en-us/library/aa365247.aspx>

1.3 Overview

The Corporate Error Reporting Version 1.0 Protocol provides an organization with the ability to copy error reports from a set of client machines to a CER file share on a specified [Server Message Block \(SMB\) Protocol](#) file server with additional configuration options.

An error event, such as an application or kernel fault, causes the client system to collect information for an error report. The Corporate Error Reporting Version 1.0 Protocol does not create the original contents of the error report.

The **CER client** then performs a check to determine if a path to a CER file share has been specified for this client system. If the path has been specified, the Corporate Error Reporting Version 1.0 Protocol will be used.

If the Corporate Error Reporting Version 1.0 Protocol will be used, the CER client constructs several CER file share paths based on the specific error that has occurred, and it constructs one CER file share path that applies to all reports for that CER file share. The CER client then attempts to read configuration files at that location. These configuration files, if present, indicate CER client behavior settings, whether the error report information should be copied to the CER file share, and additional data requests to be included in the error report.

If the report is to be copied, the CER client gathers the additional data requested, then compresses the report information into a single file. Then the CER client copies the error reporting file to the specified CER file share where it can be accessed by an administrator for **tracking** or analysis purposes.

Whether or not an error reporting file was copied, the CER client also updates the configuration file that indicates the number of reports for that particular error and, depending on configuration, may also update tracking files.

The server is simply an SMB Protocol file server with a specific set of files. All behavior specific to the Corporate Error Reporting Version 1.0 Protocol is in the CER client and helper processes which access the file server, but the CER client and these helper processes never interact directly.

1.4 Relationship to Other Protocols

The Corporate Error Reporting Version 1.0 Protocol uses the [SMB Protocol](#) to copy error reports from the client machine to the CER file share.

1.5 Prerequisites/Preconditions

1. The client system is able to create error reports.
2. An implementation-specific file compression algorithm is required to organize the error reporting information into one file.
3. The Corporate Error Reporting Version 1.0 Protocol assumes that the client is configured with the file path of the CER file share on the server.
4. The Corporate Error Reporting Version 1.0 Protocol assumes that the client has permission to copy files to the CER file share.
5. It is assumed that corporate administrators have the ability to interpret the files that the Corporate Error Reporting Version 1.0 Protocol copies to the CER file share on the [SMB Protocol](#) server.
6. The CER file share can have the following file: <fileshare>\policy.txt.
7. An external process, either manual or automated, can generate status.txt files at the appropriate paths described in section [2.2.3](#).

1.6 Applicability Statement

The Corporate Error Reporting Version 1.0 Protocol is appropriate for small, medium, or large organizations that want to manage and review all error reporting information within the organization.

In addition, the Corporate Error Reporting Version 1.0 Protocol is only applicable to environments where all client machines support a common (local) file path syntax, although it is applicable to any such file path syntax.

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The Corporate Error Reporting Version 1.0 Protocol MUST use Server Message Block, as specified in [\[MS-SMB\]](#), to read and write files on the specified CER file share.

2.2 Message Syntax

The Corporate Error Reporting Version 1.0 Protocol transmits messages in the form of files.

2.2.1 Count.txt

The Count.txt file includes two text parameters that track aggregate information about how frequently certain problems occur on specific clients and how much report data has been collected. Its format is a CRLF-delimited list of name-value pairs. It MUST be encoded using the **ANSI character set** as specified in [\[ISO/IEC-8859-1\]](#), with an implementation-specific valid code page. It MUST conform to the following syntax, as specified in [\[RFC4234\]](#):

```
Countfile = Cabs Hits
Cabs      = %d67.97.98.115.32.71.97.116.104.101.114.101.100.61 (1DIGIT / ((%x31-39)
1*DIGIT)) CRLF ; the encoded characters spell case-sensitive "Cabs Gathered="
Hits      = %d84.111.116.97.108.32.72.105.116.115.61 (%x31-39)*DIGIT CRLF
; the encoded characters spell case-sensitive "Total Hits="
```

Cabs: The number of error reporting files that have been copied for this problem. This MUST be a positive integer or zero.

Hits: The total number of hits this problem has received. This MUST be a positive integer, and MUST NOT be zero.

2.2.2 Tracking Files

There are two tracking files with very similar formats. The [hits.log](#) file is specific to a given error signature, while a single [crash.log](#) file is used for all errors reported to the CER file share. Each of their formats is a CRLF-delimited list of errors where each error is represented by a list of tab-delimited items. They MUST be encoded using the ANSI character set. They share many aspects of their grammar, as specified in [\[RFC4234\]](#):

```
Time      = Hours ":" Minutes ":" Seconds
Date      = Month "-" Day "-" Year
Hours     = 2DIGIT ; 00-23
Minutes   = 2DIGIT ; 00-59
Seconds   = 2DIGIT ; 00-59
Month     = 2DIGIT ; 01-12
Day       = 2DIGIT ; 01-28, 01-29, 01-30, 01-31 based on Month/Year
Year      = 4DIGIT
Machine   = (1*15CHAR) / "UNKNOWN" ; see below for delimiter handling
User      = (1*256CHAR) / "unknown user" ; see below for delimiter handling
```

Time: The local machine time when the report was generated (HH:MM:SS).

Date: The local machine date when the report was generated (MM-DD-YYYY).

Machine: The non-fully-qualified machine name of the machine that generated the error report. A CRLF pair MUST NOT appear in **Machine**, since that is reserved as the line delimiter. An HTAB MUST NOT appear in **Machine**, since that is reserved as the item delimiter. If the system is unable to determine the name of the machine, then "UNKNOWN" MUST be used in its place.

User: The user name of the user who was logged on when the report was generated. If the system is unable to determine the name of that user, then "unknown user" MUST be used in its place. A CRLF pair MUST NOT appear in **User**, since that is reserved as the line delimiter. An HTAB MUST NOT appear in **User**, since that is reserved as the item delimiter.

2.2.2.1 Hits.log

The hits.log file MUST conform to the following syntax, as specified in [\[RFC4234\]](#).

```
HitsLog = HitEntry / (HitEntry HitsLog)
HitEntry = Time SP SP Date HTAB Machine HTAB User HTAB FileName CRLF
FileName = 1*260CHAR / "No CAB" ; see below for delimiter handling
```

Time, Date, Machine, User: These elements MUST conform to section [2.2.2](#).

FileName: The name of the error reporting file. A CRLF pair MUST NOT appear in the **FileName**, since that is reserved as the line delimiter. An HTAB MUST NOT appear in the **FileName**, since that is reserved as the item delimiter. If an error reporting file was not written, the string "No CAB" MUST be used in its place.

2.2.2.2 Crash.log

The crash.log file MUST conform to the following syntax, as specified in [\[RFC4234\]](#).

```
CrashLog = CrashEntry / (CrashEntry CrashLog)
CrashEntry = Time SP SP Date HTAB Machine HTAB User HTAB ErrorInfo CRLF
ErrorInfo = BucketID / ErrorSubPath
BucketID = (%x31-39)*DIGIT
ErrorSubPath = 1*CHAR ; see below for delimiter handling
```

Time, Date, Machine, User: These elements MUST conform to section [2.2.2](#).

ErrorInfo: The CER client MUST write the **BucketID** to the crash.log file if it found it in the status.txt file (section [2.2.5](#)) for the error in question; otherwise it MUST write the **error subpath**.

BucketID: This MUST be a positive decimal integer, and MUST NOT be zero.

ErrorSubPath: This is the error subpath (directory structure fragment) for the reported error (as described in section [2.2.3](#)). A CRLF pair MUST NOT appear in the **ErrorSubPath**, since that is reserved as the line delimiter. An HTAB MUST NOT appear in the **ErrorSubPath**, since that is reserved as the item delimiter.

2.2.3 CER File Share Folder Structure

The Corporate Error Reporting Version 1.0 Protocol specifies two globally unique file path locations per CER file share, the root-level location of [policy.txt](#) (section 2.2.4) and the root-level location of [crash.log](#) (section 2.2.2.2).

Every type of error report also uses individual [count.txt](#) (section 2.2.1), [hits.log](#) (section 2.2.2.1) and [status.txt](#) (section 2.2.5) files. Each specific instance of an error also has a single error report file, whose name is generated by the CER client. In the examples below, the term "<error reporting file>" is substituted for the actual file name. Every error report looks for the count.txt, hits.log (if the tracking feature is enabled), and status.txt files, and writes its error reporting file, using a standard scheme. The scheme uses the concept of the error subpath SMB file server directory path fragment, whose specifics will be discussed under each kind of report.

The terms below in angle brackets ("<" and ">") are placeholders, not literals. The actual values MUST be made up solely of **ASCII** characters. They MUST NOT contain prohibited characters in the filesystem environment in which they operate, and the directory names MUST NOT consist of prohibited names in the file system environment in which they operate. [<1>](#)

Once the CER client generates the **error signature** specific file names (having replaced the placeholders in the error subpath with the proper parameters for the particular error report), it MUST compute the length of these filenames. If any of them are longer than 260 characters, the report MUST be discarded by the CER client.

If the directory paths required for these files do not exist on the CER file share, the CER client MUST create them.

The form of the path names MUST be as follows, where the <UNC file share path> represents the path to the CER file share.

Global files

```
<UNC file share path>\policy.txt
<UNC file share path>\crash.log
```

Error signature-specific files

```
<UNC file share path>\cabs\<error subpath>\<error reporting file>
<UNC file share path>\cabs\<error subpath>\hits.log
<UNC file share path>\status\<error subpath>\status.txt
<UNC file share path>\counts\<error subpath>\count.txt
```

2.2.3.1 Application Fault or Hang Reports

For user-mode error reports, the CER client MUST obtain the following information from the system to create this error signature.

Parameter	Description
AppName	The file name of the faulting application binary. This MUST be between 1 and 64 characters long.
AppVer	The file version of the faulting application binary obtained from the file descriptor. This

Parameter	Description
	MUST be between 1 and 24 characters long.
ModName	The file name of the faulting module binary. This MUST be between 1 and 64 characters long.
ModVer	The file version of the faulting module binary obtained from the file descriptor. This MUST be between 1 and 24 characters long.
Offset	The code location in the faulting binary where the exception occurred (in hexadecimal without a leading 0x identifier). The offset value MUST be the full length specified by the architecture of the faulting process; for example, a valid 32-bit offset is "0000abcd", and a valid 64-bit offset is "0000abcd12345678".

The error subpath for these types of reports MUST be composed using the error signature as follows: "<AppName>\<AppVer>\<ModName>\<ModVer>\<Offset>".

The specific file paths used in making this type of report MUST be as follows:

- <UNC file share path>\cabs\<AppName>\<AppVer>\<ModName>\<ModVer>\<Offset>\<error reporting file>
- <UNC file share path>\cabs\<AppName>\<AppVer>\<ModName>\<ModVer>\<Offset>\hits.log
- <UNC file share path>\status\<AppName>\<AppVer>\<ModName>\<ModVer>\<Offset>\status.txt
- <UNC file share path>\counts\<AppName>\<AppVer>\<ModName>\<ModVer>\<Offset>\count.txt

2.2.3.2 Specialized Reporting Types

For other event types, the folder structure is dependent on the type of error event described in the report.

2.2.3.2.1 Kernel Fault Reports

For kernel fault reports, "blue" MUST be used as the error signature and error subpath. The specific file paths used in making this type of report MUST be as follows.

- <UNC file share path>\cabs\blue\<error reporting file>
- <UNC file share path>\cabs\blue\hits.log
- <UNC file share path>\status\blue\status.txt
- <UNC file share path>\counts\blue\count.txt

2.2.3.2.2 Shutdown Reports

For unplanned shutdown reports, "shutdown" MUST be used as the error signature and error subpath. The specific file paths used in making this type of report MUST be as follows.

- <UNC file share path>\cabs\shutdown\<error reporting file>
- <UNC file share path>\cabs\shutdown\hits.log

- <UNC file share path>\status\shutdown\status.txt
- <UNC file share path>\counts\shutdown\count.txt

2.2.4 Policy.txt

The Corporate Error Reporting Version 1.0 Protocol allows for a set of configuration parameters that describe which tracking or response options are preferred. These parameters are set in one of two text files located in specific locations on the CER file share, and instruct the CER client exactly what information to include in the error report. The configuration parameters MUST be contained in a policy.txt and [status.txt](#) file as specified in this section and section [2.2.5](#).

If present, policy.txt MUST be placed in the root folder of the CER file share. Its format is a CRLF-delimited list of name-value pairs. It MUST be encoded using the ANSI character set. The file MUST conform to the following **Augmented Backus-Naur Form (ABNF)**, as specified in [RFC4234](#). Note that the terms in the "Policyrule" rule can appear in any order and all permutations are not illustrated in the ABNF for brevity and clarity.

```

Policyrule           = [Tracking] [CrashesPerBucket] [URLLaunch]
                       [NoSecondLevelCollection] [NoFileCollection]
                       [NoExternalURL] [FileTreeRoot]
                       ; terms may appear in any order
CERBooleanValue      = "YES" / "TRUE" / "1" / "NO" / "FALSE" / "0"
                       ; case insensitive
Tracking             = %d84.114.97.99.107.105.110.103.61 CERBooleanValue CRLF
                       ; the encoded characters spell case-sensitive "Tracking="
CrashesPerBucket     = %d67.114.97.115.104.101.115.32.112.101.114.32.98.117.99.1
                       07.101.116.61 (1DIGIT / ((%x31-39)1*DIGIT)) CRLF
                       ; the encoded characters spell case-sensitive "Crashes
                       per bucket="
URLLaunch            = %d85.82.76.76.97.117.110.99.104.61 Url CRLF
                       ; the encoded characters spell case-sensitive "URLLaunch="
Url                  = URI ; [RFC 3986], see below for delimiter handling
NoSecondLevelCollection = %d78.111.83.101.99.111.110.100.76.101.118.101.108.67.111.
                       108.108.101.99.116.105.111.110.61 CERBooleanValue CRLF
                       ; the encoded characters spell case-sensitive "NoSecond
                       LevelCollection="
NoFileCollection     = %d78.111.70.105.108.101.67.111.108.108.101.99.116.105.111.
                       110.61 CERBooleanValue CRLF
                       ; the encoded characters spell case-sensitive "NoFile
                       Collection="
NoExternalURL        = %d78.111.69.120.116.101.114.110.97.108.85.82.76.61
                       CERBooleanValue CRLF
                       ; the encoded characters spell case-sensitive "NoExternalURL="
FileTreeRoot         = %d70.105.108.101.84.114.101.101.82.111.111.116.61 Path CRLF
                       ; the encoded characters spell case-sensitive "FileTreeRoot="

Path                 = 1*260CHAR      ; see below for delimiter handling

```

CERBooleanValue: The values "YES", "TRUE", and "1" represent True. The values "NO", "FALSE", and "0" represent False.

Tracking: A True **CERBooleanValue** instructs the CER client that it MUST enable internal tracking in the form of a [hits.log \(section 2.2.2.1\)](#) file and a [crash.log \(section 2.2.2.2\)](#) file. A False **CERBooleanValue** instructs the CER client that it MUST disable internal tracking. If this parameter is absent, the CER client SHOULD use a default value of "NO". [<2>](#)

Crashes per bucket: This MUST be a positive integer value or zero. This value indicates the maximum number of error reporting files to collect for each error. If this many error reporting files already exist for this error on the CER file share, then an additional error reporting file MUST NOT be submitted. If this parameter is absent, the CER client SHOULD use a default value of "5".

URLLaunch: This parameter informs the CER client that the specified URL references information to show the user.

Url: It MUST conform to the URL syntax, as specified in [\[RFC3986\]](#). A CRLF pair MUST NOT appear in the **Url**, since that is reserved as the line delimiter.

NoSecondLevelCollection: A True CERBooleanValue instructs the CER client to ignore additional data requests specified in status.txt (section 2.2.5). A False CERBooleanValue instructs the CER client to honor additional data requests. If this parameter is absent, the CER client SHOULD use a default value of "NO".[.<3>](#)

NoFileCollection: A True CERBooleanValue instructs the CER client to ignore file requests specified in status.txt (section 2.2.5). A False CERBooleanValue instructs the CER client to honor file requests. If this parameter is absent, the CER client SHOULD use a default value of "NO". File requests are the subset of data requests that gather files from the user's computer; they are specified in section [2.2.5](#) by the **fDoc** and **GetFile** rules.[.<4>](#)

NoExternalURL: A True CERBooleanValue instructs the CER client to ignore URL information described in status.txt. A False CERBooleanValue instructs the CER client to honor URL information. If this parameter is absent, the CER client SHOULD use a default value of "NO".[.<5>](#)

FileTreeRoot: The value MUST be a **Universal Naming Convention (UNC)** path. This parameter instructs the CER client to redirect the error reporting process to use this file tree location instead of the file tree location at which it found this file, starting from looking for a policy.txt file at that new file tree location. This new file tree location MUST meet the prerequisites/preconditions (section [1.5](#)) and file tree paths (section [2.2.3](#)) for the destination server. If this parameter is not indicated, the CER client MUST continue the error reporting process using the file tree root at which it found this file. To avoid an infinite loop, the CER client SHOULD keep track of how many times it has been redirected using this method, and if it is redirected more than 10 times, it SHOULD abort the error reporting process.

Path: A CRLF pair MUST NOT appear in the **Path** value, since that is reserved as the line delimiter.

2.2.5 Status.txt

If present, status.txt MUST be placed in a final subfolder of the "status" branch of the CER file share (For an example, see section [4.1](#)). The presence of a status.txt file in the final subfolder for a specific error instructs the CER client to take on different behavior for that error. The status.txt file supports any of the parameters that can be specified in [policy.txt](#), with the exception of FileTreeRoot. If there is a conflict, a status.txt parameter MUST override a corresponding policy.txt parameter.

The status.txt file format is a CRLF-delimited list of name-value pairs. It MUST be encoded using the ANSI character set. The file MUST conform to the following ABNF, as specified in [\[RFC4234\]](#). Note that the terms in the "StatusRule" rule can appear in any order and all permutations are not illustrated in the ABNF for brevity and clarity.

```
StatusRule = [Response] [BucketID] [iData]
              [MemoryDump] [RegKeyValues] [fDoc]
              [WQLKeyValues] [GetFileKeyValues]
              [GetFileVersionKeyValues] [Tracking]
```

```

[CrashesPerBucket] [URLLaunch]
[NoSecondLevelCollection] [NoFileCollection]
[NoExternalURL] ; terms may appear in any order
CERBooleanValue = "YES" / "TRUE" / "1" / "NO" / "FALSE" / "0"
; case insensitive
Response = %d82.101.115.112.111.110.115.101.61 ResponseValue CRLF
; the encoded characters spell case-sensitive "Response="
ResponseValue = "1" / Url
BucketID = %d66.117.99.107.101.116.61 (%x31-39)*DIGIT CRLF
; the encoded characters spell case-sensitive "Bucket="
iData = %d105.68.97.116.97.61 CERBooleanValue CRLF
; the encoded characters spell case-sensitive "iData="
MemoryDump = %d77.101.109.111.114.121.68.117.109.112.61 CERBooleanValue CRLF
; the encoded characters spell case-sensitive "MemoryDump="
RegKeyValues = %d82.101.103.75.101.121.61 RegKeyList CRLF
; the encoded characters spell case-sensitive "RegKey="
RegKeyList = RegKey [";" [RegKeyList]]
RegKey = 1*CHAR ; see below for delimiter handling
fDoc = %d102.68.111.99.61 CERBooleanValue CRLF
; the encoded characters spell case-sensitive "fDoc="
WQLKeyValues = %d87.81.76.61 WQLList CRLF
; the encoded characters spell case-sensitive "WQL="
WQLList = (WQL / WQL ";" WQLList)
WQL = 1*CHAR ; WMI query syntax specified in [LAVY-MEGGITT],
; see below for delimiter handling
GetFileKeyValues = %d71.101.116.70.105.108.101.61 GetFileList CRLF
; the encoded characters spell case-sensitive "GetFile="
GetFileList = GetFile [";" [GetFileList]]
GetFile = Path
GetFileVersionKeyValues = %d71.101.116.70.105.108.101.86.101.114.115.105.111.110.61
GetFileList CRLF
; the encoded characters spell case-sensitive "GetFileVersion="
Path = 1*CHAR ; see below for delimiter handling
Tracking = %d84.114.97.99.107.105.110.103.61 CERBooleanValue CRLF
; the encoded characters spell case-sensitive "Tracking="
CrashesPerBucket = %d67.114.97.115.104.101.115.32.112.101.114.32.98.117.99
.107.101.116.61 (1DIGIT / ((%x31-39)1*DIGIT)) CRLF
; the encoded characters spell case-sensitive "Crashes per bucket="
URLLaunch = %d85.82.76.76.97.117.110.99.104.61 [Url] CRLF
; the encoded characters spell case-sensitive "URLLaunch="
Url = URI ; [RFC 3986], see below for delimiter handling
NoSecondLevelCollection = %d78.111.83.101.99.111.110.100.76.101.118.101.108.67.111.108
.108.101.99.116.105.111.110.61 CERBooleanValue CRLF
; the encoded characters spell case-sensitive
"NoSecondLevelCollection="
NoFileCollection = %d78.111.70.105.108.101.67.111.108.108.101.99.116.105
.111.110.61 CERBooleanValue CRLF
; the encoded characters spell case-sensitive "NoFileCollection="
NoExternalURL = %d78.111.69.120.116.101.114.110.97.108.85.82.76.61
CERBooleanValue CRLF
; the encoded characters spell case-sensitive "NoExternalURL="

```

CERBooleanValue: The values "YES", "TRUE", and "1" represent True. The values "NO", "FALSE", and "0" represent False.

Response: The value "1" for this parameter indicates that the error reporting system has no additional information to display about this problem. If this parameter is a URL the CER client SHOULD display a response prompt pointing to the URL specified by this parameter.

BucketID: This MUST be a positive decimal integer, and MUST NOT be zero.

iData: A True **CERBooleanValue** (as well as the absence of the parameter) instructs the CER client that an error reporting file MUST be generated for this error signature. A False **CERBooleanValue** instructs the CER client that an error reporting file MUST NOT be made. This is one of several values consulted in determining whether to generate an error reporting file; see section [3.1.7](#) for more details.

MemoryDump: A True **CERBooleanValue** instructs the CER client to add sections of the memory address space of the affected process to the error report. A False **CERBooleanValue** (as well as the absence of the parameter) instructs the CER client to do nothing with respect to the memory address space.

RegKeyValues: This parameter lists any number of semicolon-delimited registry key names. The CER client MUST collect the values of these keys if they are present in the registry. The CER client MUST include this information in the error reporting file.

RegKey: A CRLF pair MUST NOT appear in the **RegKey** value, since that is reserved as the line delimiter. A semicolon MUST NOT appear in the **RegKey** value, since that is reserved as the list item delimiter.

fDoc: A True **CERBooleanValue** instructs the CER client that the contents of any currently open documents in the software generating the error report are requested to be added to the error report. A False **CERBooleanValue** (as well as the absence of the parameter) instructs the CER client to do nothing with respect to the open documents.

WQLKeyValues: A string value that instructs the CER client to collect the Windows Management Instrumentation (WMI) objects (as specified in [LAVY-MEGGITT]) that are specified by this parameter, and include them in this error report.

WQL: A CRLF pair MUST NOT appear in the **WQL** value, since that is reserved as the line delimiter. A semicolon MUST NOT appear in the **WQL** value, since that is reserved as the list item delimiter.

GetFile: This parameter lists any number of semicolon-delimited file names to collect and include in the error report. It MUST be in a file path notation supported by the client systems that are expected to encounter the type of error this file corresponds to. The notation MUST support environment variables.

GetFileVersion: This parameter lists any number of semicolon-delimited file names to collect version information from and include in the error report. It MUST be in a file path notation supported by the client systems that are expected to encounter the type of error this file corresponds to. The notation MUST support environment variables.

Path: A CRLF pair MUST NOT appear in the **Path** value, since that is reserved as the line delimiter. A semicolon MUST NOT appear in the **Path** value, since that is reserved as the list item delimiter.

Tracking, Crashes Per Bucket, NoSecondLevelCollection, NoFileCollection, NoExternalURL, URL: These elements MUST conform to section [2.2.4](#).

URLLaunch: This parameter SHOULD be as specified in section [2.2.4](#). [<6>](#)

3 Protocol Details

3.1 Client to Server Detail

3.1.1 Abstract Data Model

This section describes a conceptual model of possible data organization that an implementation maintains to participate in this protocol. The described organization is provided to facilitate the explanation of how the protocol behaves. This document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

DWFileTreeRoot

The *DWFileTreeRoot* parameter specifies the UNC path to the location of the CER file share. The existence of this parameter instructs the CER client that the Corporate Error Reporting Version 1.0 Protocol will be used. [<7>](#)

3.1.2 Timers

None.

3.1.3 Initialization

The CER client MUST check for the existence of the *DWFileTreeRoot* parameter. If there is no parameter, or if the parameter is not valid, the CER client MUST stop any further processing.

3.1.4 Higher-Layer Triggered Events

None.

3.1.5 Message Processing Events and Sequencing Rules

None.

3.1.6 Timer Events

None.

3.1.7 Other Local Events

When a system or application error occurs, if the CER client is configured to use the Corporate Error Reporting Version 1.0 Protocol as specified in section [3.1.1](#), the CER client MUST perform the following actions:

1. The CER client MUST first construct the required file paths depending on the type of error event, as specified in section [2.2.3](#). The CER client MUST then check for the existence of the relevant [policy.txt](#) and [status.txt](#) files, as specified in sections [2.2.4](#) and [2.2.5](#), and if they exist then read the files by using the [SMB Protocol](#). It MUST verify that the files conform to the format specified in sections [2.2.4](#) and [2.2.5](#). If the files do not conform to the specified formats, or if individual entries in those files do not conform to the specified formats, the configuration options which are incorrectly specified MUST NOT be honored by the CER client.

2. If both a status.txt file and a policy.txt file exist for a particular error and contain the same parameter with different values, the CER client MUST use status.txt parameter over the policy.txt parameter. If neither exist, the CER client SHOULD refer to its default value for that particular parameter. [<8>](#)
3. The CER client MUST determine whether there are already a sufficient number of reports for this particular error. First, it must determine how many reports have already been made. If the [count.txt](#) file as specified in section [2.2.1](#) exists, the CER client MUST read the number of copied error reporting files from it. Otherwise the CER client MUST assume that the number of reports is zero. Next, the CER client MUST determine the maximum number of copied error reporting files for this error. It first checks for a CrashesPerBucket value set by status.txt, then by policy.txt, then falls back to its default value. Finally, the CER client compares these two numbers and as long as there are fewer copied reports than the CrashesPerBucket value instructs, then the CER client MUST continue the error reporting file generation process. If there are already a sufficient number of reports then the CER client MUST skip to step 8 below.
4. The CER client MUST check the status.txt file (section [2.2.5](#)) for the existence of an iData parameter with an affirmative Boolean value to verify that an error reporting file is requested. If the parameter is absent or has a negative Boolean value, the CER client MUST skip to step 8 below.
5. The CER client MUST check the status.txt file (section [2.2.5](#)) to determine whether any additional data is specified for the error reporting file. If so, the CER client MUST collect as much of the requested data as possible (for example, if a file is requested in the GetFile section of status.txt that is not present on the system, then the file cannot be included but the error report SHOULD still be made[<9>](#)). The method of data collection is implementation-specific.[<10>](#) Note that there is no requirement that two clients use the same method or format of error information.
6. The CER client MUST compress the complete report information into a single file by using any implementation-specific file compression.[<11>](#) Note that there is no requirement that two clients use the same file compression scheme. If the data cannot be compressed, the CER client MUST NOT continue creating an error reporting file, and MUST skip to step 8 below.
7. The CER client MUST attempt to copy the error report to the CER file share. If this attempt fails, the error report MUST NOT be copied.
8. If the count.txt file does not exist, the CER client MUST create the file and set its contents as follows. The value <cFilesCopied> is "1" if the CER successfully copied a file in step 7, and is otherwise "0".

```
Cabs Gathered=<cFilesCopied>
Total Hits=1
```

If the count.txt file already exists, the CER client MUST attempt to increment the Total Hits value by one and the Cabs Gathered value by <cFilesCopied>.

9. This final step applies only if the policy.txt or status.txt file indicated that internal tracking is enabled. If [crash.log](#) does not yet exist, the CER client MUST create an empty crash.log file at that location. Then the CER client MUST attempt to append to the crash.log file following the format specified in section [2.2.2.2](#). If [hits.log](#) does not yet exist, the CER client MUST create an empty hits.log file at that location. Then the CER client MUST attempt to append to the hits.log file following the format specified in section [2.2.2.1](#).

4 Protocol Examples

4.1 Application Fault Example

1. An application fault occurs while running TestApplication.exe.
2. The system creates an error report.
3. The CER client checks to see whether a CER file share has been configured as specified in section [3.1.1](#). The following value is set:

```
DWFileTreeRoot = "\\MyCerServer\CERFileShare\"
```

4. The CER client checks for the existence of a [policy.txt](#) file at the location specified by DWFileTreeRoot. No policy.txt file exists.
5. The CER client constructs the following folder structure based on the information specified in section [2.2.3](#):

```
\\MyCerServer\CERFileShare\status\TestApplication\1.0.0.0\TestModule\  
1.0.0.0\00000000\status.txt
```

6. A [status.txt](#) file exists at this location. The CER client parses the status.txt file, which includes the following parameters and values:

```
Tracking=YES  
Response=http://www.microsoft.com/ms.htm  
Crashes per bucket=100  
NoSecondLevelCollection=NO  
NoFileCollection=NO  
RegKey=HKLM\Software\Microsoft\PCHealth\ErrorReporting;HKLM\Software\  
Microsoft\PCHealth\Test  
iData=1  
fDoc=0  
WQL=select * from Win32_logicaldisk  
GetFile=%WINDIR%\system32\notepad.exe;%WINDIR%\system32\faultrep.dll  
GetFileVersion=%WINDIR%\system32\notepad.exe;%WINDIR%\system32\  
faultrep.dll
```

7. This status.txt file has specified a "Crashes per bucket" value of 100, so the CER client checks to make sure that 100 error reporting files have not already been collected for this problem. It does this by looking at the count.txt file for the error:

```
\\MyCerServer\CERFileShare\counts\TestApplication\1.0.0.0\TestModule\1.0.0.0\00000000\  
count.txt
```

The [count.txt](#) file has the following contents:

```
Cabs Gathered=5  
Total Hits=10
```

Since 5 is fewer than 100, the CER client continues the data collection process.

8. This status.txt file has specified that additional data be added to the error report, in the form of two registry key values, a WMI query, two files, and version information for two files. The CER client collects this information and compresses all of the report files into a single file with the randomly generated name of "d5je031w.cab".
9. The CER client copies the error reporting files to the CER file share:

```
\\MyCerServer\CERFileShare\cabs\TestApplication\1.0.0.0\TestModule\  
1.0.0.0\00000000\d5je031w.cab
```

10. The CER client updates the following file on the CER file share to increment the number of hits and the number of copied error reporting files:

```
\\MyCerServer\CERFileShare\counts\TestApplication\1.0.0.0\TestModule\  
1.0.0.0\00000000\count.txt
```

The count.txt file now has the following contents:

```
Cabs Gathered=6  
Total Hits=11
```

11. The status.txt file for this error signature has enabled internal tracking, so the CER client opens the [crash.log](#) file on the CER file share for this problem:

```
\\MyCerServer\CERFileShare\crash.log
```

The CER client appends the following text to the crash.log file:

```
"15:32:23 04-23-2007 TestMachine TestUser  
TestApplication\1.0.0.0\TestModule\1.0.0.0\00000000"
```

12. The CER client also opens the [hits.log](#) file on the CER file share:

```
\\MyCerServer\CERFileShare\cabs\TestApplication\1.0.0.0\TestModule\  
1.0.0.0\00000000\hits.log
```

13. The CER client appends the following text to the hits.log file:

```
"15:32:23 04-23-2007 TestMachine TestUser d5je031w.cab"
```

4.2 Kernel Fault Example

1. Kernel-mode fault occurs.
2. The system creates an error report.
3. The CER client checks to see whether a CER file share has been configured as specified in section [3.1.1](#). The following value is set:

```
DWFileTreeRoot = \\MyCerServer\CERFileShare\
```

4. The CER client constructs the path for the [policy.txt](#) file:

```
\\MyCerServer\CERFileShare\policy.txt
```

5. The CER client attempts to read the policy.txt file, and finds that no policy.txt file exists.
6. The CER client constructs the path for the [status.txt](#) file. Because this is a kernel mode report, the path of status.txt is the following:

```
\\MyCerServer\CERFileShare\status\blue\status.txt
```

7. The CER client attempts to read the status.txt file, and finds that no status.txt file exists.
8. Because neither a policy.txt nor a status.txt file exists, this error would ordinarily be subject to the CER client's default value of 5 for "Crashes per bucket". However, the CER client determines that since this particular type of error does not have parameters, that it will not restrict the number of copied error reporting files.
9. The CER client creates an error reporting file and uses the [SMB Protocol](#) to copy it to the specified file share:

```
\\MyCerServer\CERFileShare\cabs\blue\d5JE031w.cab
```

10. The CER client opens the [count.txt](#) file named as follows:

```
\\MyCerServer\CERFileShare\counts\blue\count.txt
```

The CER client updates its contents to reflect the additional hit and copied error reporting file:

```
Cabs Gathered=12345  
Total Hits=23456
```

5 Security

5.1 Security Considerations for Implementers

None.

5.2 Index of Security Parameters

None.

6 Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs:

- Windows® XP operating system
- Windows Server® 2003 operating system

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms SHOULD or SHOULD NOT implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that the product does not follow the prescription.

[<1> Section 2.2.3:](#) Windows has a variety of prohibited characters and names; for more information, see [\[MSDN-FILE\]](#).

[<2> Section 2.2.4:](#) On Windows XP and Windows Server 2003, these configuration elements may also be set via group policy on the machine running the CER client, which will cause those values to override the defaults described here.

[<3> Section 2.2.4:](#) On Windows XP and Windows Server 2003, these configuration elements may also be set via group policy on the machine running the CER client, which will cause those values to override the defaults described here.

[<4> Section 2.2.4:](#) On Windows XP and Windows Server 2003, these configuration elements may also be set via group policy on the machine running the CER client, which will cause those values to override the defaults described here.

[<5> Section 2.2.4:](#) On Windows XP and Windows Server 2003, these configuration elements may also be set via group policy on the machine running the CER client, which will cause those values to override the defaults described here.

[<6> Section 2.2.5:](#) It is possible to configure a CER tool in such a way that the **URLLaunch** value is left empty.

[<7> Section 3.1.1:](#) On Windows XP and Windows Server 2003, the following registry key specifies the UNC path of the CER file share:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\PCHealth\
ErrorReporting\DW] "DWFileTreeRoot"
```

[<8> Section 3.1.7:](#) On Windows XP and Windows Server 2003, these configuration elements may also be set via group policy on the machine running the CER client, which will cause those values to override the defaults described in section [2.2.4](#).

[<9> Section 3.1.7:](#) On Windows XP and Windows Server 2003, if a MemoryDump is requested and the CER client cannot generate one, the CER client will skip to step 8 of this section.

[<10> Section 3.1.7:](#) Windows uses a new file for each piece of information collected (for example, .reg for a registry key or .mdmp for a minidump).

[<11> Section 3.1.7:](#) Windows uses .CAB files for this compression; for more information, see [\[MSDN-CAB\]](#).

7 Change Tracking

This section identifies changes that were made to the [MS-CER] protocol document between the May 2011 and June 2011 releases. Changes are classified as New, Major, Minor, Editorial, or No change.

The revision class **New** means that a new document is being released.

The revision class **Major** means that the technical content in the document was significantly revised. Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements or functionality.
- An extensive rewrite, addition, or deletion of major portions of content.
- The removal of a document from the documentation set.
- Changes made for template compliance.

The revision class **Minor** means that the meaning of the technical content was clarified. Minor changes do not affect protocol interoperability or implementation. Examples of minor changes are updates to clarify ambiguity at the sentence, paragraph, or table level.

The revision class **Editorial** means that the language and formatting in the technical content was changed. Editorial changes apply to grammatical, formatting, and style issues.

The revision class **No change** means that no new technical or language changes were introduced. The technical content of the document is identical to the last released version, but minor editorial and formatting changes, as well as updates to the header and footer information, and to the revision summary, may have been made.

Major and minor changes can be described further using the following change types:

- New content added.
- Content updated.
- Content removed.
- New product behavior note added.
- Product behavior note updated.
- Product behavior note removed.
- New protocol syntax added.
- Protocol syntax updated.
- Protocol syntax removed.
- New content added due to protocol revision.
- Content updated due to protocol revision.
- Content removed due to protocol revision.
- New protocol syntax added due to protocol revision.

- Protocol syntax updated due to protocol revision.
- Protocol syntax removed due to protocol revision.
- New content added for template compliance.
- Content updated for template compliance.
- Content removed for template compliance.
- Obsolete document removed.

Editorial changes are always classified with the change type **Editorially updated**.

Some important terms used in the change type descriptions are defined as follows:

- **Protocol syntax** refers to data elements (such as packets, structures, enumerations, and methods) as well as interfaces.
- **Protocol revision** refers to changes made to a protocol that affect the bits that are sent over the wire.

The changes made to this document are listed in the following table. For more information, please contact protocol@microsoft.com.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
1.2 References	Added explanatory statement regarding the removal of the publishing year from Microsoft Open Specification document references.	N	Content updated.

8 Index

A

[Abstract data model](#) 17
[Applicability](#) 7
[Application fault example](#) 19
[Application fault reports](#) 11

C

[Capability negotiation](#) 7
[CER File Share folder structure](#) 11
[Change tracking](#) 25
[Count.txt file](#) 9
[Crash.log file](#) 10

D

[Data model - abstract](#) 17

E

Examples
 [application fault example](#) 19
 [kernel fault example](#) 21

F

[Fields - vendor-extensible](#) 8
Files
 [count.txt](#) 9
 [crash.log](#) 10
 [hits.log](#) 10
 [policy.txt](#) 13
 [status.txt](#) 14
 [tracking](#) 9

G

[Glossary](#) 5

H

[Hang reports](#) 11
[Higher-layer triggered events](#) 17
[Hits.log file](#) 10

I

[Implementer - security considerations](#) 22
[Index of security parameters](#) 22
[Informative references](#) 6
[Initialization](#) 17
[Introduction](#) 5

K

[Kernel fault example](#) 21

L

[Local events](#) 17

M

[Message processing](#) 17
Messages
 [syntax](#) 9
 [transport](#) 9

N

[Normative references](#) 5

O

[Overview \(synopsis\)](#) 6

P

[Parameters - security index](#) 22
[Policy.txt file](#) 13
[Preconditions](#) 7
[Prerequisites](#) 7
[Product behavior](#) 23

R

References
 [informative](#) 6
 [normative](#) 5
[Relationship to other protocols](#) 7
[Reporting types - specialized](#) 12
Reports
 [application fault](#) 11
 [hang](#) 11

S

Security
 [implementer considerations](#) 22
 [parameter index](#) 22
[Sequencing rules](#) 17
[Specialized reporting types](#) 12
[Standards assignments](#) 8
[Status.txt file](#) 14
[Syntax](#) 9

T

[Timer events](#) 17
[Timers](#) 17
[Tracking changes](#) 25
[Tracking file](#) 9
[Transport](#) 9
[Triggered events - higher-layer](#) 17

V

[Vendor-extensible fields](#) 8

[Versioning](#) 7