

# [MS-CCEIP]: Corporate Customer Experience Improvement Program Client-to-Server Protocol

---

## Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft [Open Specification Promise](#) or the [Community Promise](#). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting [iplg@microsoft.com](mailto:iplg@microsoft.com).
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights. For a list of Microsoft trademarks, visit [www.microsoft.com/trademarks](http://www.microsoft.com/trademarks).
- **Fictitious Names.** The example companies, organizations, products, domain names, email addresses, logos, people, places, and events depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

**Reservation of Rights.** All other rights are reserved, and this notice does not grant any rights other than specifically described above, whether by implication, estoppel, or otherwise.

**Tools.** The Open Specifications do not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments you are free to take advantage of them. Certain Open Specifications are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

## Revision Summary

Date	Revision History	Revision Class	Comments
04/08/2008	0.01		Initial Availability
06/20/2008	0.01.1	Editorial	Revised and edited the technical content.
07/25/2008	0.2	Minor	Updated the technical content.
08/29/2008	0.2.1	Editorial	Revised and edited the technical content.
10/24/2008	0.2.2	Editorial	Revised and edited the technical content.
12/05/2008	0.3	Minor	Updated the technical content.
01/16/2009	0.3.1	Editorial	Revised and edited the technical content.
02/27/2009	0.3.2	Editorial	Revised and edited the technical content.
04/10/2009	0.3.3	Editorial	Revised and edited the technical content.
05/22/2009	0.3.4	Editorial	Revised and edited the technical content.
07/02/2009	0.3.5	Editorial	Revised and edited the technical content.
08/14/2009	0.3.6	Editorial	Revised and edited the technical content.
09/25/2009	0.4	Minor	Updated the technical content.
11/06/2009	0.4.1	Editorial	Revised and edited the technical content.
12/18/2009	0.4.2	Editorial	Revised and edited the technical content.
01/29/2010	1.0	Major	Updated and revised the technical content.
03/12/2010	1.0.1	Editorial	Revised and edited the technical content.
04/23/2010	1.0.2	Editorial	Revised and edited the technical content.
06/04/2010	1.0.3	Editorial	Revised and edited the technical content.
07/16/2010	1.0.3	No change	No changes to the meaning, language, or formatting of the technical content.
08/27/2010	1.0.3	No change	No changes to the meaning, language, or formatting of the technical content.
10/08/2010	1.0.3	No change	No changes to the meaning, language, or formatting of the technical content.
11/19/2010	1.0.3	No change	No changes to the meaning, language, or formatting of the technical content.
01/07/2011	1.0.3	No change	No changes to the meaning, language, or formatting of the technical content.

<b>Date</b>	<b>Revision History</b>	<b>Revision Class</b>	<b>Comments</b>
02/11/2011	1.0.3	No change	No changes to the meaning, language, or formatting of the technical content.
03/25/2011	1.0.3	No change	No changes to the meaning, language, or formatting of the technical content.
05/06/2011	1.0.3	No change	No changes to the meaning, language, or formatting of the technical content.
06/17/2011	1.1	Minor	Clarified the meaning of the technical content.
09/23/2011	1.1	No change	No changes to the meaning, language, or formatting of the technical content.
12/16/2011	1.1	No change	No changes to the meaning, language, or formatting of the technical content.
03/30/2012	1.1	No change	No changes to the meaning, language, or formatting of the technical content.
07/12/2012	1.1	No change	No changes to the meaning, language, or formatting of the technical content.
10/25/2012	1.1	No change	No changes to the meaning, language, or formatting of the technical content.
01/31/2013	1.1	No change	No changes to the meaning, language, or formatting of the technical content.

# Contents

<b>1 Introduction</b>	<b>5</b>
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	6
1.5 Prerequisites/Preconditions	6
1.6 Applicability Statement	7
1.7 Versioning and Capability Negotiation	7
1.8 Vendor-Extensible Fields	7
1.9 Standards Assignments	7
<b>2 Messages</b>	<b>8</b>
2.1 Transport	8
2.2 Message Syntax	8
2.2.1 Partner Query String	8
<b>3 Protocol Details</b>	<b>9</b>
3.1 Client-to-Server Detail	9
3.1.1 Abstract Data Model	9
3.1.2 Timers	9
3.1.3 Initialization	9
3.1.4 Higher-Layer Triggered Events	9
3.1.5 Message Processing Events and Sequencing Rules	9
3.1.6 Timer Events	9
3.1.7 Other Local Events	9
<b>4 Protocol Examples</b>	<b>11</b>
4.1 Redirection Example	11
<b>5 Security</b>	<b>12</b>
5.1 Security Considerations for Implementers	12
5.2 Index of Security Parameters	12
<b>6 Appendix A: Product Behavior</b>	<b>13</b>
<b>7 Change Tracking</b>	<b>14</b>
<b>8 Index</b>	<b>15</b>

# 1 Introduction

This document specifies the Corporate Customer Experience Improvement Program Client-to-Server Protocol. When implemented, data generated on a set of client machines participating in the **Customer Experience Improvement Program** may be redirected to the **CEIP service** through a **CEIP server**.

Sections 1.8, 2, and 3 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in RFC 2119. Sections 1.5 and 1.9 are also normative but cannot contain those terms. All other sections and examples in this specification are informative.

## 1.1 Glossary

The following terms are specific to this document:

**CEIP client:** A client configured to use the **Customer Experience Improvement Program Client-to-Server Protocol**.

**CEIP server:** A server configured to redirect **CEIP data** sent by a set of **CEIP clients** to the **CEIP service**.

**CEIP service:** A service configured to receive **CEIP data** sent by a **CEIP server** or **CEIP client**.

**CEIP data:** Anonymous information contained in a set of files that describe usability, performance, reliability, and quality metrics.

**Customer Experience Improvement Program (CEIP):** A program in which participating systems send information to Microsoft about how they use certain products. Received **CEIP data** is combined to help Microsoft solve problems and to improve the products and features that customers use most often.

**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 Specifications documentation 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](mailto: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.

[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>

[RFC2616] Fielding, R., Gettys, J., Mogul, J., et al., "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999, <http://www.ietf.org/rfc/rfc2616.txt>

## 1.2.2 Informative References

None.

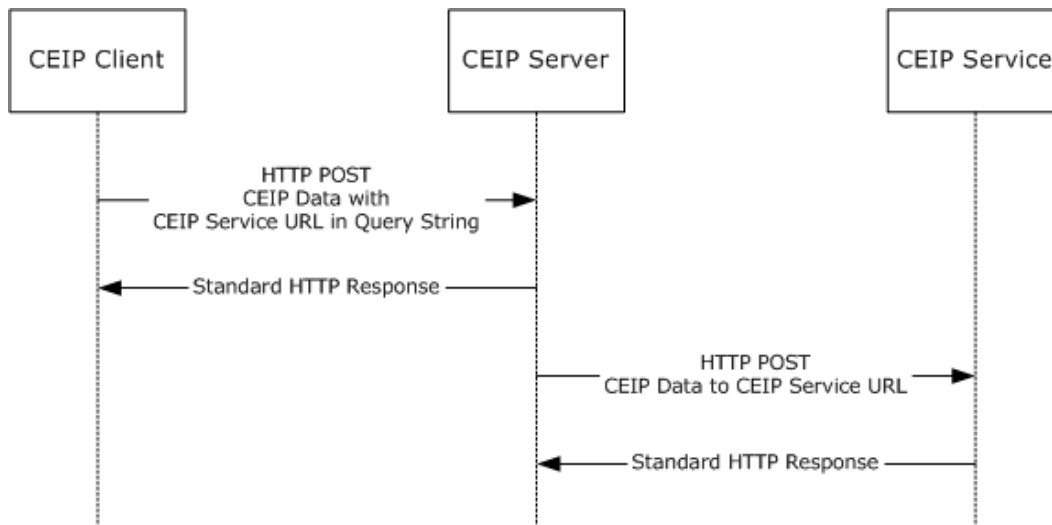
## 1.3 Overview

The Corporate Customer Experience Improvement Program Client-to-Server Protocol allows an administrator to manage **CEIP data** sent from a set of **CEIP clients** on a specified HTTP web server.

A CEIP client which has joined the Corporate Customer Experience Improvement Program generates anonymous CEIP data. The Corporate Customer Experience Improvement Program Client-to-Server Protocol does not create or change this data.

The CEIP client performs a check to determine if a CEIP server URL is specified for this client system. If a Corporate Server URL has been specified, the CEIP client sends the CEIP data to the specified Corporate Server URL with the actual CEIP service URL in the query string.

The CEIP server redirects the CEIP data sent by the client machines to the CEIP service. Standard HTTP Responses are honored by the CEIP client and CEIP server.



**Figure 1: Overview of MS-CCEIP functionality**

## 1.4 Relationship to Other Protocols

The Corporate Customer Experience Improvement Program Client-to-Server Protocol uses HTTP [\[RFC2616\]](#) to transfer CEIP data from the CEIP client to the CEIP service through the CEIP server.

No protocols depend on the Corporate Customer Experience Improvement Program Client-to-Server Protocol.

## 1.5 Prerequisites/Preconditions

For the CEIP client to be able to send CEIP data to the CEIP server, the following **MUST** be true:

- The CEIP client is configured with the URL of the CEIP server.
- The CEIP client has permission to post data to the CEIP server.

## **1.6 Applicability Statement**

The Corporate Customer Experience Improvement Program Client-to-Server Protocol is not designed to be used by any other protocols. It is appropriate for administrators who want to manage and redirect all CEIP data within the organization.

The Corporate Customer Experience Improvement Program Client-to-Server Protocol is only applicable in environments where all CEIP clients have access to the CEIP server.

## **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 Customer Experience Improvement Program Client-to-Server Protocol uses HTTP [\[RFC2616\]](#) to redirect CEIP data to the specified CEIP server.

Protocol operation is identical regardless of whether the Secure Socket Layers (https) is used.

### 2.2 Message Syntax

The Corporate Customer Experience Improvement Program Client-to-Server Protocol transmits messages as HTTP POST.

#### 2.2.1 Partner Query String

The Partner Query String includes a text parameter that specifies the actual URL of the CEIP service. The Partner Query String MUST conform to the following HTTP syntax (as specified in [\[RFC2616\]](#), section 3.2.2):

```
PartnerQueryString = "Partner=" Url  
Url = 1*CHAR
```



## 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.

The Corporate Customer Experience Improvement Program Client-to-Server Protocol maintains the following two parameters:

**CorporateSQMUrl:** The CorporateSQMUrl parameter specifies the URL of the CEIP server. The existence of this parameter instructs the CEIP client that the Corporate Customer Experience Improvement Program Client-to-Server Protocol will be used. [<1>](#)

**PartnerQueryString:** The PartnerQueryString parameter specifies the URL of the CEIP service, and is contained in the HTTP request to the CEIP server (as specified in section [Partner Query String](#)). The CEIP server redirects received data to the CEIP service URL specified in this parameter.

#### 3.1.2 Timers

None.

#### 3.1.3 Initialization

The CEIP client MUST check for the existence of the CorporateSQMUrl parameter. If there is no parameter, or if the parameter is invalid, the CEIP client MUST attempt to send the CEIP data to the CEIP service directly.

The CEIP server MUST check for the existence of the PartnerQueryString parameter in the URL. If there is no parameter, or if the parameter is invalid, the CEIP server SHOULD return a failure response to the CEIP client.

#### 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

Before CEIP data is uploaded, the CEIP client MUST perform the following actions:

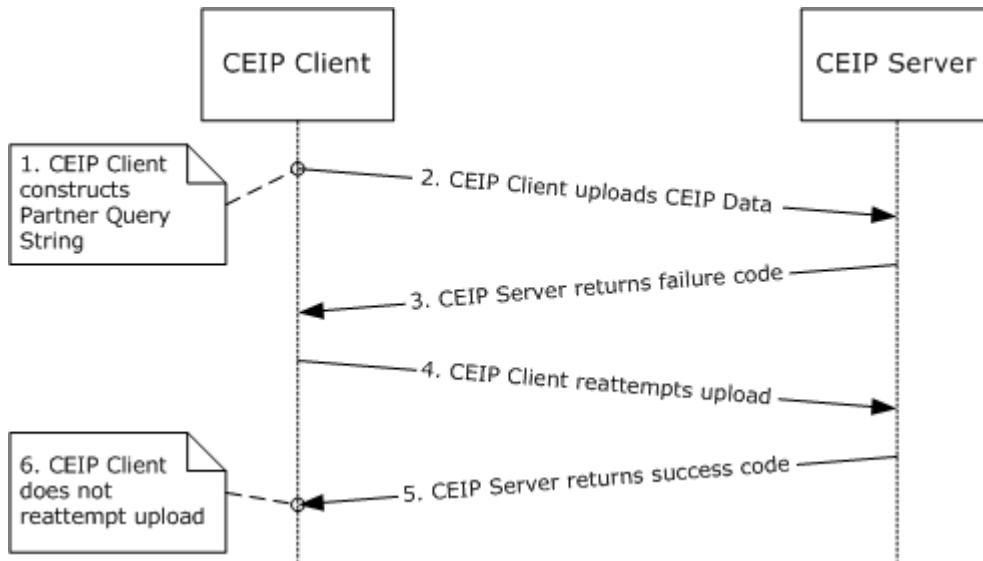
1. Construct the URL of the CEIP server with the actual CEIP service URL in the PartnerQueryString.

2. Attempt to upload the CEIP data to the CEIP server using an HTTP POST to the constructed URL. If the CEIP server returns an HTTP success code, the CEIP client MUST NOT attempt to upload the same data again. If the CEIP client receives an HTTP failure code, the CEIP client SHOULD reattempt to upload the data at the next opportunity.

## 4 Protocol Examples

### 4.1 Redirection Example

This example illustrates the sequence of events that might occur when a CEIP client attempts to redirect CEIP data.



**Figure 2: CEIP client redirects CEIP data**

1. The CEIP client checks to see whether a CEIP server has been configured. The following value is set.

```
CorporatesQMUrl = http://CEIPServer:1080/
```

The CEIP client adds a query string with the actual service URL to this URL.

```
http://CEIPServer:1080/?partner="https://sqm.microsoft.com/sqm/windows/sqmserver.dll"
```

2. The CEIP client uploads the CEIP data using HTTP POST.
3. The CEIP server returns a failure code.
4. The CEIP client reattempts the upload of the CEIP data.
5. The CEIP server returns a success code.
6. Having received a success code, the CEIP client does not reattempt upload of the CEIP data.

## **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 2000 operating system
- Windows XP operating system
- Windows Server 2003 operating system
- Windows Vista operating system
- Windows Server 2008 operating system
- Windows 7 operating system
- Windows Server 2008 R2 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 3.1.1:](#) In Windows implementations, the CEIP client stores the URL to the CEIP server at the following location.

```
[HKEY_LOCAL_MACHINE\Software\Policies\Microsoft\SQMClient\] "Corporate SQMUrl"
```

## 7 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

## 8 Index

### A

[Abstract data model](#) 9  
[Applicability](#) 7

### C

[Capability negotiation](#) 7  
[Change tracking](#) 14

### D

[Data model - abstract](#) 9

### E

[Example - redirection](#) 11

### F

[Fields - vendor-extensible](#) 7

### G

[Glossary](#) 5

### H

[Higher-layer triggered events](#) 9

### I

[Implementer - security considerations](#) 12  
[Index of security parameters](#) 12  
[Informative references](#) 6  
[Initialization](#) 9  
[Introduction](#) 5

### L

[Local events](#) 9

### M

[Message processing](#) 9  
Messages  
  [syntax](#) 8  
  [transport](#) 8

### N

[Normative references](#) 5

### O

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

### P

[Parameters - security index](#) 12  
[Preconditions](#) 6  
[Prerequisites](#) 6  
[Product behavior](#) 13

### R

References  
  [informative](#) 6  
  [normative](#) 5  
[Relationship to other protocols](#) 6

### S

Security  
  [implementer considerations](#) 12  
  [parameter index](#) 12  
[Sequencing rules](#) 9  
[Standards assignments](#) 7  
[Syntax](#) 8

### T

[Timer events](#) 9  
[Timers](#) 9  
[Tracking changes](#) 14  
[Transport](#) 8  
[Triggered events - higher-layer](#) 9

### V

[Vendor-extensible fields](#) 7  
[Versioning](#) 7