

# [MS-SPACSOM]:

## SharePoint Analytics Client-Side Object Model Protocol

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Preliminary

## Revision Summary

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# 1 Introduction

The SharePoint Analytics Client-Side Object Model Protocol provides types, methods, and properties to enable a protocol client to access usage information stored on a protocol server.

Sections 1.5, 1.8, 1.9, 2, and 3 of this specification are normative. All other sections and examples in this specification are informative.

## 1.1 Glossary

This document uses the following terms:

**application:** A participant that is responsible for beginning, propagating, and completing an atomic transaction. An application communicates with a transaction manager in order to begin and complete transactions. An application communicates with a transaction manager in order to marshal transactions to and from other applications. An application also communicates in application-specific ways with a resource manager in order to submit requests for work on resources.

**Coordinated Universal Time (UTC):** A high-precision atomic time standard that approximately tracks Universal Time (UT). It is the basis for legal, civil time all over the Earth. Time zones around the world are expressed as positive and negative offsets from UTC. In this role, it is also referred to as Zulu time (Z) and Greenwich Mean Time (GMT). In these specifications, all references to UTC refer to the time at UTC-0 (or GMT).

**CSOM array:** An ordered collection of values that can be used in an XML request or JSON response text. The values are identified by their position and their position is determined by a zero-based integer index.

**CSOM DateTime:** An Int64 value that represents the number of 100-nanosecond time intervals that have elapsed since 12:00:00, January 1, 0001. It can be used in an XML request or as a string in JSON response text. The value can represent time intervals through 23:59:59.9999999, December 31, 9999. It can also specify whether a local, **UTC**, or no time zone applies.

**CSOM dictionary:** An object that contains an unordered collection of key/value pairs that can be used in an XML request or JSON response text. Each key in a CSOM dictionary has a unique name.

**CSOM GUID:** A GUID, as described in [\[MS-DTYP\]](#), that can be used in an XML request or as a string in JSON response text.

**CSOM Int32:** A 32-bit, signed integer value, which is the INT32 type described in [\[MS-DTYP\]](#), that can be used in an XML request or as a number in JSON response text. The range of CSOM Int32 values is from "-2147483648" to "2147483647".

**CSOM Object:** An object that contains a set of members, which are named values and methods. It has a Unicode string value, which is referred to as a CSOM type name, that identifies its type.

**CSOM String:** A representation of text as a series of Unicode characters. It can be used in an XML request or JSON response text.

**site:** A group of related pages and data within a SharePoint site collection. The structure and content of a site is based on a site definition. Also referred to as SharePoint site and web site.

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

## 1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the [Errata](#).

### 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.

[MS-CSOMSPT] Microsoft Corporation, "[SharePoint Client-Side Object Model Protocol](#)".

[MS-CSOM] Microsoft Corporation, "[SharePoint Client Query Protocol](#)".

[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>

### 1.2.2 Informative References

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

[RFC2818] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000, <http://www.rfc-editor.org/rfc/rfc2818.txt>

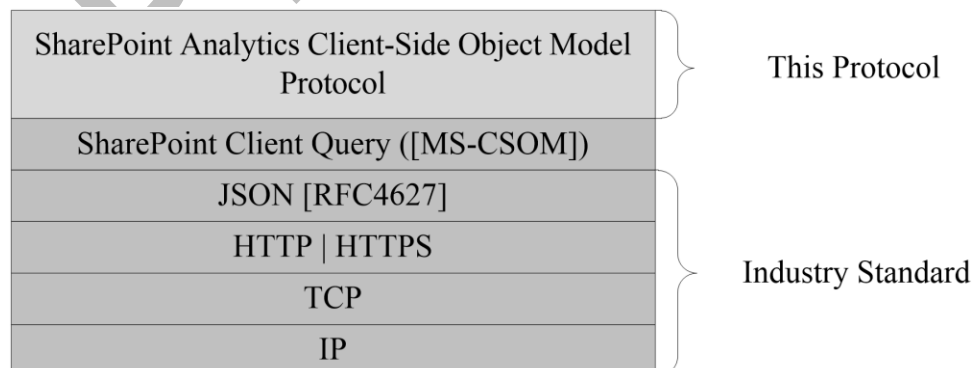
[RFC4627] Crockford, D., "The application/json Media Type for JavaScript Object Notation (JSON)", RFC 4627, July 2006, <http://www.rfc-editor.org/rfc/rfc4627.txt>

## 1.3 Overview

This protocol defines types, methods, and properties that a protocol client uses to access historical usage information stored on a protocol server.

## 1.4 Relationship to Other Protocols

The SharePoint Analytics Client-Side Object Model protocol is a set of types, properties, and methods that can be accessed by using the SharePoint Client Query protocol as described in [\[MS-CSOM\]](#). This protocol uses JSON as described in [\[RFC4627\]](#) to format data returned to a protocol client. This protocol also uses HTTP, as described in [\[RFC2616\]](#), and HTTPS, as described in [\[RFC2818\]](#). The dependencies for this protocol are shown in the following layering diagram.



## **Figure 1: This protocol in relation to other protocols**

### **1.5 Prerequisites/Preconditions**

This protocol assumes that authentication has been performed by underlying protocols.

### **1.6 Applicability Statement**

This protocol can be used by a protocol client to access historical usage information stored on a protocol server.

This protocol is optimized to enable a protocol client to specify the exact set of data and operations to perform in a single batch, making it suitable for situations where the connection speed between the protocol client and the protocol server can be slow.

This protocol is not suitable and is inefficient if both the protocol client and protocol server are on the same computer. In this case, the client can use an API that does not require communication over a network.

### **1.7 Versioning and Capability Negotiation**

None.

### **1.8 Vendor-Extensible Fields**

None.

### **1.9 Standards Assignments**

None.



## 2 Messages

### 2.1 Transport

Messages are transported by using the SharePoint Client Query Protocol, as specified in [\[MS-CSOM\]](#).

### 2.2 Message Syntax

None.

## 3 Protocol Details

### 3.1 Server Details

#### 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.

This protocol shares the abstract data model used by the SharePoint Client Query protocol as described in [\[MS-CSOM\]](#) section 3.1.1.

Specifically with respect to this protocol, the protocol server maintains historical usage information about events that occur for items stored on the protocol server, such as how many times a document stored on the server was viewed. These events can be standard (well-known) events or generic user-definable events.

The protocol server also maintains historical usage information about user-specified **applications** that are present on the protocol server, such as how many times an application was installed.

#### 3.1.2 Timers

None.

#### 3.1.3 Initialization

None.

#### 3.1.4 Higher-Layer Triggered Events

None.

#### 3.1.5 Message Processing Events and Sequencing Rules

##### 3.1.5.1 Microsoft.SharePoint.Client.Search.Analytics.AnalyticsItemData

**TypeId:** {B8C478A6-A4CD-474D-803A-A002E185EE46}

**ShortName:** Microsoft.SharePoint.Client.Search.Analytics.AnalyticsItemData

Represents historical usage information for an item stored on the protocol server.

##### 3.1.5.1.1 Properties

##### 3.1.5.1.1.1 Scalar Properties

##### 3.1.5.1.1.1.1 LastProcessingTime

**Type:** **CSOM DateTime**

**Accessibility:** Read Only

The most recent time the protocol server has data for the given item.

#### **3.1.5.1.1.1.2 TotalHits**

**Type:** CSOM Int32

**Accessibility:** Read Only

The total number of occurrences of the event for the item.

#### **3.1.5.1.1.1.3 TotalUniqueUsers**

**Type:** CSOM Int32

**Accessibility:** Read Only

The total number of unique users that triggered the event for the item.

#### **3.1.5.1.1.2 ObjectPath Properties**

None.

#### **3.1.5.1.2 Methods**

##### **3.1.5.1.2.1 Scalar Methods**

##### **3.1.5.1.2.1.1 GetHitCountForDay**

**Return Type:** CSOM Int32

Retrieve the total number of occurrences of the event for the item, for the specified day.

**Parameters:**

*day*: The day for which to retrieve the total numbers of occurrences of the event for the item.

Type: CSOM DateTime

##### **3.1.5.1.2.1.2 GetHitCountForMonth**

**Return Type:** CSOM Int32

Retrieve the total number of occurrences of the event for the item, for the specified month.

**Parameters:**

*month*: First day for the month for which to retrieve the total number of occurrences of the event for the item.

Type: CSOM DateTime

##### **3.1.5.1.2.1.3 GetUniqueUsersCountForDay**

**Return Type:** CSOM Int32

Retrieve the total number of unique users that triggered the event for the item, during the specified day.

**Parameters:**

*day*: The day for which to retrieve the total number of unique users that triggered the event for the item.

Type: **CSOM DateTime**

#### 3.1.5.1.2.1.4 GetUniqueUsersCountForMonth

**Return Type:** **CSOM Int32**

Retrieve the total number of unique users that triggered the event for the item, during the specified month.

**Parameters:**

*month*: First day for the month for which to retrieve the total number of unique users that triggered the event for the item.

Type: **CSOM DateTime**

#### 3.1.5.1.2.2 ObjectPath Methods

None.

#### 3.1.5.2 Microsoft.SharePoint.Client.Search.Analytics.UsageAnalytics

**TypeId:** {1B61778A-CEC2-49BF-B9CC-1264B133307F}

**ShortName:** Microsoft.SharePoint.Client.Search.Analytics.UsageAnalytics

Provides access to request historical usage information for items contained in the **site**.

#### 3.1.5.2.1 Properties

##### 3.1.5.2.1.1 Scalar Properties

None.

##### 3.1.5.2.1.2 ObjectPath Properties

None.

#### 3.1.5.2.2 Methods

##### 3.1.5.2.2.1 Scalar Methods

##### 3.1.5.2.2.1.1 DeleteCustomEventUsageData

**Return Type:** None

Triggers the deletion of historical usage data for the specified custom analytics event.

**Parameters:**

*appEventTypeId*: The event type identifier of the custom analytics event for which historical data is to be deleted.

Type: **CSOM GUID**

### 3.1.5.2.2.1.2 DeleteStandardEventData

**Return Type:** None

Triggers the deletion of historical usage data for the specified analytics event.

**Parameters:**

*eventType*: The event type identifier of the analytics event for which historical data is to be deleted.

Type: **CSOM Int32**

### 3.1.5.2.2.2 ObjectPath Methods

#### 3.1.5.2.2.2.1 CSOM Constructor

Constructs a **Microsoft.SharePoint.Client.Search.Analytics.UsageAnalytics** **CSOM Object**.

**Parameters:**

*site*: The **site** that contains items for which usage information needs to be retrieved.

Type: Microsoft.SharePoint.Client.Site

The **Microsoft.SharePoint.Client.Site** type is specified in [\[MS-CSOMSPT\]](#) section 3.2.5.119. It MUST NOT be NULL.

#### 3.1.5.2.2.2.2 GetAnalyticsItemData

**Return Type:** Microsoft.SharePoint.Client.Search.Analytics.AnalyticsItemData

Gets the historical usage information about the specified type of event for an item contained in the **site**. This method returns null if no historical usage information about the specified type of event exists for the item.

**Parameters:**

*eventType*: The type of event.

Type: **CSOM Int32**

*listItem*: Specifies a list item.

Type: Microsoft.SharePoint.Client.ListItem

The **Microsoft.SharePoint.Client.ListItem** type is specified in [\[MS-CSOMSPT\]](#) section 3.2.5.87.

#### 3.1.5.2.2.2.3 GetAnalyticsItemDataForApplicationEventType

**Return Type:** Microsoft.SharePoint.Client.Search.Analytics.AnalyticsItemData

Gets the historical usage information about the specified type of custom event for an item contained in the **site**. This method returns null if no historical usage information about the specified type of event exists for the item.

**Parameters:**

*appEventType*: The type of custom event.

Type: **CSOM GUID**

*listItem*: Specifies a list item.

Type: Microsoft.SharePoint.Client.ListItem

### 3.1.5.3 Microsoft.SharePoint.Client.Search.Analytics.AnalyticsAction

**TypeId**: {E33F994E-78C2-4805-BEE3-69B61321A6D6}

**ShortName**: Microsoft.SharePoint.Client.Search.Analytics.AnalyticsAction

Represents the action in a **Microsoft.SharePoint.Client.Search.Analytics.AnalyticsSignal** CSOM Object.

#### 3.1.5.3.1 Properties

##### 3.1.5.3.1.1 Scalar Properties

###### 3.1.5.3.1.1.1 ActionType

Type: **CSOM String**

**Accessibility**: Read/Write

Specifies the type of an action performed on an item.

###### 3.1.5.3.1.1.2 ExpireTime

Type: **CSOM DateTime**

**Accessibility**: Read/Write

Specifies the time when this action is considered irrelevant.

The value MUST be in **Coordinated Universal Time (UTC)**.

###### 3.1.5.3.1.1.3 Properties

Type: **CSOM dictionary**

**Accessibility**: Read/Write

Specifies the metadata about the action.

###### 3.1.5.3.1.1.4 UserTime

Type: **CSOM DateTime**

**Accessibility**: Read/Write

Specifies the time when this action occurred.

The value MUST be in **UTC**.

##### 3.1.5.3.1.2 ObjectPath Properties

None.

### 3.1.5.4 Microsoft.SharePoint.Client.Search.Analytics.AnalyticsActor

**TypeId:** {BFA7B70A-DC33-4CD8-9E41-8933A46D86E7}

**ShortName:** Microsoft.SharePoint.Client.Search.Analytics.AnalyticsActor

Represents the actor in a **Microsoft.SharePoint.Client.Search.Analytics.AnalyticsSignal** CSOM Object.

#### 3.1.5.4.1 Properties

##### 3.1.5.4.1.1 Scalar Properties

###### 3.1.5.4.1.1.1 Id

**Type:** CSOM String

**Accessibility:** Read/Write

Specifies a unique identifier of the actor.

###### 3.1.5.4.1.1.2 Properties

**Type:** CSOM dictionary

**Accessibility:** Read/Write

Specifies the metadata about the actor.

###### 3.1.5.4.1.1.3 TenantId

**Type:** CSOM GUID

**Accessibility:** Read/Write

Specifies the tenant id of the actor.

##### 3.1.5.4.1.2 ObjectPath Properties

None.

### 3.1.5.5 Microsoft.SharePoint.Client.Search.Analytics.AnalyticsItem

**TypeId:** {9B80C698-4404-47FD-9415-C6163F162DBE}

**ShortName:** Microsoft.SharePoint.Client.Search.Analytics.AnalyticsItem

Represents the item in a **Microsoft.SharePoint.Client.Search.Analytics.AnalyticsSignal** CSOM Object.

#### 3.1.5.5.1 Properties

##### 3.1.5.5.1.1 Scalar Properties

###### 3.1.5.5.1.1.1 Id

**Type:** CSOM String

**Accessibility:** Read/Write

Specifies a unique identifier of the item.

### 3.1.5.5.1.1.2 Properties

**Type:** CSOM dictionary

**Accessibility:** Read/Write

Specifies the metadata about the item.

### 3.1.5.5.1.2 ObjectPath Properties

None.

## 3.1.5.6 Microsoft.SharePoint.Client.Search.Analytics.AnalyticsSignal

**TypeId:** {03D155A7-C640-4808-8B1F-2ED8F2EFA0C1}

**ShortName:** Microsoft.SharePoint.Client.Search.Analytics.AnalyticsSignal

Contains data about an action performed by an actor on an item.

### 3.1.5.6.1 Properties

#### 3.1.5.6.1.1 Scalar Properties

##### 3.1.5.6.1.1.1 Action

**Type:** Microsoft.SharePoint.Client.Search.Analytics.AnalyticsAction

**Accessibility:** Read/Write

Specifies the action that represents the relationship type between the actor and the item.

##### 3.1.5.6.1.1.2 Actor

**Type:** Microsoft.SharePoint.Client.Search.Analytics.AnalyticsActor

**Accessibility:** Read/Write

Specifies the actor of the action.

##### 3.1.5.6.1.1.3 Item

**Type:** Microsoft.SharePoint.Client.Search.Analytics.AnalyticsItem

**Accessibility:** Read/Write

Specifies the item in the relationship.

##### 3.1.5.6.1.1.4 Source

**Type:** CSOM String

**Accessibility:** Read/Write

Specifies the source of this signal.



### 3.1.5.6.1.2 ObjectPath Properties

None.

### 3.1.5.7 Microsoft.SharePoint.Client.Search.Analytics.SignalStore

**TypeId:** {F168C810-83CB-42AB-97B7-F9ED636AE8CE}

**ShortName:** Microsoft.SharePoint.Client.Search.Analytics.SignalStore

Provides methods for managing the analytics signal store.

#### 3.1.5.7.1 Properties

##### 3.1.5.7.1.1 Scalar Properties

None.

##### 3.1.5.7.1.2 ObjectPath Properties

None.

#### 3.1.5.7.2 Methods

##### 3.1.5.7.2.1 Scalar Methods

###### 3.1.5.7.2.1.1 signals

**Return Type:** None

Adds the specified signals to the signal store.

**Parameters:**

*signals:* A collection of signals to be added.

Type: **CSOM array** of Microsoft.SharePoint.Client.Search.Analytics.AnalyticsSignal

##### 3.1.5.7.2.2 ObjectPath Methods

###### 3.1.5.7.2.2.1 CSOM Constructor

Constructs a **Microsoft.SharePoint.Client.Search.Analytics.SignalStore** **CSOM Object**.

**Parameters:** None

### 3.1.6 Timer Events

None.

### 3.1.7 Other Local Events

None.

## 4 Protocol Examples

In this example, a protocol client requests historical information about how often an existing document "TEST" has been viewed:

```
<Request xmlns="http://schemas.microsoft.com/sharepoint/clientquery/2009"
SchemaVersion="15.0.0.0" LibraryVersion="15.0.0.0" ApplicationName="Javascript Library">
  <Actions>
    <ObjectPath Id="1" ObjectPathId="0" />
    <ObjectPath Id="3" ObjectPathId="2" />
    <ObjectPath Id="5" ObjectPathId="4" />
    <ObjectPath Id="7" ObjectPathId="6" />
    <ObjectIdentityQuery Id="8" ObjectPathId="6" />
    <ObjectPath Id="10" ObjectPathId="9" />
    <ObjectPath Id="12" ObjectPathId="11" />
    <ObjectPath Id="14" ObjectPathId="13" />
    <Method Name="GetAnalyticsItemData" Id="15" ObjectPathId="13">
      <Parameters>
        <Parameter Type="Number">1</Parameter>
        <Parameter ObjectPathId="9" />
      </Parameters>
    </Method>
  </Actions>
  <ObjectPaths>
    <StaticProperty Id="0" TypeId="{3747adcd-a3c3-41b9-bfab-4a64dd2f1e0a}" Name="Current" />
    <Property Id="2" ParentId="0" Name="Web" />
    <Property Id="4" ParentId="2" Name="Lists" />
    <Method Id="6" ParentId="4" Name="GetByTitle">
      <Parameters>
        <Parameter Type="String">TEST</Parameter>
      </Parameters>
    </Method>
    <Method Id="9" ParentId="6" Name="GetItemByStringId">
      <Parameters>
        <Parameter Type="String">3</Parameter>
      </Parameters>
    </Method>
    <Property Id="11" ParentId="0" Name="Site" />
    <Constructor Id="13" TypeId="{1b61778a-cec2-49bf-b9cc-1264b133307f}">
      <Parameters>
        <Parameter ObjectPathId="11" />
      </Parameters>
    </Constructor>
  </ObjectPaths>
</Request>
```

The protocol server returns the requested historical usage information as follows:

```
[
{
  "SchemaVersion":"15.0.0.0","LibraryVersion":"15.0.3427.1000","ErrorInfo":null
},1,{
  "IsNull":false
},3,{
  "IsNull":false
},5,{
  "IsNull":false
}
```

```
},7,{  
  "IsNull":false  
},8,{  
  "_ObjectIdentity_":"740c6a0b-85e2-48a0-a494-e0f1759d4aa7:web:6f046c5e-bc2a-4b06-8630-  
53cb522f5892:list:1be845cc-d658-45f3-b0d7-e23d2138f639"  
},10,{  
  "IsNull":false  
},12,{  
  "IsNull":false  
},14,{  
  "IsNull":false  
},15,{  
  "_ObjectType_":"Microsoft.Office.Server.Search.Analytics.AnalyticsItemData","EventType":1,"LastProc  
essingTime":"\\Date(2011,10,3,17,19,31,747)\\","SiteId":"\\Guid(5f68a87e-bfaf-419b-b4c4-  
9df03aca8985)\\","TotalHits":123,"TotalUniqueUsers":5  
}  
]
```

## 5 Security

### 5.1 Security Considerations for Implementers

None.

### 5.2 Index of Security Parameters

None.

Preliminary

## 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 updates to those products.

- Microsoft SharePoint Server 2013
- Microsoft SharePoint Server 2016
- Microsoft SharePoint Server 2019 Preview

Exceptions, if any, are noted in this section. If an update version, service pack or Knowledge Base (KB) number appears with a product name, the behavior changed in that update. The new behavior also applies to subsequent updates 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.

## 7 Change Tracking

This section identifies changes that were made to this document since the last release. Changes are classified as Major, Minor, or None.

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.
- A document revision that captures changes to protocol functionality.

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 **None** means that no new technical changes were introduced. Minor editorial and formatting changes may have been made, but the relevant technical content is identical to the last released version.

The changes made to this document are listed in the following table. For more information, please contact [dochelp@microsoft.com](mailto:dochelp@microsoft.com).

Section	Description	Revision class
<a href="#">6</a> Appendix A: Product Behavior	Updated list of supported products.	Major

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