

[MS-ESURL]: Excel Services Publishing Protocol

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Revision Summary

Date	Revision History	Revision Class	Comments
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12/12/2008	1.01	Editorial	Revised and edited the technical content
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Date	Revision History	Revision Class	Comments
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1 Introduction

The Excel Services Publishing Protocol enables a protocol client to form the protocol server URL and associated query string parameters to display the workbook in the browser after the workbook is published to the protocol 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 [\[RFC2119\]](#). Sections 1.5 and 1.9 are also normative but does not contain those terms. All other sections and examples in this specification are informative.

1.1 Glossary

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

authentication
Hypertext Transfer Protocol (HTTP)
Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)

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

permission
Request-URI
site

The following terms are specific to this document:

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.

[MS-WEBSS] Microsoft Corporation, "[Webs Web Service Protocol](#)".

[RFC1738] Berners-Lee, T., Masinter, L., and McCahill, M., "Uniform Resource Locators (URL)", RFC 1738, December 1994, <http://www.ietf.org/rfc/rfc1738.txt>

[RFC1945] Berners-Lee, T., Fielding, R., and Frystyk, H., "Hypertext Transfer Protocol -- HTTP/1.0", RFC 1945, May 1996, <http://www.ietf.org/rfc/rfc1945.txt>

[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>

[RFC2396] Berners-Lee, T., Fielding, R., and Masinter, L., "Uniform Resource Identifiers (URI): Generic Syntax", RFC 2396, August 1998, <http://www.ietf.org/rfc/rfc2396.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>

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

1.2.2 Informative References

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

[MS-OFCGLOS] Microsoft Corporation, "[Microsoft Office Master Glossary](#)".

1.3 Overview

This protocol specifies how the protocol server URL that is used for displaying the workbook in the browser is formed. At a high level, the protocol involves the following operations:

- Discovery of the URL that is used to display the workbook in the browser given the URL to the workbook.
- Setting the appropriate query string parameters in the URL for displaying the workbook in the browser.

The following sequence diagram illustrates the operations of the protocol.

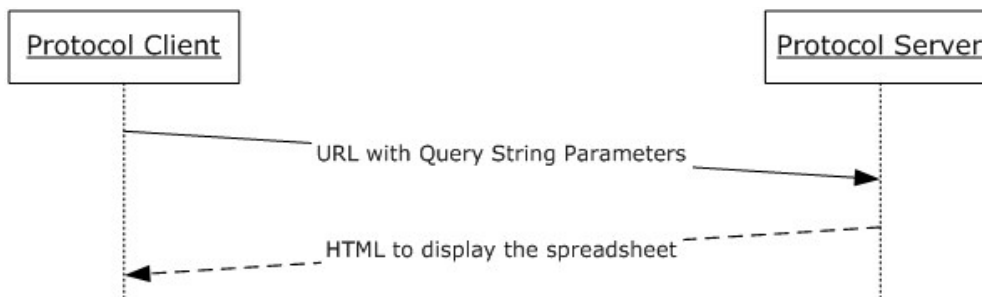


Figure 1: This protocol message processing sequence

1.4 Relationship to Other Protocols

This protocol uses **HTTP** 1.0, as described in [\[RFC1945\]](#), HTTP 1.1, as described in [\[RFC2616\]](#), or **Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)**, as described in [\[RFC2818\]](#), for message transport.

The following diagram shows the underlying messaging and transport stack used by the protocol:

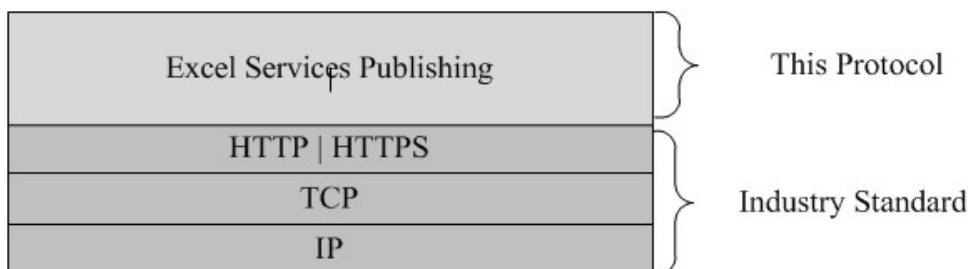


Figure 2: This protocol in relation to other protocols

1.5 Prerequisites/Preconditions

This protocol operates against a **site (2)** identified by a URL that is known by protocol clients. The protocol server endpoint is formed by appending `/_layouts/xlviewer.aspx` to the URL of the site (2), for example: `http://www.contoso.com/Repository/_layouts/xlviewer.aspx`.

The protocol assumes that **authentication (2)** has been performed by the underlying protocols.

1.6 Applicability Statement

This protocol is for providing protocol clients access to an HTML rendering of a workbook.

1.7 Versioning and Capability Negotiation

Versioning and capability negotiation for this protocol is handled by either the HTTP protocols as described in [\[RFC1945\]](#) and [\[RFC2616\]](#), or the HTTPS protocol as described in [\[RFC2818\]](#).

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

All protocol messages MUST use HTTP 1.0 (as specified in [\[RFC1945\]](#)), HTTP 1.1 (as specified in [\[RFC2616\]](#)), or the HTTPS protocol (as specified in [\[RFC2818\]](#)) for message transport.

2.2 Message Syntax

All messages in this protocol MUST be valid HTTP requests and responses as specified in [\[RFC2616\]](#).

2.2.1 Request Syntax

2.2.1.1 Request HTTP Version

The HTTP version MUST be either HTTP 1.0 or HTTP 1.1, as specified in [\[RFC2616\]](#) section 3.1.

2.2.1.2 Request HTTP Method

The protocol client MUST use the HTTP GET method as specified in [\[RFC2616\]](#) section 9.

2.2.1.3 Request-URI Syntax

The **Request-URI** MUST adhere to the following rules:

- The Request-URI sent in the HTTP request MUST be a valid URL as specified in [\[RFC1738\]](#).
- The Scheme Component MUST be either HTTP or HTTPS, as specified in [\[RFC2396\]](#) section 3.1.
- The protocol client MUST generate the Request-URI by appending "/_layouts/xlviewer.aspx" to the site (2) URI to which the workbook was published. The protocol client MUST determine the site (2) URI by calling **WebUrlFromPageUrl** (as specified in [\[MS-WEBSS\]](#) section 3.1.4.21) with the full URI to which the workbook was published. Therefore the Path Component of the Request-URI MUST end with "/_layouts/xlviewer.aspx", as specified in [\[RFC2396\]](#) section 3.3.
- The Query Component of the Request-URI MUST be present and follow the rules specified in section [2.2.1.3.1](#) and [\[RFC2396\]](#) section 3.4.

The complete contents of the Request-URI MUST be negotiated prior to initiating the protocol as described in section [1.5](#). This includes the Authority Component as specified in [\[RFC2396\]](#) section 3.2 and the Path Component specified in [\[RFC2396\]](#) section 3.3.

2.2.1.3.1 Query Segment

The Query Component of the Request-URI MUST contain three query string parameters with the following names:

- ID
- DefaultItemOpen
- Cookie

The value for each query string parameter MUST be a non-empty string and a valid query string parameter value as specified in [\[RFC2396\]](#). The Query Component MUST NOT contain query string

parameters other than the three required parameters, as specified in [\[RFC2396\]](#) section 3.4. The protocol server MUST NOT require the query string parameters to appear in any particular order.

The protocol client and protocol server MUST interpret the query string parameters as defined in the following table.

Parameter name	Description
ID	The location to which the workbook is published. The value for this parameter MUST be a valid URL as specified in [RFC1738] . The Scheme Component as specified in [RFC2396] section 3.1 of the ID URL MUST be either "HTTP" or "HTTPS".
DefaultItemOpen	The value for this parameter MUST be set to 1.
Cookie	An identifier used to make the Request-URI unique. SHOULD be ignored by the protocol server. The protocol client MUST set the value for this parameter to a unique value across all requests from that protocol client.

Table 1: Query Parameters

2.2.1.4 Request Header Syntax

The protocol client MUST provide valid Message Headers as specified in [\[RFC2616\]](#) section 4.2.

2.2.2 Response Syntax

2.2.2.1 Response Status

The protocol server MUST provide a valid status code as specified in [\[RFC2616\]](#) section 6.1.1.

2.2.2.2 Response Header Syntax

The protocol server MUST provide valid message headers as specified in [\[RFC2616\]](#) section 4.2.

2.2.2.3 Response Body Syntax

The protocol server MUST provide a valid message body as specified in [\[RFC2616\]](#) section 4.3.

3 Protocol Details

3.1 Common Details

3.1.1 Abstract Data Model

None.

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

The message processing events and sequencing rules are as follows:

- The protocol client MUST generate a valid Request-URI as specified in section [2.2.1.3](#).
- The protocol client MUST issue the HTTP GET request to the generated URL.
- The protocol server MUST verify that the client has **permission** to access the specified URL and MUST return the appropriate Status Code as specified in [\[RFC2616\]](#) section 6.1.1 if the protocol client does not have permissions. The client MUST be prepared to accept all status codes specified in [\[RFC2616\]](#) section 6.1.1.
- After performing any implementation specific processing, the protocol server MUST return a valid HTTP response as specified in section [2.2.2](#).

3.1.6 Timer Events

None.

3.1.7 Other Local Events

None.

4 Protocol Examples

The following is an example of this protocol usage. In this example, the workbook is published to the following location:

```
http://server-name/Site/Dir/Book1.xlsx
```

The URL generated by this protocol that will render the workbook in HTML is as follows:

```
http://server-name/Site/_layouts/xlviewer.aspx?id=http://server-name/Site/Dir/Book1.xlsx&DefaultItemOpen=1&Cookie=0
```

`http://server-name/Site` is the URL of the site (2) to which the workbook was published. Protocol clients determine the site (2) URL by calling **WebUrlFromPageUrl** (as described in [\[MS-WEBS\]](#)) with the full URL to which the workbook was published.

HTTP request

```
GET
/team/mysite/_layouts/xlviewer.aspx?id=http%3a%2f%2fServerName%2fSite%2fDocument%20Library%2f
Example.xlsx&DefaultItemOpen=1&Cookie=2 HTTP/1.1
Accept: */*
Host: ServerName
```

HTTP response

```
HTTP/1.1 200 OK
Date: Fri, 22 Jan 2010 20:46:55 GMT
Server: Microsoft-IIS/6.0
MicrosoftSharePointTeamServices: 12.0.0.4017
X-Powered-By: ASP.NET
X-AspNet-Version: 2.0.50727
Set-Cookie: WSS_KeepSessionAuthenticated=80; path=/
Set-Cookie: MSOWebPartPage_AnonymousAccessCookie=80; expires=Fri, 22-Jan-2010 21:16:55 GMT;
path=/
Cache-Control: private, max-age=0
Expires: Thu, 07 Jan 2010 20:46:55 GMT
Last-Modified: Fri, 22 Jan 2010 20:46:55 GMT
Content-Type: text/html; charset=utf-8
Content-Length: 20300
<html id="m_htmlTag" dir="ltr">
<head>
  <meta name="WebPartPageExpansion" content="full" />
  <meta name="GENERATOR" content="Microsoft SharePoint" />
  <meta name="ProgId" content="SharePoint.WebPartPage.Document" />
  <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
  <title id="m_title">Excel Web Access - http://ServerName/Site/Document
Library/Example.xlsx</title>
  <link rel="stylesheet" type="text/css"
href="/_layouts/1033/styles/EWRDefault.css?rev=oIw8MMnEVJ5jKs65UzX4cw%3D%3D"/>
  <link rel="stylesheet" type="text/css"
href="/_layouts/1033/styles/core.css?rev=5msmprmeONfN6lJ3wtbAlA%3D%3D"/>
```



```

WebForm_DoCallback('ctl10$MyLinksMenu','',PopulateCallbackMenuItems,'^R^,^F^,ctl10_MyLinksMen
uMenu,ctl10_MyLinksMenuMenuTemplate',null,false);
    document.forms[0].action = lastFormAction;
}
//]]>
</script>
<script type="text/JavaScript" language="JavaScript">
    <!--
        var L_Menu_BaseUrl="/Site";
        var L_Menu_LCID="1033";
        var L_Menu_SiteTheme="";
    </script>
<script src="/_layouts/EWRScripts.js?rev=ycNXUsNKKd1qh12ZwFcmTQ%3D%3D"
type="text/javascript"></script>
<script type="text/javascript">
    <![CDATA[
        function WebForm_OnSubmit() {
            UpdateFormDigest('\u002f\u002f', 1440000);
            return true;
        }
    </script>
</script>

<div>

    <input type="hidden" name="__EVENTVALIDATION" id="__EVENTVALIDATION"
value="/wEWAgl85K7DAglDp935A227vZTrpVx+IX9lEdSAIKYOVXMc" />
</div>

    <table cellpadding="0" cellspacing="0" width="100%" height="100%" border="0">
        <tr>
            <td>
                <!-- begin global breadcrumb -->
                <table width="100%" cellpadding="3" cellspacing="0" border="0" class="ms-
globalbreadcrumb">
                    <tr>
                        <td nowrap="nowrap">
                            <span id="GlobalNavigationSiteMap"><a
href="#GlobalNavigationSiteMap_SkipLink"></a><span><a href="/">Excel Services</a></span> &gt;
</span><span><a href="/team">Team</a></span><span> &gt; </span><span><a
id="GlobalNavigationSiteMap_SkipLink"></a></span>
                            </td>
                        <td nowrap="nowrap">
                            <a id="m_webLink" href="http://ServerName/Site">Site Name</a>
                        </td>
                        <td nowrap="nowrap">
                            <span id="m_backLinkSeparator"> &gt; </span>
                        </td>
                        <td nowrap="nowrap">
                            <a id="m_backLink"
href="/site/Document%20Library/Forms/AllItems.aspx">Shared Documents</a>
                        </td>
                    <td width="100%">
                        &#160;
                    </td>
                </tr>
            </td>
        </tr>
    </table>

```

```
 | | |
```

```

        </tr>
        <tr>
            <td style="height:100%;"><div style="overflow:hidden;height:100%;"><div
id="m_excelWebRenderer_WaitImage" width="100%" height="100%" style="z-
index:0;width:100%;height:100%;overflow:auto;">

<table style="height:100%;width:100%;">
    <tr style="height:48%;">
        <td>
            <div style="height:100%;;overflow:hidden;">&nbsp;</div>
        </td>
    </tr>
    <tr>
        <td>
            <table style="height:100%;width:100%;">
                <tr>
                    <td width="100%" valign="top" style="height:2%">
                        <table width="100%" border="0" cellspacing="0" cellpadding="0" class="ms-
propertySheet">
                            <tr>
                                <td align="center" valign="middle">
                                    <table cellpadding="0" cellspacing="0">
                                        <tr>
                                            <td>
                                                <table cellpadding="0" cellspacing="0">
                                                    <tr>
                                                        <td style="padding-top: 0px; padding-left: 20px;
padding-right: 20px;">
                                                            
                                                                </td>
                                                            <td MessageID = "Ewr_LoadProgress" style="padding-
right:20px;" vertical-align="middle">
                                                                <span class='ewr-progress-msg-font'>Operation in
progress...</span>
                                                                </td>
                                                            </tr>
                                                        </tr>
                                                        <tr>
                                                            <td colspan="2" style="height: 1px">
                                                                </td>
                                                            </tr>
                                                        <tr>
                                                            <td colspan="2" style="height: 1px">
                                                                
                                                            </td>
                                                            </tr>
                                                        <tr>
                                                            <td colspan="2" style="height: 1px">
                                                                
                                                            </td>
                                                            </tr>
                                                        <tr>
                                                            <td>
                                                                
                                                            </td>
                                                        </tr>
                                                    </tr>
                                                </table>
                                            </tr>
                                        </table>
                                    </tr>
                                </td>
                            </tr>
                        </table>
                    </td>
                </tr>
            </table>
        </td>
    </tr>
</table>

```



```

    }

    function SetPostedBackAlready(val)
    {
        try
        {
            window.frameElement.setAttribute('PostedBackAlready', val);
        }
        catch (ex)
        {
        }
    }
}

function EwrFramePostToServer()
{
    var val = 'SureDid';
    try
    {
        val = LocalScriptGetAttribute(window.frameElement, 'PostedBackAlready');
    }
    catch (ex)
    {
    }
    var specialRepost = '"%cancel%&quot; == &quot;cancel=True&amp;&quot; ||
&quot;%reload%&quot; == &quot;reload=True&amp;&quot;;
    if (val == null || specialRepost)
    {
        if (!specialRepost)
        {
            SetPostedBackAlready('SureDid');
        }
        else
        {
            SetPostedBackAlready(null);
            window.frameElement.setAttribute('&quot;EwrStatus&quot;;,
&quot;loading&quot;');
        }
        document.forms.item(0).submit();
    }
    else
    {
        SetPostedBackAlready(null);
        history.back();
        window.setTimeout('&quot;window.location.reload(false);&quot;;,0);
    }
}
window.setTimeout('&quot;EwrFramePostToServer()&quot;;,0);
// -->
</script>
</html>" width="100%" EwrWaitElementId="m_excelWebRenderer_WaitImage" height="100%"
frameborder="0" style="z-index:1;visibility:hidden;" Scrolling="no" IsEwrMainIframe="true"
EwrStatus="" DummyPage=""></IFrame></div>
<script type='text/javascript' language='javascript'>
    <!--
        FillIFrameWithForm('m_excelWebRenderer_ECSFrame', false, '');
    // -->
</script>
<script type='text/javascript' language='javascript'>
    <!--

```

```

        PollForDocumentCompletion('m_excelWebRenderer_ECSFrame', false);
    // -->
</script><IFRAME id="m_excelWebRenderer_ctl06" style="display:none;" DummyPage=""></IFRAME>
<script type='text/javascript' language='javascript'>
    <!--
        function OpenEwrToolpaneForEditm_excelWebRenderer()
        {
            MSOT1Pn_ShowToolPane2('Edit','m_excelWebRenderer');
        }
    // -->
</script></div></td>
    </tr>
    </table>
</div></div></td>
</tr>
</table>
        <!-- end Excel Web Renderer -->
    </td>
</tr>
</table>

<script type="text/javascript">
//
DoEwrResizeViewerPage();
WebForm_InitCallback();//]]&gt;
&lt;/script&gt;

&lt;script type='text/javascript' language='javascript' for='window' event='onbeforeunload'&gt;
    &lt;!--
        EwrMainPageBeforeUnload();
    // --&gt;
&lt;/script&gt;&lt;/form&gt;
&lt;/body&gt;
&lt;/html&gt;
</pre>
</div>
<div data-bbox="828 849 891 864" data-label="Page-Footer">
<hr/>
<p>19 / 24</p>
</div>
<div data-bbox="127 868 362 896" data-label="Page-Footer">
<p>[MS-ESURL] — v20140721<br/>
Excel Services Publishing Protocol</p>
</div>
<div data-bbox="132 904 408 921" data-label="Page-Footer">
<p>Copyright © 2014 Microsoft Corporation.</p>
</div>
<div data-bbox="132 929 290 945" data-label="Page-Footer">
<p>Release: July 31, 2014</p>
</div>
```

5 Security

5.1 Security Considerations for Implementers

When using this protocol over an untrusted network, an HTTPS (as described in [\[RFC2818\]](#)) connection can help mitigate risks of protocol messages being intercepted or tampered with.

The information contained in the workbook identified by the ID query string parameter is likely to be security sensitive. For example, it could contain confidential data such as financial records. Therefore it is recommended that the protocol server establish that the protocol client has permissions to access the workbook in any implementation in which the contents of this workbook are returned in the message body as described in section [2.2.2.3](#).

There are no restrictions on the protocol server regarding the message header content type, as described in section [2.2.2.2](#) and in [\[RFC2616\]](#) section 14.17. Therefore, it is recommended that the protocol client checks the Content-Type to avoid running any executable file that could pose a security risk.

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:

- Microsoft Office Excel 2007
- Microsoft Excel 2010
- Microsoft Office SharePoint Server 2007
- Microsoft SharePoint Server 2010
- Microsoft Excel 2013
- Microsoft SharePoint Server 2013

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.

7 Change Tracking

This section identifies changes that were made to the [MS-ESURL] protocol document between the April 2014 and July 2014 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.
- The removal of a document from the documentation set.

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 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 changes were introduced. Minor editorial and formatting changes may have been made, but the technical content of the document is identical to the last released version.

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.

- 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 dochelp@microsoft.com.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
2.2.1.3 Request-URI Syntax	Updated "URI as specified in [RFC1738]" to "URL as specified in [RFC1738]."	N	Content updated.

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