[MS-DOCO]:

Windows Protocols Documentation Roadmap

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Revision Summary

Date	Revision History	Revision Class	Comments
12/16/2011	1.0	New	Released new document.
3/30/2012	2.0	Major	Updated and revised the technical content.
7/12/2012	3.0	Major	Updated and revised the technical content.
10/25/2012	4.0	Major	Updated and revised the technical content.
1/31/2013	4.1	Minor	Clarified the meaning of the technical content.
8/8/2013	5.0	Major	Updated and revised the technical content.
11/14/2013	6.0	Major	Updated and revised the technical content.
2/13/2014	7.0	Major	Updated and revised the technical content.
5/15/2014	8.0	Major	Updated and revised the technical content.
6/30/2015	9.0	Major	Significantly changed the technical content.
10/16/2015	9.1	Minor	Clarified the meaning of the technical content.
7/14/2016	10.0	Major	Significantly changed the technical content.

Table of Contents

1   Introduction

This document describes the Windows protocols documentation set and provides a roadmap for navigating it. The Windows protocols documentation set contains detailed technical specifications for protocols, including extensions and profiles to industry-standard or other published protocols. These protocols are used by Windows to provide file, print, and administration services, among others, to Windows work group networks.

The Windows protocols documentation set also includes a set of companion overview and reference documents that supplement the technical specifications with conceptual background, overviews of inter-protocol relationships, and technical reference information, such as common data types and error codes.

1.1   Glossary

This document uses the following terms:

Active Directory: A general-purpose network **directory service**. **Active Directory** also refers to the Windows implementation of a **directory service**. **Active Directory** stores information about a variety of objects in the network. Importantly, user accounts, computer accounts, groups, and all related credential information used by the Windows implementation of **Kerberos** are stored in **Active Directory**. **Active Directory** is either deployed as Active Directory Domain Services (AD DS) or **Active Directory Lightweight Directory Services (AD LDS)**. [MS-ADTS] describes both forms. For more information, see [MS-AUTHSOD] section 1.1.1.5.2, **Lightweight Directory Access Protocol (LDAP)** versions 2 and 3, **Kerberos**, and DNS.

Active Directory Federation Services (AD FS): A Microsoft implementation of a federation services provider, which provides a security token service (STS) that can issue security tokens to a caller using various protocols such as WS-Trust, WS-Federation, and Security Assertion Markup Language (SAML) version 2.0.

Active Directory Lightweight Directory Services (AD LDS): A **directory service (DS)** implemented by a domain controller (DC). The most significant difference between **AD LDS** and Active Directory Domain Services (AD DS) is that **AD LDS** does not host domain naming contexts (domain NCs). A server can host multiple **AD LDS** DCs. Each DC is an independent **AD LDS** instance, with its own independent state. **AD LDS** can be run as an operating system **DS** or as a directory service provided by a standalone application (Active Directory Application Mode (ADAM)). For more information, see [MS-ADTS]. See also **Active Directory**.

American National Standards Institute (ANSI) character set: A character set defined by a **code page** approved by the American National Standards Institute (ANSI). The term "ANSI" as used to signify Windows code pages is a historical reference and a misnomer that persists in the Windows community. The source of this misnomer stems from the fact that the Windows code page 1252 was originally based on an ANSI draft, which became International Organization for Standardization (ISO) Standard 8859-1 [ISO/IEC-8859-1]. In Windows, the ANSI character set can be any of the following code pages: 1252, 1250, 1251, 1253, 1254, 1255, 1256, 1257, 1258, 874, 932, 936, 949, or 950. For example, "ANSI application" is usually a reference to a non-**Unicode** or code-page-based application. Therefore, "ANSI character set" is often misused to refer to one of the character sets defined by a Windows code page that can be used as an active system code page; for example, character sets defined by code page 1252 or character sets defined by code page 950. Windows is now based on **Unicode**, so the use of ANSI character sets is strongly discouraged unless they are used to interoperate with legacy applications or legacy data.

Augmented Backus-Naur Form (ABNF): A modified version of Backus-Naur Form (BNF), commonly used by Internet specifications. ABNF notation balances compactness and simplicity with reasonable representational power. ABNF differs from standard BNF in its definitions and

uses of naming rules, repetition, alternatives, order-independence, and value ranges. For more information, see [RFC5234].

authentication: The ability of one entity to determine the identity of another entity.

authorization: The secure computation of roles and accesses granted to an identity.

certificate: A certificate is a collection of attributes (1) and extensions that can be stored persistently. The set of attributes in a certificate can vary depending on the intended usage of the certificate. A certificate securely binds a public key to the entity that holds the corresponding private key. A certificate is commonly used for **authentication** and secure exchange of information on open networks, such as the Internet, extranets, and intranets. Certificates are digitally signed by the issuing **certification authority (CA)** and can be issued for a user, a computer, or a service. The most widely accepted format for certificates is defined by the ITU-T X.509 version 3 international standards. For more information about attributes and extensions, see [RFC3280] and [X509] sections 7 and 8.

certificate services: The Microsoft implementation of a **certification authority (CA)** that is part of the server operating system. **Certificate services** include tools to manage issued **certificates**, publish **CA certificates** and CRLs, configure **CAs**, import and export **certificates** and keys, and recover archived private keys.

certification authority (CA): A third party that issues public key **certificates**. Certificates serve to bind public keys to a user identity. Each user and certification authority (CA) can decide whether to trust another user or CA for a specific purpose, and whether this trust should be transitive. For more information, see [RFC3280].

code page: An ordered set of characters of a specific script in which a numerical index (code-point value) is associated with each character. Code pages are a means of providing support for character sets and keyboard layouts used in different countries. Devices such as the display and keyboard can be configured to use a specific code page and to switch from one code page (such as the United States) to another (such as Portugal) at the user's request.

Common Information Model (CIM): The Distributed Management Task Force (DMTF) model that describes how to represent real-world computer and network objects. CIM uses an object-oriented paradigm, where managed objects are modeled using the concepts of classes and instances. See [DMTF-DSP0004].

conceptual schema definition language (CSDL): A language that is based on XML and that can be used to define conceptual models that are based on the Entity Data Model (EDM).

directory service (DS): A service that stores and organizes information about a computer network's users and network shares, and that allows network administrators to manage users' access to the shares. See also **Active Directory**.

Distributed Component Object Model (DCOM): The Microsoft Component Object Model (COM) specification that defines how components communicate over networks, as specified in [MS-DCOM].

Distributed File System (DFS): A file system that logically groups physical shared folders located on different servers by transparently connecting them to one or more hierarchical namespaces. **DFS** also provides fault-tolerance and load-sharing capabilities. **DFS** refers to the Microsoft DFS available in Windows Server operating system platforms.

domain: A set of users and computers sharing a common namespace and management infrastructure. At least one computer member of the set must act as a domain controller (DC) and host a member list that identifies all members of the domain, as well as optionally hosting the **Active Directory** service. The domain controller provides **authentication** of members, creating a unit of trust for its members. Each domain has an identifier that is shared among its members. For more information, see [MS-AUTHSOD] section 1.1.1.5 and [MS-ADTS].

endpoint: A network-specific address of a remote procedure call (RPC) server process for remote procedure calls. The actual name and type of the endpoint depends on the **RPC** protocol sequence that is being used. For example, for RPC over TCP (RPC Protocol Sequence ncacn_ip_tcp), an endpoint might be TCP port 1025. For RPC over Server Message Block (RPC Protocol Sequence ncacn_np), an endpoint might be the name of a **named pipe**. For more information, see [C706].

File Replication Service (FRS): One of the services offered by a domain controller (DC), which is advertised through the Domain Controller Location protocol. The service being offered to clients is a replicated data storage volume that is associated with the default naming context (NC). The running or paused state of the **FRS** on a DC is available through protocols documented in [MS-ADTS] section 6.3.

global catalog (GC): A unified partial view of multiple naming contexts (NCs) in a distributed partitioned directory. The **Active Directory** directory service **GC** is implemented by GC servers. The definition of **global catalog** is specified in [MS-ADTS] section 3.1.1.1.8.

Group Policy: A mechanism that allows the implementer to specify managed configurations for users and computers in an **Active Directory** service environment.

Group Policy server: A server holding a database of Group Policy Objects (GPOs) that can be retrieved by other machines. The **Group Policy server** must be a domain controller (DC).

Hypertext Transfer Protocol (HTTP): An application-level protocol for distributed, collaborative, hypermedia information systems (text, graphic images, sound, video, and other multimedia files) on the World Wide Web.

Interface Definition Language (IDL): The International Standards Organization (ISO) standard language for specifying the interface for remote procedure calls. For more information, see [C706] section 4.

JavaScript Object Notation (JSON): A text-based, data interchange format that is used to transmit structured data, typically in Asynchronous JavaScript + XML (AJAX) web applications, as described in [RFC4627]. The JSON format is based on the structure of ECMAScript (Jscript, JavaScript) objects.

Kerberos: An **authentication** system that enables two parties to exchange private information across an otherwise open network by assigning a unique key (called a ticket) to each user that logs on to the network and then embedding these tickets into messages sent by the users. For more information, see [MS-KILE].

Lightweight Directory Access Protocol (LDAP): The primary access protocol for **Active Directory**. Lightweight Directory Access Protocol (LDAP) is an industry-standard protocol, established by the Internet Engineering Task Force (IETF), which allows users to query and update information in a **directory service (DS)**, as described in [MS-ADTS]. The Lightweight Directory Access Protocol can be either version 2 [RFC1777] or version 3 [RFC3377].

Microsoft Interface Definition Language (MIDL): The Microsoft implementation and extension of the OSF-DCE **Interface Definition Language (IDL)**. **MIDL** can also mean the **Interface Definition Language (IDL)** compiler provided by Microsoft. For more information, see [MS-RPCE].

named pipe: A named, one-way, or duplex pipe for communication between a pipe server and one or more pipe clients.

NetBIOS: A particular network transport that is part of the LAN Manager protocol suite. **NetBIOS** uses a broadcast communication style that was applicable to early segmented local area networks. The LAN Manager protocols were the default in Windows NT operating system environments prior to Windows 2000 operating system. A protocol family including name

resolution, datagram, and connection services. For more information, see [RFC1001] and [RFC1002].

Network Access Protection (NAP): A feature of an operating system that provides a platform for system health-validated access to private networks. **NAP** provides a way of detecting the health state of a network client that is attempting to connect to or communicate on a network, and limiting the access of the network client until the health policy requirements have been met. **NAP** is implemented through quarantines and health checks, as specified in [TNC-IF-TNCCSPBSoH].

Office Open XML (OOXML): A family of XML schemas, specified in [ECMA-376], that is used for office productivity applications.

Plugfest: Plugfest is a recurring event for ISVs organized by Microsoft to help developers create interoperability solutions by using Windows protocols and protocol extensions.

registry: A local system-defined database in which applications and system components store and retrieve configuration data. It is a hierarchical data store with lightly typed elements that are logically stored in tree format. Applications use the registry API to retrieve, modify, or delete registry data. The data stored in the registry varies according to the version of Windows.

remote procedure call (RPC): A context-dependent term commonly overloaded with three meanings. Note that much of the industry literature concerning RPC technologies uses this term interchangeably for any of the three meanings. Following are the three definitions: (*) The runtime environment providing remote procedure call facilities. The preferred usage for this meaning is "RPC runtime". (*) The pattern of request and response message exchange between two parties (typically, a client and a server). The preferred usage for this meaning is "RPC exchange". (*) A single message from an exchange as defined in the previous definition. The preferred usage for this term is "RPC message". For more information about RPC, see [C706].

Representational State Transfer (REST): A class of web services that is used to transfer domain-specific data by using **HTTP**, without additional messaging layers or session tracking, and returns textual data, such as **XML**.

schema: The set of attributes and object classes that govern the creation and update of objects.

security identifier (SID): An identifier for security principals in Windows that is used to identify an account or a group. Conceptually, the **SID** is composed of an account authority portion (typically a **domain**) and a smaller integer representing an identity relative to the account authority, termed the relative identifier (RID). The **SID** format is specified in [MS-DTYP] section 2.4.2; a string representation of **SIDs** is specified in [MS-DTYP] section 2.4.2 and [MS-AZOD] section 1.1.1.2.

SOAP: A lightweight protocol for exchanging structured information in a decentralized, distributed environment. **SOAP** uses **XML** technologies to define an extensible messaging framework, which provides a message construct that can be exchanged over a variety of underlying protocols. The framework has been designed to be independent of any particular programming model and other implementation-specific semantics. SOAP 1.2 supersedes SOAP 1.1. See [SOAP1.2-1/2003].

Stock Keeping Unit (SKU): A unique code that refers to a particular manufactured object or source of revenue. A **SKU** can refer to a retail product (software in a box that is sold through a channel), a subscription program (such as MSDN), or an online service (such as MSN).

Technical Account Manager (TAM): Technical Account Managers help Microsoft customers create and maintain efficient and stable business systems. TAMs partner with customers to help design customized services for hosted Microsoft environments, facilitate support services and resources, and provide technical information to IT staff.

technical area: A broad categorization of the interoperability technologies that are addressed by the documents of the Windows protocols documentation set (see section 2.0).

technology collection: A technology overview and the technical specifications it references (see section 1.3.2).

terminal server: A computer on which **terminal services** is running.

terminal services (TS): A service on a server computer that allows delivery of applications, or the desktop itself, to various computing devices. When a user runs an application on a **terminal server**, the application execution takes place on the server computer and only keyboard, mouse, and display information is transmitted over the network. Each user sees only his or her individual session, which is managed transparently by the server operating system and is independent of any other client session.

transaction: In OleTx, an atomic transaction.

Transmission Control Protocol (TCP): A protocol used with the Internet Protocol (IP) to send data in the form of message units between computers over the Internet. TCP handles keeping track of the individual units of data (called packets) that a message is divided into for efficient routing through the Internet.

Unicode: A character encoding standard developed by the Unicode Consortium that represents almost all of the written languages of the world. The **Unicode** standard [UNICODE5.0.0/2007] provides three forms (UTF-8, UTF-16, and UTF-32) and seven schemes (UTF-8, UTF-16, UTF-16 BE, UTF-16 LE, UTF-32, UTF-32 LE, and UTF-32 BE).

Unicode string: A **Unicode** 8-bit string is an ordered sequence of 8-bit units, a **Unicode** 16-bit string is an ordered sequence of 16-bit code units, and a **Unicode** 32-bit string is an ordered sequence of 32-bit code units. In some cases, it could be acceptable not to terminate with a terminating null character. Unless otherwise specified, all **Unicode strings** follow the UTF-16LE encoding scheme with no Byte Order Mark (BOM).

Uniform Resource Identifier (URI): A string that identifies a resource. The URI is an addressing mechanism defined in Internet Engineering Task Force (IETF) Uniform Resource Identifier (URI): Generic Syntax [RFC3986].

universally unique identifier (UUID): A 128-bit value. UUIDs can be used for multiple purposes, from tagging objects with an extremely short lifetime, to reliably identifying very persistent objects in cross-process communication such as client and server interfaces, manager entry-point vectors, and **RPC** objects. UUIDs are highly likely to be unique. UUIDs are also known as globally unique identifiers (GUIDs) and these terms are used interchangeably in the Microsoft protocol technical documents (TDs). Interchanging the usage of these terms does not imply or require a specific algorithm or mechanism to generate the UUID. Specifically, the use of this term does not imply or require that the algorithms described in [RFC4122] or [C706] must be used for generating the UUID.

User Datagram Protocol (UDP): The connectionless protocol within TCP/IP that corresponds to the transport layer in the ISO/OSI reference model.

UTF-16: A standard for encoding Unicode characters, defined in the Unicode standard, in which the most commonly used characters are defined as double-byte characters. Unless specified otherwise, this term refers to the UTF-16 encoding form specified in [UNICODE5.0.0/2007] section 3.9.

Web Services Description Language (WSDL): An XML format for describing network services as a set of endpoints that operate on messages that contain either document-oriented or procedure-oriented information. The operations and messages are described abstractly and are bound to a concrete network protocol and message format in order to define an endpoint. Related concrete endpoints are combined into abstract endpoints, which describe a network

service. WSDL is extensible, which allows the description of endpoints and their messages regardless of the message formats or network protocols that are used.

Windows Event: A technology and associated API that is typically used for troubleshooting application and driver software on a computer running Windows. A Windows Event contains an identifier and associated data. Events are published by an event provider to an event channel for consumption, and the identifiers are unique to the event provider. For more information, see [MSDN-WINEV].

Windows registry: The Windows implementation of the registry.

XML: The Extensible Markup Language, as described in [XML1.0].

XML Schema (XSD): A language that defines the elements, attributes, namespaces, and data types for **XML** documents as defined by [XMLSCHEMA1/2] and [W3C-XSD] standards. An XML schema uses **XML** syntax for its language.

XML schema definition (XSD): The World Wide Web Consortium (W3C) standard language that is used in defining XML schemas. Schemas are useful for enforcing structure and constraining the types of data that can be used validly within other XML documents. XML schema definition refers to the fully specified and currently recommended standard for use in authoring XML schemas.

XSL Transformation (XSLT): A declarative, XML-based language that is used to present or transform XML data. It is designed for use as part of the Extensible Stylesheet Language (XSL).

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.

[MSFT-InteroperLabs] Microsoft Corporation, "Interoperability Test Labs", https://msdn.microsoft.com/en-us/openspecifications/dn750986

[MSFT-Plugfest] Microsoft Corporation, "Plugfests and Events", https://msdn.microsoft.com/en-us/openspecifications/dn750988

1.3   Overview

The purpose of the Windows Protocols Documentation Roadmap is to provide a useful starting point for obtaining the information needed to create interoperable protocol software. By traversing the links in this document, the reader can navigate the entire Windows protocols documentation set and discover additional helpful technical information that complements the documentation set.

The information in the Windows Protocols Documentation Roadmap is grouped into the following sections.

- Introduction (section 1): General information about using the documentation set, including licensing and support.

- Documentation Contents (section 2): A description of the different types of documents, including technical areas.

- Navigating the Documentation Set (section 3): Where to find the various components of documentation set in the MSDN Library.

- Appendix A: Cross-Reference Matrices (section 4): Links to all documents in the documentation set, cross-referenced by technical area and technology collection.

- Appendix B: Open Specification Site Map (section 5): A diagram showing the entire node structure of the documentation set in the MSDN Library.

It is suggested that the reader become familiar with the classification of the documents and their contents before proceeding to the navigation section, because that knowledge will help clarify the document relationships.

This section provides the following information:

- Windows product versions that apply to the documentation set.

- The relationship of documents to each other in the documentation set.

- Naming conventions used for the documents.

- The system for identifying versions of the documents.

1.3.1 Product Applicability

The Windows protocols documentation set supports interoperability with technologies used by various versions of Windows Server and Workgroup systems.

The versions of Windows Server covered in the documentation set include the following:

- Windows NT Server 3.1 operating system

- Windows NT Server 3.5 operating system

- Windows NT Server 3.51 operating system

- Windows NT Server 4.0 operating system

- Windows 2000 Server operating system

- Windows Server 2003 operating system

- Windows Server 2003 R2 operating system

- Windows Server 2008 operating system

- Windows Server 2008 R2 operating system

- Windows Server 2012 operating system

- Windows Server 2012 R2 operating system

- Windows Server 2016 operating system

The versions of Windows Workgroup systems covered in the documentation set include the following:

- Windows NT 3.1 operating system

- Windows NT 3.5 operating system

- Windows NT 3.51 operating system

- Windows 95 operating system

- Windows NT Workstation 4.0 operating system

- Microsoft Windows 98 operating system

- Windows 2000 Professional operating system

- Windows Millennium Edition operating system

- Windows XP operating system

- Windows Vista operating system

- Windows 7 operating system

- Windows 8 operating system

- Windows 8.1 operating system

- Windows 10 operating system

1.3.2 Relationships Among Documents

The Windows protocols documentation set consists of the following types of documents:

- High-level overviews that contain information about the organization and content of the entire documentation set.

- Technology overviews that provide information about groups of related technical specifications.

- Technical specifications that specify the details of particular protocols, structures, algorithms, and so on.

The relationships among these types of documents are shown in the following diagram.
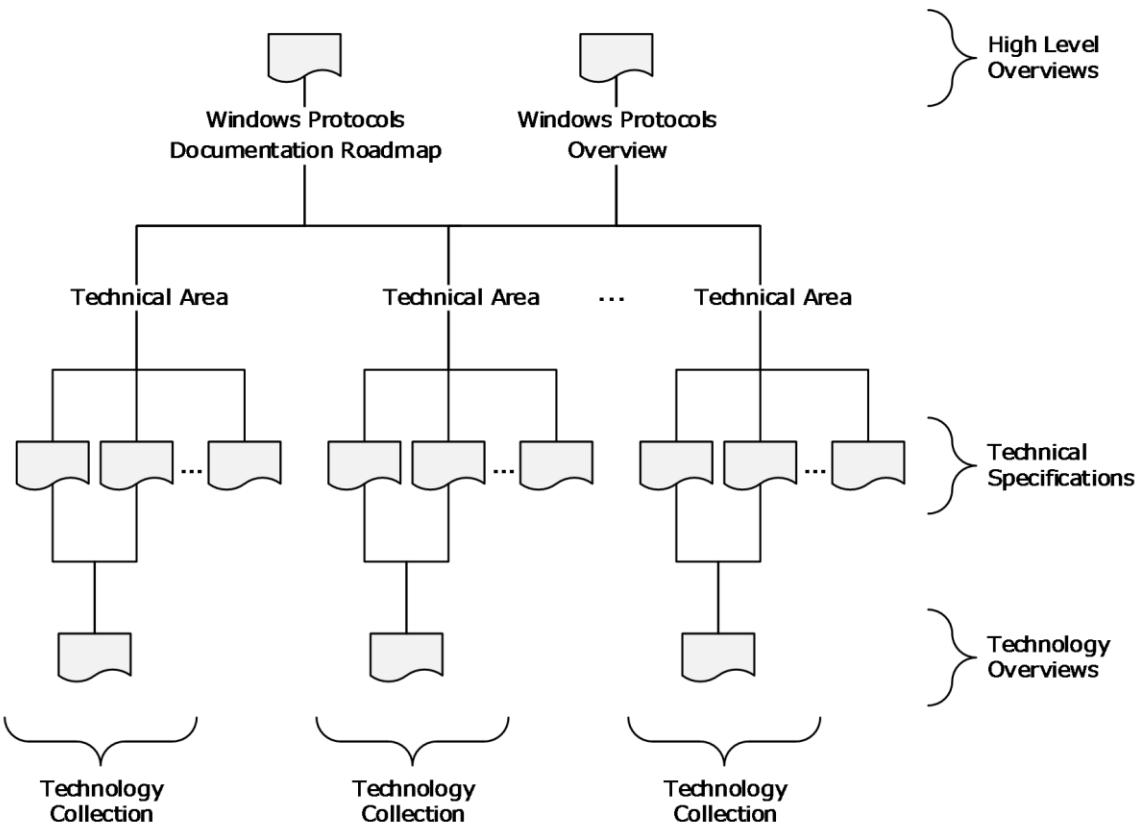
Figure 1: Relationships among documents

As shown in the diagram, the technical specifications of the Windows protocols documentation set are categorized according to **technical area**. Within a technical area, a technology overview and related technical specifications make up a **technology collection**. More than one technology collection can be defined in a technical area. The technical areas and different document types are described in Documentation Contents (section 2). The technical specifications are listed in the Technical Specification Cross-Reference Matrix (section 4.1); the technical areas are listed in the Technical Area Cross-Reference Matrix (section 4.2); and the technology collections are listed in the Technology Collection Cross-Reference Matrix (section 4.3).

1.3.3 Naming Conventions

The Windows protocols documentation set uses the following naming conventions for all overview documents, technical specifications, and reference documents.

- All documents are assigned a short name enclosed in square brackets. The short name is used when citing the document or reference. Examples of short names are "[MS-DOCO]", "[MSDN-WSPP]", and "[RFC2119]".

- All short names for documents in the documentation set have one of the following forms:

    - [MC-XXX] was originally used for documents that specify technology that has never shipped with Windows. However, that restriction has been removed, and there is now no distinction between documents with short names prefaced with "MC" and those with short names prefaced with "MS". An example of this type of short name is "[MC-BUP]", where the suffix "BUP" is an abbreviation for "Background Intelligent Transfer Service (BITS) Upload Protocol".

- [MS-XXXOD] is used for technology overviews (section 2.1.3). An example of this type of short name is "[MS-AUTHSOD]", where the suffix "AUTHS" is an abbreviation for "Authentication Services Protocols".

- [MS-XXX] is used for all other overview, technical, and reference documents with short names that do not follow one of the preceding conventions. The suffix "XXX" is an abbreviation that refers to the subject covered by the document. An example of this type of short name is "[MS-WPO]", where "WPO" is an abbreviation for "Windows Protocols Overview". The short name of the current document, "[MS-DOCO]", also falls into this category.

- Short names for reference documents that describe Microsoft technology conform to the following naming conventions:

  - [MSDN-XXX] is used for information on the Microsoft Developer Network (MSDN).

  - [MSFT-XXX] is used for information in Microsoft TechNet articles.

  - [KBNNNNN] and [MSKB-NNNNN] are used for MSDN Knowledge Base articles, where NNNNN is the article number.

  - [PRA-XXX] is used for downloadable MSDN informative technical documents in PDF format.

- Short names for RFC documents are in the form [RFCNNNNN], where NNNNN is the RFC number.

- Each document has a title that conforms to the following conventions:

  - The titles of technology overviews end with the word "Overview".

  - The titles of technical specifications that specify Microsoft extensions to non-Microsoft protocols and structures end with either the word "Extension" or "Extensions".

  - The titles of technical specifications that specify algorithms, protocols, and structures end with the word "Specification".

  Note The titles of [MS-DOCO] and [MS-WPO] are exceptions to these document title conventions.

- Each document has a long name, which is composed of its short name, a colon, and its title. Examples of long names are "[MS-DOCO]: Windows Protocols Documentation Roadmap" and "[MS-RPRN]: Print System Remote Protocol Specification".

1.3.4 Document Versions

Documents in the Windows protocols documentation set are assigned a version number that changes each time the document is updated. The title page of each document contains a revision summary table that shows the top-level history of changes to the document. This revision summary table contains the date of each release and the corresponding version number, revision class, and comment that describes the change.

The version number and revision class are correlated as shown in the following table:

Version number	Revision class	Version number change	Description
1.0	New	Not applicable	First release of the document.
2.0	Major	Number to the left of the first decimal point	Significantly changed the technical content.

Version number	Revision class	Version number change	Description
2.1	Minor	Number to the right of the first decimal point	Clarified the meaning of the technical content.
2.1.1	Editorial	Number to the right of the second decimal point	Changed language and/or formatting of the technical content.
2.1.1	None	No change	No change to the meaning, language or formatting of the technical content.

Note Starting with Windows 8, the initial release version number was standardized at 1.0. Documents created prior to Windows 8 can have a different initial release version number, such as 0.1 or 0.01.

Each overview document and technical specification also contains its own more detailed Change Tracking Appendix, which lists the changes made to each section in the latest release.

1.4   Audience

The Windows documentation set is intended for use in conjunction with publicly available and standards-based specifications, network programming background material, and Windows distributed systems concepts. It assumes that the reader either is familiar with this material or has immediate access to it.

The documentation set provides the following levels of audience support:

- For implementers: Conceptual and reference information for an implementation of one or more protocol specifications for a given task or scenario.

- For architects: Structural and interoperability information for an implementation of a technology consisting of a group of related protocols.

1.5   Localization

The Windows documentation set is not localized, but individual documents can contain locale-specific information.

1.6   Licensing

The Windows protocols documentation set is available to view and download from the MSDN Library at no charge. Some specifications include patented inventions, and others do not. Implementers can benefit from a patent license if using any of the technical specifications covered by Microsoft patents. In addition, patent licensees can receive additional benefits such as:

- Optional **Technical Account Manager (TAM)** to help resolve documentation questions

- Optional viewing rights to Windows source code to assist with implementing the protocols

- Access to **Plugfests** [MSFT-Plugfest] and Interoperability Labs [MSFT-InteroperLabs]

The following Document Programs are available. They vary principally with respect to the scope of the protocols and technical specifications that are covered:

- Microsoft Interoperability Program (MIP): This program includes technical specifications for communications protocols in specific versions of Windows Client, Windows Server, Microsoft PC productivity applications, Microsoft Exchange Server, and Windows SharePoint Services and

technologies that are used by certain Microsoft client and server products, as well as certain standards, languages, and file formats supported by such products.

- Workgroup Server Protocol Program (WSPP): This program includes technical specifications for communications protocols between specific versions of Windows Client and Windows Server as well as between specific versions of Windows Server to provide file, print and user and group administration services in a Windows Workgroup network.

For more information about patent license and patent covenant agreements available for Windows, visit Patent Promises and Patents.

1.7 Support

Many types of support are available for the protocol implementer. Information on the following resources can be found on the Open Specifications Developer Center:

- Plugfests and Events, providing software developers with an in-person opportunity to learn more about Windows protocols and to test their implementations.

- Interoperability Test Tools, including a tool to view and monitor, in real time, specific protocol communications between two products.

- Development Support, including forums, blogs, and Microsoft Knowledge Base.

Additional information concerning support is available on the following websites:

- Microsoft Developers Network (MSDN), providing informative content and resources for Microsoft products and technologies.

- MSDN Developer Community, providing a selection of forums across various product protocols.

- TechNet Wiki, providing community-generated content about Microsoft technologies.

2   Documentation Contents

This section describes the documents that are part of the Windows protocols documentation set and the information they contain. The following types of documents are defined:

- Overview documents

- Technical specifications

- Reference documents

The sections that follow contain details of each document type.

As described in Relationships Among Documents (section 1.3.2), the overview documents and technical specifications are associated with various technical areas according to technology. Those relationships are listed in the following sections:

- Technical Specification Cross-Reference Matrix (section 4.1)

- Technical Area Cross-Reference Matrix (section 4.2)

- Technology Collection Cross-Reference Matrix (section 4.3)

The following technical areas are covered by the documentation set:

Application services: Application services enable the components of an application to interoperate with components of other applications. These components can involve processes that are running on one or more computers or different operating systems.

Collaboration and communications: Collaboration and communications refers to services that facilitate interaction among people and enables client applications to locate each other on a network. The software used for collaboration includes application sharing, email, whiteboarding, sharing a calendar, instant messaging, and text chat. This technical area also includes protocols that enable content to be streamed over the Internet or an intranet and the creation, distribution, and playback of audio and video content.

Directory services: Directory services provide functionality for the centralized storage of identity and account information, as well as other forms of data such as group policies and printer location information. The protocols in this technical area make up the client and server behavior of **Active Directory**, which provides a foundation for authentication services in a domain environment, domain services, and directory replication services in Windows.

File, fax, and printing services: File, fax, and printing services refer to services for applications to access, share, manage and replicate files, and for managing and accessing fax and print systems in a distributed environment. This technical area also includes Windows SharePoint Services (WSS), which provide features and technologies that allow users to create, manage, and build their own collaborative websites.

Home server: Home server refers to services that enable two or more computers to connect directly to each other in order to communicate and to organize, share, and back up documents over a Home Server network. Home Server is a platform for private residences and small businesses that supports the management of devices within the household or on the Internet.

Multiplayer games: Multiplayer games refers to services that provide DirectPlay functionality for playing games over the Internet, including game configuration and connection, game state and event handling, communication between players, and remote configuration.

Networking: Networking refers to services that enable the communication of computers with each other over networks including wireless devices and links, IP transports, and client/server transports such as **remote procedure call (RPC)** and **DCOM**. This technical area includes

protocols that support dynamic configuration of IP addresses, the enforcement of computer health policies, the management of Web services, and wireless service discovery.

Remote connectivity: Remote connectivity refers to services that allow users to access applications and data on a remote computer over a network. Remote connectivity includes remote desktop services protocols, which provide secure connections and communication between remote clients and servers and allow clients to use server applications and resources.

Security and identity management: Security and identity management refers to services for **authentication** and **authorization**, certificate management, rights management, and interoperability over the web. This technical area includes protocols that support identity verification, credential validation, and the process of granting a person, computer process, or device access to certain information, services or functionality, the protection and security of digital information, and Web services based on **XML**, **SOAP** and **WSDL**.

Systems management: Systems management refers to services that support clustering, configuration and administration of client and server computers, content indexing queries, remote device management, **Group Policy** enforcement, remote management of computer and network resources, performance monitoring and event logging, deployment and management of storage technologies, system infrastructure functionality, management of **Common Information Model (CIM)** objects, deployment of Microsoft product updates, and Windows name resolution for network basic input/output system (**NetBIOS**) names.

Terminal services: Terminal services provide functionality for communicating remote graphical desktop interaction and display data packets, and sound, file redirection, and print redirection data packets from client applications to a Windows server configured as a **terminal server**.

2.1   Overview Documents

This section describes the overview documents in the Windows protocols documentation set. In general, overview documents provide information that pertains to groups of documents in the documentation set and about how protocols for specific technologies are related and used together. The following types of overview documents are defined:

- Windows Protocols Documentation Roadmap (section 2.1.1)

- Windows Protocols Overview (section 2.1.2)

- Technology Overviews (section 2.1.3)

2.1.1   Windows Protocols Documentation Roadmap

[MS-DOCO]: Windows Protocols Documentation Roadmap is the starting point for navigating within and understanding all the other documents in the Windows protocols documentation set.

2.1.2   Windows Protocols Overview

[MS-WPO]: Windows Protocols Overview provides a conceptual overview of Windows protocols, including their functionality, how they interact, and their relationships to Windows technologies. Each technology is further broken down into subsystems with information about the technology overviews (section 2.1.3) and technical specifications (section 2.2) that pertain to each subsystem. The Windows technologies are grouped into the technical areas described in Documentation Contents (section 2).

2.1.3   Technology Overviews

Technology overviews provide informative content that describes protocols in a technical area that are functionally related or are commonly used together to accomplish specific goals. Each technology

overview and the technical specifications it describes comprise a technology collection. The technology collections in the Windows protocols documentation set are listed in the Technology Collection Cross-Reference Matrix (section 4.3).

Each technology overview provides the following types of information:

- A conceptual description of the architecture, communication, and relationships among the protocols and with other technology collections.

- The intended users and uses of the technology collection, its environment, and its role within the architecture of Windows.

- Scenarios that illustrate use cases for the technology collection, including common errors, which describe the actors; the actors' intentions and goals; any necessary preconditions; an overall flow of data and events with common alternatives; and typical results.

- The Microsoft products that implement the technology collection, and its versions and capabilities in each Microsoft product.

The technology overviews are listed, grouped according to technical area, in the remainder of this section.

Application services:

- [MS-MQOD]: Message Queuing Protocols Overview: This document describes the functionality of Microsoft Message Queuing (MSMQ), a communications service that enables reliable and secure asynchronous messaging between applications over a variety of deployment topologies. MSMQ temporarily decouples the sending of a message from the receipt of that message, allowing applications to communicate even if their execution lifetimes do not overlap.

- [MS-NETOD]: Microsoft .NET Framework Protocols Overview: This document describes the functionality, interrelationships, and protocol layering of the communication protocols implemented in the .NET Remoting and Windows Communication Foundation (WCF) components of the .NET Framework.

- [MS-TPSOD]: Transaction Processing Services Protocols Overview: This document provides an overview of the functionality and relationships of **transaction** processing protocols. Transaction processing is designed to maintain a computation system in a known, consistent state by allowing multiple individual operations to be linked together as a single, indivisible operation, so that either all of the changes are processed or none of the changes are processed.

Collaboration and communications:

- [MS-MSSOD]: Media Streaming Server Protocols Overview: This document describes the functionality of the media streaming server protocols, which are used to convert both live and prerecorded audio format and to distribute the content over a network or the Internet. Media streaming server technologies support publishing secure content to a media server, streaming content from a media server, and requesting a license from a license server.

Directory services:

- [MS-ADFSOD]: Active Directory Federation Services (AD FS) Protocols Overview: This document describes the functionality and relationship of the **Active Directory Federation Services (AD FS)** protocols, which offer a means for distributed identification, authentication, and authorization across organizational and platform boundaries.

- [MS-ADOD]: Active Directory Protocols Overview: This document describes the functionality and relationships of the Active Directory protocols, which provide directory services for the centralized storage of identity, account information, group policies, and printer location

information, a foundation for authentication services in a **domain** environment, domain services, and directory replication services in Windows.

File, fax, and printing services:

- [MS-CCROD]: Content Caching and Retrieval Protocols Overview: This document describes the protocols, data structures, and security mechanisms that are required to enable a system of content caching and retrieval to interoperate with Windows systems, and content retrieval scenarios such as accessing content from a file or web server.

- [MS-FASOD]: File Access Services Protocols Overview: This document describes the use of the protocols for network file access services interoperation with Windows, which allows applications to access and share files located on a file server on a network in a secure and managed environment.

- [MS-FSMOD]: File Services Management Protocols Overview: This document describes the use of the protocols for remote administration and management of file servers that share data within an organization.

- [MS-PRSOD]: Print Services Protocols Overview: This document describes the distributed system of print servers that manage printers and make them available to print clients.

- [MS-STOROD]: Storage Services Protocols Overview: This document describes the interaction of protocols that provide disk and volume management services, data backup and restore, removable media management, file access control, and file encryption in Windows.

Networking:

- [MS-NAPOD]: Network Access Protection Protocols Overview: This document describes the functionality to allow client computers to gain access to network resources based on the client's identity and compliance with a corporate governance policy, and how various components work together to promote the health and protection of networked systems.

Remote connectivity:

- [MS-RDSOD]: Remote Desktop Services Protocols Overview: This document describes the **Terminal Services** system, which enables a remote client to display and interact with a desktop or application running on a distant server. Using this technology, a remote client connected to the server can use software and resources available to the server.

Security and identity management:

- [MS-AUTHSOD]: Authentication Services Protocols Overview: This document describes the functionality and relationships of protocols in the identity verification of users, computers, and services through interactive logon and network logon authentication processes.

- [MS-AZOD]: Authorization Protocols Overview: This document describes the functionality and relationships of the protocols that control the granting of access to resources, once authentication has been accomplished, by using one of several Windows authorization models.

- [MS-CERSOD]: Certificate Services Protocols Overview: This document provides an overview of how the **certificate** enrollment, certificate policy and certificate remote administration protocols are implemented in the **certificate services** system, the standalone and enterprise models of the **certificate authority (CA)**, the protocols involved, and how they communicate with each other.

- [MS-RMSOD]: Rights Management Services Protocols Overview: This document describes the protocols of the Rights Management Services (RMS) system, which allows individuals and administrators to encrypt and specify access and usage restrictions on various types of data, including documents and email messages.

Systems management:

- [MS-GPOD]: Group Policy Protocols Overview: This document describes the protocols used for Group Policy, which enables administrators to define and manage required computer configurations or policy settings for a large number of users and computers within an Active Directory environment.

- [MS-WMOD]: Windows Management Protocols Overview: Provides an overview of the functionality and relationships of the Windows Management protocols, which provide the ability to control settings and collect data for a set of client and server computers, to query another system or computer, and to perform administrative operations to monitor, troubleshoot, and conduct hardware and software inventories in remote computers.

- [MS-WSUSOD]: Windows Server Update Services Protocols Overview: This document describes the Windows Server Update Services system, which enables IT administrators to distribute and manage software updates from a central location to a large number of computers.

2.2   Technical Specifications

Technical specifications specify details of specific protocols, structures and standards. The goal of the technical specifications is to support interoperability, not to describe the Windows implementations of the technology. For example, many protocols specify client and server roles; for such protocols, the information contained in technical specifications fulfills the three general interoperability cases:

- Implement a client that interoperates with a server implemented in Windows.

- Implement a server that interoperates with a client implemented in Windows.

- Implement a client and a server that interoperate with each other on a non-Windows operating system.

Other types of protocols, as well as structures, algorithms, and so on, are also documented to support interoperability in both Windows and non-Windows operating environments.

Technical specifications consist of both normative and informative content.

2.2.1   Normative Content

Normative content refers to technical details that are essential for implementing software that interoperates with Windows. This content is written using the prescriptive language of RFCs as defined in [RFC2119], including the verbs MAY, MUST, MUST NOT, SHOULD, and SHOULD NOT.

- **MUST and MUST NOT** emphasize behavior that is required or prohibited, respectively, by the technology for interoperability, such as setting a particular field to zero, using a particular reply packet, or performing a particular action when a certain type of packet is received.

  In a normative section of a specification, any statement that does not use a prescriptive verb means that the behavior is required, as if a MUST were used explicitly.

- **MAY** means that the current version of Windows does not exhibit the behavior, but an implementation could do the behavior and still be interoperable. An informative product behavior note (section 2.2.2) is included unless all applicable versions of Windows omit the behavior.

- **SHOULD** means that the current version of Windows does exhibit the behavior and the protocol's designers advise it, but an implementation could omit the behavior and still be interoperable. An informative product behavior note is included unless all applicable versions of Windows do the behavior.

- **SHOULD NOT** is similar to MAY, but it is used when the full implications should be understood and the case carefully weighed before implementing the behavior. A product behavior note is included.

Normative content includes the following categories of information:

- Classes of functionality (roles)

- Data definitions (constants, enumerations, structures, and so on)

- Encryption

- Message formats and processing

- Method signatures and return values

- Schemas and namespaces

- State transitions

- Timers, events, and event processing

- Transport

- Vendor-extensible fields

Technical specifications that use common data types (section 2.2.3.3.2) specify the following normative reference:

- [MS-DTYP]: Windows Data Types

Technical specifications that reference HRESULT, NTStatus, or Win32 error codes (section 2.2.3.3.3) cite the following normative reference:

- [MS-ERREF]: Windows Error Codes

If a protocol references **directory service schema** element class/attribute pairs, one or more of the following normative references might be appropriate:

- [MS-ADA1]: Active Directory Schema Attributes A-L

- [MS-ADA2]: Active Directory Schema Attributes M

- [MS-ADA3]: Active Directory Schema Attributes N-Z

- [MS-ADSC]: Active Directory Schema Classes

- [MS-ADLS]: Active Directory Lightweight Directory Services Schema

2.2.2 Informative Content

Content that is not normative in technical specifications is informative, and it is provided only as a helpful guide to the implementer. Informative content is not essential for implementation and includes the following categories of information:

- Abstract data models

- Capability negotiations

- Examples

- Implementation-specific parameters

- Relationships to other protocols

- Security parameters

- Versioning

- Windows-version-specific behaviors

Windows-version-specific behavior is described in footnotes to the main body of a specification. That information is not normative and is provided to support interoperability across multiple versions of Windows servers and clients. The following criteria are used to determine whether information is not appropriate in the body of a technical specification and gets placed in a product behavior footnote:

- The information varies by Windows **Stock Keeping Unit (SKU)**.

- The information concerns an implementation limit for a data structure; for example, maximum entries or queue size.

- The information concerns a retry interval.

- The information concerns a retry count prior to returning a specified error code.

- The information concerns a specific buffer size choice, when other buffer sizes will work.

- The information concerns loading implementation-specific configuration information from the **Windows registry**.

2.2.3 Template Types

In general, each technical specification conforms to one of a set of document templates, based on the type of information that is conveyed by the associated protocol or structure:

- Algorithm: Algorithms used in network communication.

- Block: Generic message-based protocols.

- Data Structure: Data structures used by one or more protocols.

- File Structure: The formats of files used to convey information between systems.

- HTTP: Protocols based on **HTTP** APIs, including RESTful and REST-like protocols.

- RPC: Remote procedure call (RPC) method-based client/server protocols.

- SOAP: Request/response protocols that are defined by using Web Services Description Language (WSDL).

- Standards Support: Microsoft implementation conformance with an external standard.

The following sections provide general descriptions of these document templates. The template used for each technical specification in the Windows protocols documentation set is listed in Technical Specification Cross-Reference Matrix (section 4.1).

2.2.3.1 Algorithm

An algorithm technical specification defines an algorithm or extension to an algorithm that is used in network communication. An algorithm document defines no data structure or data sent over the wire. If the algorithm is associated with a data structure, they are either documented separately in algorithm and structure technical specifications or together in a block technical specification. A

technical specification that specifies a protocol can refer to an algorithm document, but if the algorithm is specific to the protocol, it can be documented within the protocol document.

If the algorithm inherently has different classes of functionality, or "roles", normative information is provided for each. If enough logic is common between roles that it makes sense to not duplicate it, a section titled "Common Algorithm Details" can be specified. For example, for compression and decompression algorithms, a section for common details might be included with the role-specific sections "Compression Algorithm Details" and "Decompression Algorithm Details".

Algorithm technical specifications can contain the following types of normative information, where applicable:

- Classes of functionality (roles)

- Processing rules

- State transitions

2.2.3.2 Block

A block technical specification defines a packet-based protocol. The name "block" is a reference to the block diagrams that are frequently used to express interaction patterns. The block type of technical specification is also used if no other type of document is appropriate for the protocol or format being specified.

Block technical specifications specify exactly how data is marshaled that is sent or received over a network, which requires a definition of the byte order of packet data. Message syntax is specified by using packet diagrams that are 32-bits wide, with bit 0 on the far left, as shown in the following example.

0	1	2	3	4	5	6	7	8	9	1 0	1	2	3	4	5	6	7	8	9	2 0	1	2	3	4	5	6	7	8	9	3 0	1
Field Name 1																Field Name 2															
Field Name 3 (optional)																															
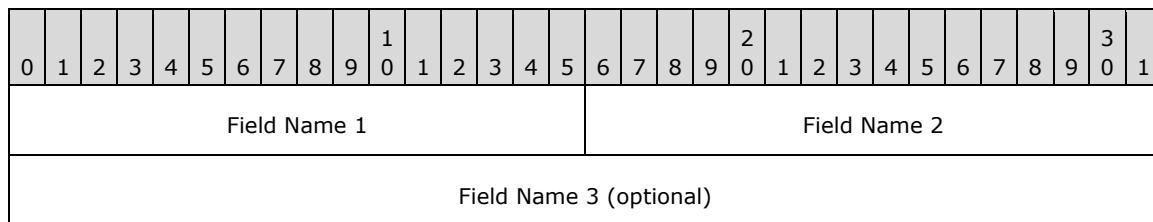
The bit numbering convention that is followed is big-endian; namely, the most significant bit of the first byte to traverse the network is bit 0, and the least significant bit of the last byte to traverse the network is in bit 31. The byte order format can be different in the operating environment, so it is specified in the document for multibyte data fields.

Block technical specifications can contain the following types of normative information, where applicable:

- Classes of functionality (roles)

- Data definitions (constants, enumerations, structures, and so on)

- Directory service schema classes and attributes

- Encryption

- Message formats and processing

- Timers, events, and event processing

- Transport

- Vendor-extensible fields

- **XML schema definitions (XSDs)**

2.2.3.3 Data Structure

A data structure technical specification specifies a common structure or an extension to a common data structure that is used by multiple protocols. The description does not include related behavior. Behavior is defined in the specifications for protocols that use the data structure.

Data structure technical specifications specify how data is decoded and encoded as it is processed in the specific operating environment. If the data is in XML, the schemas and namespaces are specified.

Data structure technical specifications can contain the following types of normative information, where applicable:

- Data definitions (constants, enumerations, structures, and so on)

- Encryption

- Schemas and namespaces

- Vendor-extensible fields

Specific data structure technical specifications that are cited normatively by other technical specifications are described in the following subsections.

2.2.3.3.1 Active Directory Objects

Active Directory objects are normative definitions of the objects that exist in the Microsoft Active Directory. The objects of type "attribute" that exist in the Active Directory schema are presented in the following technical specifications:

- [MS-ADA1]: Active Directory Schema Attributes A-L

- [MS-ADA2]: Active Directory Schema Attributes M

- [MS-ADA3]: Active Directory Schema Attributes N-Z

The objects of type "class" that exist in the Active Directory schema are presented in the following technical specification:

- [MS-ADSC]: Active Directory Schema Classes

The objects of types "attribute" and "class" that exist in the **Active Directory Lightweight Directory Services (AD LDS)** schema are presented in the following technical specification:

- [MS-ADLS]: Active Directory Lightweight Directory Services Schema

These specifications are not intended to stand on their own; they are intended to serve as appendixes to the Active Directory Technical Specification. For details about the Active Directory schema, see [MS-ADTS]: Active Directory Technical Specification.

2.2.3.3.2 Windows Data Types

Windows data types are common data types that are used in the Windows protocols documentation set. They are presented in the following document:

- [MS-DTYP]: Windows Data Types

The Windows data types are categorized as follows:

- Common base types: Primitive data types, including **IDL** base types, which are natively supported by Microsoft compilers; for example, byte, handle_t, and wchar_t.

- Common data types: Simple data types, including aliases for C/C++ primitive data types, which are frequently used by many protocols; for example, BYTE, DWORD, and WCHAR.

- Common data structures: User-defined data types, including those supporting RPC protocols, which are defined in C/C++ or **ABNF**; for example, FILETIME, GUID, and RPC_UNICODE_STRING.

- Constructed security types: Types used to define structures that are specific to the Windows security model; for example, **security identifier (SID)**, and SECURITY_DESCRIPTOR.

- Impersonation abstract interface: Methods for managing the underlying security infrastructure for server roles in Windows.

2.2.3.3.3 Windows Error Codes

Windows error codes are method return values and status codes that are used in the Windows protocols documentation set. They are presented in the following document:

- [MS-ERREF]: Windows Error Codes

The following information is provided in the Windows error codes specification:

- HRESULT: The HRESULT data type is commonly used as a return value from RPC methods. The most significant bit is used to indicate success or failure. The following details about HRESULT are provided:

  - The structure of the HRESULT data type.

  - Requirements for vendor-specific values.

  - Values in a 32-bit numbering space.

  - Descriptions of the error conditions returned.

  - Parameter substitution in value descriptions.

  - The HRESULT from WIN32 error code macro, which converts a Win32 error code to an HRESULT value.

- Win32 error codes: Win32 error codes are 16-bit values extended to 32-bits with zero fill, and they can be returned by methods or in structures. In general, they are not vendor-extendable. The following details about Win32 error codes are provided:

  - Success and error values.

  - Descriptions of the error conditions returned

  - Parameter substitution in value descriptions.

- NTSTATUS: The NTSTATUS data type is a standard, 32-bit structure that is used to communicate system information. The following details about Win32 error codes are provided:

  - Identification of levels of severity: Success, Informational, Warning and Error.

  - The structure of the NTSTATUS data type.

  - Requirements for vendor-specific values.

- Values in a 32-bit numbering space.

- Descriptions of the error conditions returned.

- Parameter substitution in value descriptions.

- LDAP result codes: Windows contains an implementation of the **LDAP** resultCode [RFC2251], which is used by higher-layer protocols to interpret the results of an LDAP operation. Each LDAP error value is mapped to the closest Win32 error value; this mapping is provided.

2.2.3.3.4 Windows Language Code Identifier (LCID) Reference

Windows language code identifiers (LCID) are presented in the following document:

- [MS-LCID]: Windows Language Code Identifier (LCID) Reference

Also known as culture identifiers, LCID values are used to identify specific languages for the purpose of customizing software for particular locales and cultures. For example, an LCID value can specify the way dates, times, and numbers are formatted as strings, as well as paper sizes and preferred sort order based on language elements.

The following information is provided in the Windows language code identifier reference:

- The structure of the LCID data type.

- All LCID values that are available in all versions of Windows.

- Locale-specific sort order values.

2.2.3.4 File Structure

A file structure technical specification specifies the structure and contents of a file that can be sent over the network. Rules for accessing and processing the contents of the file can be specified in this type of technical specification.

File structure technical specifications specify how data is encoded by the creator and decoded by the consumer as it is passed within the operating environment. If the data is in XML, the schemas and namespaces are specified.

File structure technical specifications can contain the following types of normative information, where applicable:

- Data definitions (constants, enumerations, structures, and so on)

- Encryption

- Portability considerations

- Record structure

- Schemas and namespaces

- Vendor-extensible fields

2.2.3.5 HTTP

An HTTP technical specification defines a protocol that uses an HTTP-based API with a simplified set of HTTP functions, such as GET and POST, to make API calls. It can also use a **Representational State Transfer (REST)** client/server architecture in which requests and responses are built around the transfers of resource representations, which are documents that capture the current or intended

states of resources. HTTP technical specifications specify the web resources that are accessed and manipulated by the protocol, HTTP operations that can be applied to the resources, and the syntax of request/response payloads.

An HTTP specification can specify either a REST-like or RESTful protocol. In general, "REST-like" refers to a protocol that uses simple URI-based requests to a specific domain over HTTP. "RESTful" refers to a protocol that conforms to certain constraints including a client/server architecture, statelessness, and a uniform interface.

HTTP specifications can contain the following types of normative information, where applicable:

- Augmented Backus-Naur Form (ABNF) syntax

- Classes of functionality (roles)

- **Conceptual Schema Definition Language (CSDL)** schemas

- Custom HTTP methods and headers

- Data definitions (constants, enumerations, structures, and so on)

- Directory service schema elements

- Encryption

- **JavaScript Object Notation (JSON)** definitions

- Namespaces

- **URI** parameters

- XML schema definitions (XSDs)

If an HTTP protocol uses CSDL elements, the following normative reference could be included:

- [MC-CSDL]: Conceptual Schema Definition File Format

If an HTTP protocol uses an open data model, the following normative reference could be included:

- [MS-ODATA]: Open Data Protocol (OData) Specification

2.2.3.6 RPC

An RPC technical specification defines a method-based protocol, which uses a formal syntax with calls and return codes, and in which a protocol client initiates all communication and a protocol server responds to the protocol client. RPC specifies request/response protocols, in which all arguments come directly from the higher layer, and all return codes, output parameters, and exceptions are passed unmodified.

Some RPC specifications specify protocols that use the Distributed Component Object Model (DCOM) as their transport, which uses the TCP/IP RPC protocol sequence. Such protocols can use the DCOM security and authentication framework and interface activation.

RPC specifications use Interface Definition Language (IDL) to specify the syntax of protocol methods and marshaling of protocol data. Such interface definitions can be compiled by using the **Microsoft Interface Definition Language (MIDL)** compiler with command-line parameters, as follows: "midl /target NT60 /nologo". To avoid duplicating the definitions of common data types, RPC protocol IDL sections can contain one or more import directives for IDL data from other technical specifications, including the following:

- [MS-DCOM]: Distributed Component Object Model (DCOM) Remote Protocol Appendix A: Full IDL (section 6)

- [MS-DTYP]: Windows Data Types Appendix A: Full MS-DTYP IDL (section 5)

- [MS-OAUT]: OLE Automation Protocol Specification Appendix A: Full IDL (section 6)

RPC specifications can contain the following types of normative information, where applicable.

- Class IDs or **UUIDs** of interfaces

- Classes of functionality (roles)

- Custom-marshaled data structures

- Data definitions (constants, enumerations, structures, and so on)

- Directory service schema classes and attributes

- Encryption

- Microsoft Interface Definition Language (MIDL) options

- **Named pipes**

- Schemas and namespaces

- Security service provider

- Standard **TCP** or **UDP** port

- Well-known **endpoints**

RPC specifications include the following normative reference:

- [MS-RPCE]: Remote Procedure Call Protocol Extensions

For DCOM-based RPC protocols, the following normative reference is included:

- [MS-DCOM]: Distributed Component Object Model (DCOM) Remote Protocol Specification

2.2.3.7 SOAP

A Simple Object Access Protocol (SOAP) technical specification defines a packet-based protocols. Unlike block technical specifications, SOAP specifies request/response, SOAP-based protocols that use Web Services Description Language (WSDL). SOAP technical specifications typically apply to Web services.

A SOAP technical specification uses the mechanisms defined in **XML Schema (XSD)** and WSDL to define the protocol as closely as those mechanisms allow. SOAP services support the feature of returning XSD and WSDL documents that describe the protocol that the service implements. If the XSD includes character data that follows a particular grammar that cannot be described in the XSD, the grammar can be defined in the technical specification, or a normative reference to the grammar definition is provided. If the character data has some internal syntax that is not defined in a normative reference, the syntax is specified in the technical specification by using "Augmented" BNF (ABNF).

If the XSD includes binary data that follows a particular grammar that cannot be described in the XSD, the grammar is defined in the technical specification, or a normative reference to the grammar definition is provided. If the grammar is defined in the technical specification, the packet definition format used in block technical specifications (see section 2.2.3.2) could be used.

SOAP technical specifications can contain the following types of normative information, where applicable:

- Augmented Backus-Naur Form (ABNF) syntax

- Classes of functionality (roles)

- Directory service schema elements

- Namespaces

- WSDL messages

- XML schema definitions (XSDs)

2.2.3.8 Standards Support

A structure support technical specification describes how a Microsoft implementation or set of implementations conform to or vary from an existing specification such as a standard, a third-party specification, or any published specification.

A standards support document is essentially an appendix of implementation choices made and information about those choices. For example, a standard might specify that an implementation provides any of seven date/time values. A standards support document would indicate which date/time values are supported in the Microsoft implementation. If the implementation provides an eighth value—that is, one not from the standard, that variance from the standard would be defined in a normative section of the standards support document.

Standards support technical specifications can contain the following types of normative information, where applicable:

- Error handling variations from the standard

- Extensions to the standard

- Normative variations from the standard

2.3   Reference Documents

Reference documents specify informative information that is supplementary to the overview and technical documents in the Windows documentation set and are generally not specific to a particular protocol or technical area. They consolidate related information and are intended to be helpful for understanding and using the documentation set.

Reference documents contain the following categories of information:

- Windows protocols Unicode reference

2.3.1 Windows Protocols Unicode Reference

This reference provides related **Unicode** processing algorithms on the Windows platform, including **Unicode string** comparison and conversion of Unicode to legacy **code pages**. They are presented in the following document:

- [MS-UCODEREF]: Windows Protocols Unicode Reference

The following information is provided in the Windows protocols Unicode reference:

- **UTF-16** string comparison: Provides linguistic-specific comparisons between two Unicode strings and provides the comparison result based on the language and region for a specific user.

- Mapping of UTF-16 strings to earlier **ANSI** code pages: Converts Unicode strings to strings in the earlier code pages that are used in older versions of Windows and the applications that are written for these earlier code pages.

- The mechanism for the transport of Windows protocols Unicode reference messages.

- Windows protocols Unicode reference message syntax.

2.4   External References

This section describes general categories of external references used by the Windows protocols documentation set, including the following:

- Information made available by the Microsoft Corporation

- Documents published by standards bodies.

- RFCs

2.4.1   Microsoft Corporation

Microsoft makes available supplementary documentation that can be cited by Windows technical documents to provide helpful information to the implementer, including the following:

- Interoperability documents from other divisions of Microsoft, including Microsoft Office Protocols, Exchange Server Protocols, SharePoint Products and Technologies Protocols, and Microsoft SQL Server Protocols.

- Microsoft Developers Network (MSDN), providing informative content and resources for Microsoft products and technologies.

- TechNet Wiki, providing community-generated content about Microsoft technologies.

2.4.2   Standards Bodies

This section describes the information from non-Microsoft standards bodies that is cited normatively and informatively in the Windows protocols documentation set.

American National Standards Institute (ANSI)**:** Represents the U.S. standards and conformity assessment system and oversees the creation and use of norms and guidelines in nearly all business sectors. ANSI also accredits programs that assess conformance to standards and operates the National Standards System Network (NSSN).

International Committee on Information Technology Standards (INCITS)**:** INCITS is part of ANSI. It is the primary U.S. standards group in the field of Information and Communications Technologies (ICT), encompassing storage, processing, transfer, display, management, organization, and retrieval of information. INCITS also serves as ANSI's Technical Advisory Group for ISO/IEC Joint Technical Committee 1. JTC 1 is responsible for international standardization in the field of Information Technology.

Distributed Management Task Force (DMTF)**:** An IT industry organization that facilitates the development, validation, and promotion of systems management standards.

ECMA International**:** Standards organization for communications technology and consumer electronics.

Federal Information Processing Standards (FIPS): Standards and guidelines issued by the National Institute of Standards and Technology (NIST). NIST develops FIPS when there are compelling Federal government requirements such as for security and interoperability and there are no acceptable industry standards or solutions.

Institute of Electrical and Electronics Engineers (IEEE) Standards Association: The IEEE-SA helps develop and advance global technologies by creating standards that drive the functionality, capabilities. and interoperability of a wide range of products and services.

International Organization for Standardization (ISO): ISO is a network of the national standards institutes of 161 countries. Member institutions come from both government and the private sector. ISO enables a consensus to be reached on solutions that meet both the requirements of business and the broader needs of society.

International Telecommunications Union (ITU): The United Nations agency for information and communication technology issues, and the global focal point for governments and the private sector in developing networks and services.

Internet Assigned Numbers Authority (IANA): The organization responsible for coordinating some of the key elements that keep the Internet running smoothly. IANA provides technical coordination of key parts of the Internet.

Internet Engineering Task Force (IETF): The IETF helps to make the Internet work better by producing high quality, relevant technical documents that influence the way people design, use, and manage the Internet.

Internet Society (ISOC): The Internet Society (ISOC) is a nonprofit organization that provides leadership in Internet -related standards, education, and policy.

National Institute of Standards and Technology (NIST): An agency of the U.S. Department of Commerce, the mission of NIST is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.

Organization for the Advancement of Structured Information Standards (OASIS): OASIS is a nonprofit consortium that drives the development, convergence and adoption of open standards. OASIS promotes industry consensus and produces worldwide standards for security, cloud computing, SOAP, web services, the Smart Grid, electronic publishing, emergency management, and other areas.

The Open Group: The Open Group is a vendor- and technology-neutral consortium that works towards enabling access to integrated information within and between enterprises based on open standards and global interoperability.

The Unicode Consortium: The Unicode Consortium is a nonprofit organization that develops standards in the area of internationalization including defining the behavior and relationships between Unicode characters.

Trusted Computing Group, Trusted Network Connect: The Trusted Computing Group (TCG) is a nonprofit organization that is focused on developing, defining, and promoting open standards for trusted computing. TCG's Trusted Network Connect (TNC) network security offers interoperable standards for secure guest access, user authentication, endpoint integrity, clientless endpoint management, and coordinated security.

World Wide Web Consortium (W3C): The W3C is an international community that develops standards to ensure the long-term growth of the web. The W3C mission is to develop protocols and guidelines that ensure the long-term growth of the web.

2.4.3 RFCs

RFCs constitute a large body of standards and proposed standards describing methods, behaviors, research, and innovations applicable to the working of network-connected systems. Technical specifications in the Windows documentation set make numerous references to RFCs via the RFC Editor website.

3 Navigating the Documentation Set

This section describes how to navigate within the online MSDN Library to find information in the Windows protocols documentation set. Navigating to the Windows protocols documentation set starts at the Open Specifications node of the MSDN Library as shown in the following diagram. All documents can be reached from this node.
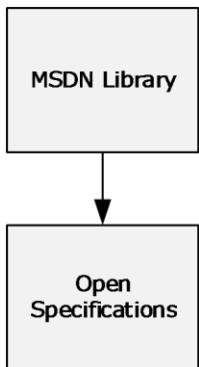
Figure 2: Open Specifications

The subsections that follow describe the following ways to find documents in the MSDN Library:

- By MSDN node (section 3.1): The structure of the Open Specifications node and the documents within it.

- By document type (section 3.2): Where specific types of documents are located in the Open Specifications nodes.

- By tasks and scenarios (section 3.3): Technical specifications that support the implementation of common tasks and scenarios.

- By document citation (section 3.4): How documents are linked to each other.

A complete site map of the Open Specifications node tree for the Windows protocols documentation set is presented in Appendix B: Open Specification Site Map (section 5).

3.1 By MSDN Node

This section describes the documents in the Windows protocols documentation set that are found in each node of the MSDN Library, starting from the Open Specifications node. That node contains the nodes shown in the following diagram.
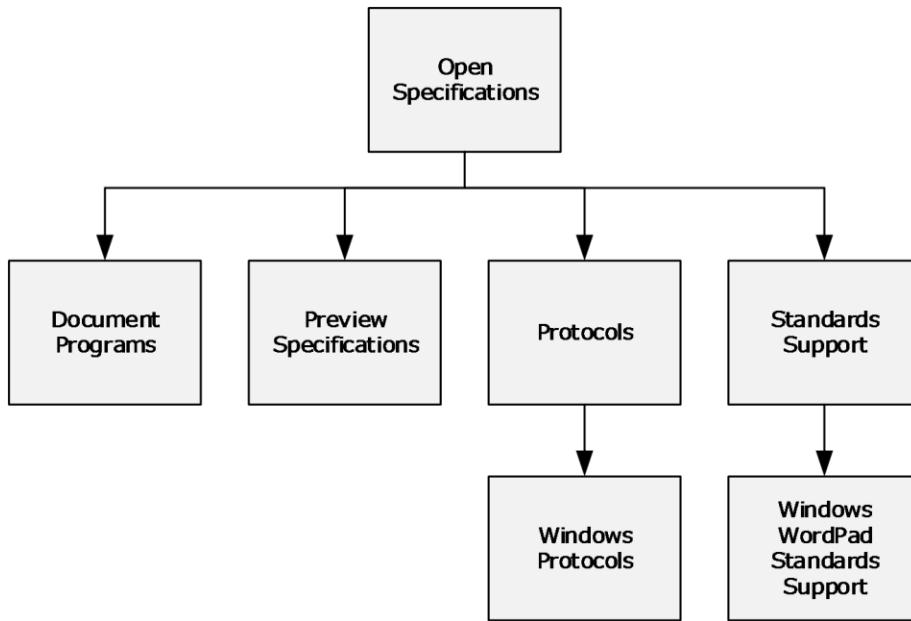
Figure 3: Open Specifications with additional nodes

The nodes shown in the diagram can be traversed to reach overview and reference documents and technical specifications. They reflect the different ways in which access to the documentation set is organized, as follows:

Document Programs: This node is organized according to the MIP and WSPP licensing programs described in Licensing (section 1.6). This node is described in section 3.1.1.

Preview Specifications: This node provides access to prerelease versions of documents for community review and feedback. The preview periods for each specification presented in this way are determined by the individual teams responsible for the documentation. Not every specification is published for preview. After the preview period, the specification is published in the appropriate location in the Open Specifications library for further reference.

Windows Protocols: This node is organized according to the following document types:

- Overview documents

- Technical documents

- References

This node is described in section 3.1.2.

Windows WordPad Standards Support: This node provides access to documents describing support information for the following standards that are implemented in the Windows WordPad application:

- [ECMA-376] ECMA International, "Office Open XML File Formats": A family of XML schema definitions (XSDs) for **Office Open XML (OOXML)**, which are used for office productivity applications.

- [ODF1.1] OASIS Standard, "Open Document Format for Office Applications (OpenDocument) v1.1": An XSD with semantics and structures for office documents, which supports transformations using an **XSL Transformation (XSLT)** or similar XML-based tools.

The documents on this node are based on the Standards Support template (section 2.2.3.8).

3.1.1   Document Programs

The Document Programs node is reached from the Open Specifications node as shown in By MSDN Node (section 3.1). From this node it is possible to navigate to the nodes shown in the following diagram.
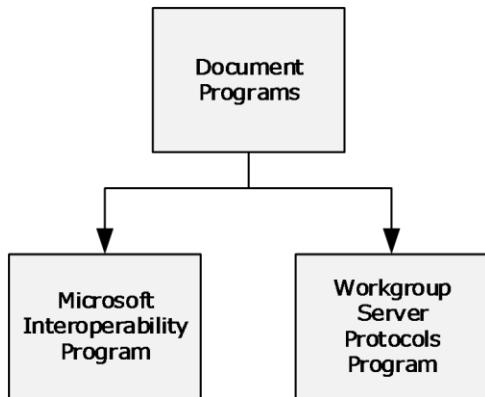
Figure 4: Document Programs

The nodes shown in the diagram reflect the different licensing programs that are available to the implementer. These nodes are described in the following subsections.

3.1.1.1   Microsoft Interoperability Program

The Microsoft Interoperability Program node is reached from the Document Programs node as shown in Document Programs (section 3.1.1). From this node it is possible to navigate to the nodes shown in the following diagram.
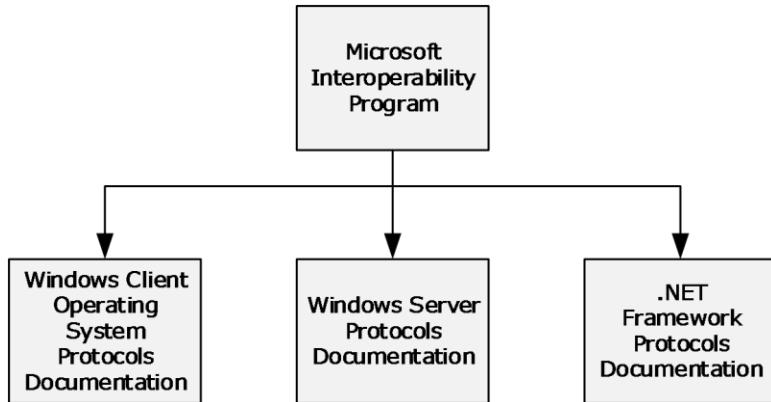
Figure 5: Microsoft Interoperability Program

The nodes shown in the diagram contain links to documents in the Microsoft Interoperability Program (MIP) licensing program, as follows:

Windows Client Operating System Protocols Documentation: This node contains links to overview documents, technical specifications, and reference documents for protocols that are implemented in the Windows Client operating system and are used to communicate with Microsoft server software products.

Windows Server Protocols Documentation: This node contains links to overview documents and technical specifications for protocols that are implemented in the Windows Server operating system and are used to communicate with other Microsoft server software products.

.NET Framework Protocols Documentation: This node contains links to technical specifications and overview documents for protocols that are implemented in an instance of the .NET Framework that are used to communicate with another instance of the .NET Framework.

3.1.1.2 Workgroup Server Protocols Program

The Workgroup Server Protocols Program node is reached from the Document Programs node as shown in Document Programs (section 3.1.1). From this node it is possible to navigate to the nodes shown in the following diagram.
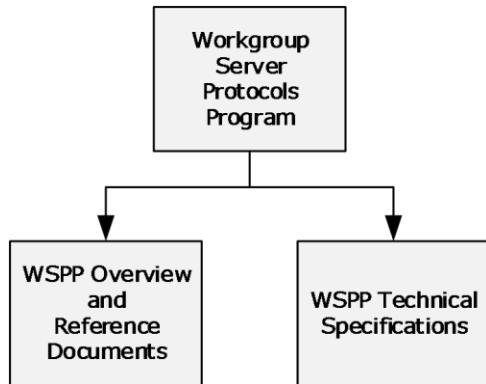
Figure 6: Workgroup Server Protocols Program

The nodes shown in the diagram contain links to documents in the Workgroup Server Protocol Program (WSPP) licensing program, as follows:

WSPP Overview and Reference Documents: This node contains links to overview and reference documents.

This node also contains links to the following technical specifications:

- [MS-DTYP]: Windows Data Types

- [MS-ERREF]: Windows Error Codes

- [MS-LCID]: Windows Language Code Identifier (LCID) Reference

WSPP Technical Specifications: This node contains links to technical specifications, which are grouped alphabetically and according to tasks and scenarios, as described in the following subsection.

3.1.1.2.1 WSPP Technical Specifications

The WSPP Technical Specifications node is reached from the Workgroup Server Protocols Program node as shown in Workgroup Server Protocols Program (section 3.1.1.2). From this node it is possible to navigate to the nodes shown in the following diagram.
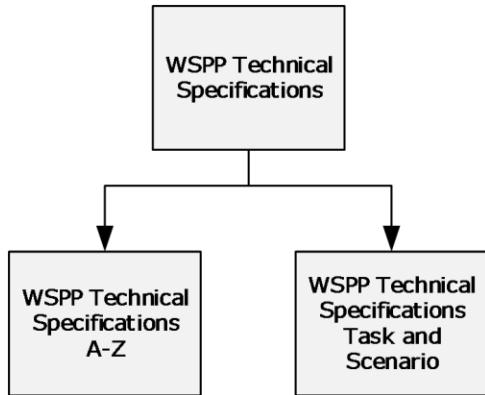
Figure 7: WSPP Technical Specifications

The nodes shown in the diagram contain links to documents in the Workgroup Server Protocol Program (WSPP) licensing program, as follows:

WSPP Technical Specifications A-Z: This node contains links to technical specifications, which are listed alphabetically.

WSPP Technical Specifications Task and Scenario: This node contains links to technical specifications, which are organized according to tasks, scenarios, and pricing models. For more information on navigating this node, see By Tasks and Scenarios (section 3.3).

3.1.2 Windows Protocols

The Windows Protocols node is reached from the Open Specifications node as shown in By MSDN Node (section 3.1). From this node it is possible to navigate to the nodes shown in the following diagram.
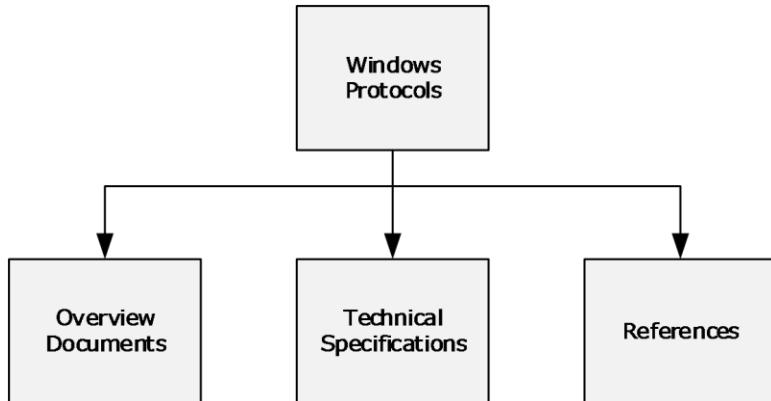
Figure 8: Windows Protocols

The nodes shown in the diagram contain links to documents in the Windows protocols documentation set, as follows:

Overview Documents: This node contains links to the following overview documents:

- [MS-ADFSOD]: Active Directory Federation Services (AD FS) Protocols Overview

- [MS-ADOD]: Active Directory Protocols Overview

- [MS-AUTHSOD]: Authentication Services Protocols Overview

- [MS-AZOD]: Authorization Protocols Overview

- [MS-CCROD]: Content Caching and Retrieval Protocols Overview

- [MS-CERSOD]: Certificate Services Protocols Overview

- [MS-DOCO]: Windows Protocols Documentation Roadmap

- [MS-FASOD]: File Access Services Protocols Overview

- [MS-FSMOD]: File Services Management Protocols Overview

- [MS-GPOD]: Group Policy Protocols Overview

- [MS-MQOD]: Message Queuing Protocols Overview

- [MS-MSSOD]: Media Streaming Server Protocols Overview

- [MS-NAPOD]: Network Access Protection Protocols Overview

- [MS-NETOD]: Microsoft .NET Framework Protocols Overview

- [MS-PRSOD]: Print Services Protocols Overview

- [MS-RDSOD]: Remote Desktop Services Protocols Overview

- [MS-RMSOD]: Rights Management Services Protocols Overview

- [MS-STOROD]: Storage Services Protocols Overview

- [MS-TPSOD]: Transaction Processing Services Protocols Overview

- [MS-WMOD]: Windows Management Protocols Overview

- [MS-WPO]: Windows Protocols Overview

- [MS-WSUSOD]: Windows Server Update Services Protocols Overview

Technical Documents: This node contains links to technical specifications for protocols, including extensions to industry-standard or other published protocols, which are used by Windows Server to interoperate with Windows Client operating systems.

References: This node contains links to the following reference document:

- [MS-UCODEREF]: Windows Protocols Unicode Reference

This node also contains links to the following technical specifications:

- [MS-DTYP]: Windows Data Types

- [MS-ERREF]: Windows Error Codes

- [MS-LCID]: Windows Language Code Identifier (LCID) Reference

3.2 By Document Type

This section describes how to find documents in the Windows protocols documentation set according to the document types described in Documentation Contents (section 2):

- Overview documents (section 2.1)

- Technical specifications (section 2.2)

- Reference documents (section 2.3)

This information is presented relative to the following nodes:

- Document Programs

- Windows Protocols

The locations of these nodes relative to the Open Specifications node are shown in By Node (section 3.1).

3.2.1 Document Programs

This section shows the location of documents by type relative to the Document Programs node.

3.2.1.1 Overview Documents

Overview documents of the Windows protocols documentation set can be reached from the Document Programs node as shown in the following diagram.
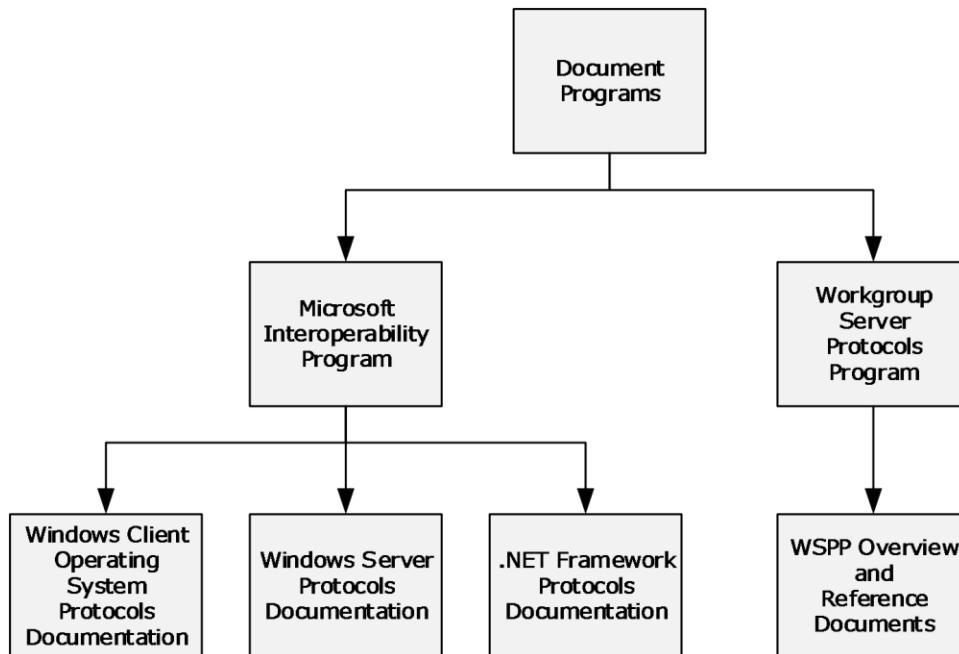
Figure 9: Overview documents

The nodes shown in the diagram contain links to overview documents, as follows:

Windows Client Operating System Protocol Documentation: This node contains links to overview documents for protocols that are implemented in the Windows Client operating system.

Windows Server Protocol Documentation: This node contains links to overview documents for protocols that are implemented in the Windows Server operating system.

.NET Framework Protocol Documentation: This node contains links to overview documents for protocols that are implemented in an instance of the .NET Framework.

WSPP Overview and Reference Documents: This node contains links to overview documents for the technologies in the Workgroup Server Protocol Program (WSPP) licensing program.

3.2.1.2 Technical Specifications

Technical specifications of the Windows protocols documentation set can be reached from the Document Programs node as shown in the following diagram.
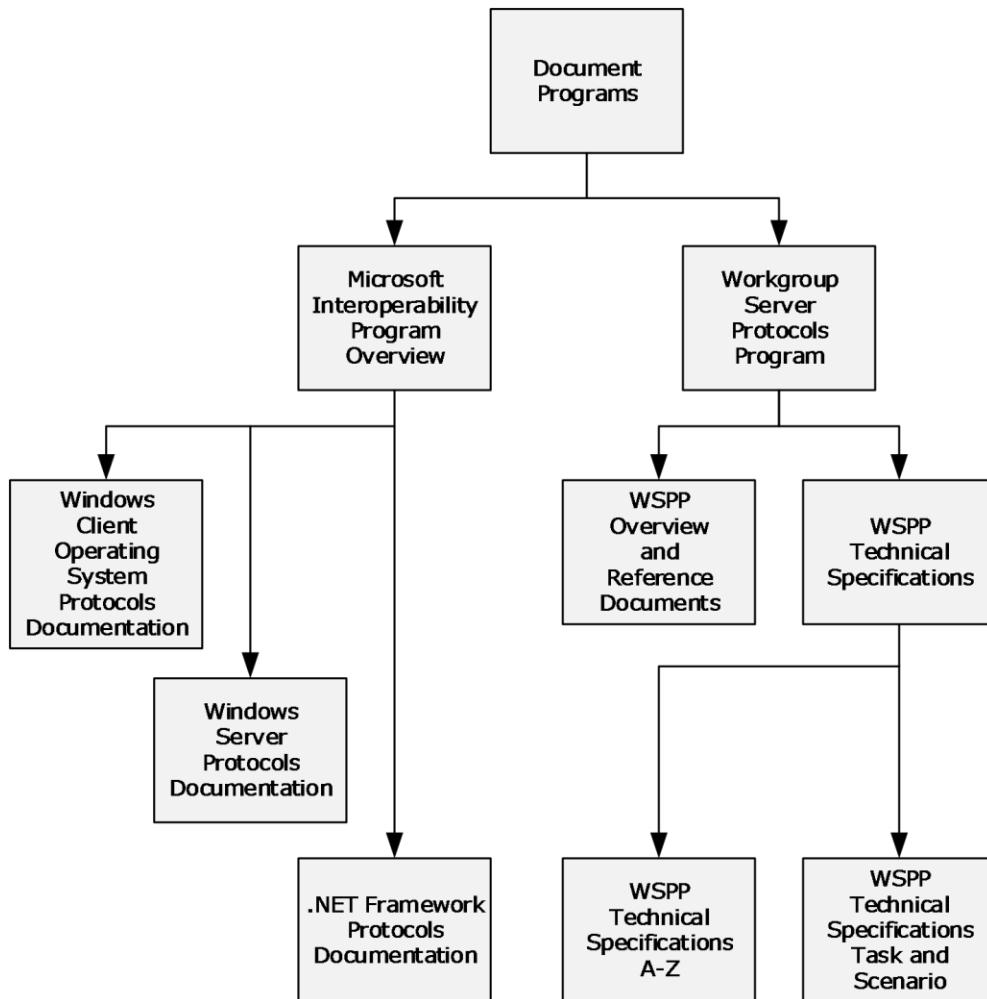
Figure 10: Technical specifications

The nodes shown in the diagram contain links to technical specifications, as follows:

Windows Client Operating System Protocols Documentation: This node contains links to technical specifications for protocols that are implemented in the Windows Client operating system and are used to communicate with Microsoft server software products.

Windows Server Protocols Documentation: This node contains links to technical specifications for protocols that are implemented in the Windows Server operating system and are used to communicate with other Microsoft server software products.

.NET Framework Protocols Documentation: This node contains links to technical specifications for protocols that are implemented in an instance of the .NET Framework that are used to communicate with another instance of the .NET Framework.

WSPP Overview and Reference Documents: This node contains links to the following technical specifications:

- [MS-DTYP]: Windows Data Types

- [MS-ERREF]: Windows Error Codes

- [MS-LCID]: Windows Language Code Identifier (LCID) Reference

WSPP Technical Specifications A-Z: This node contains links to technical specifications, which are listed alphabetically.

WSPP Technical Specifications Task and Scenario: This node contains links to technical specifications, which are organized according to tasks, scenarios, and pricing models. For more information on navigating this node, see By Tasks and Scenarios (section 3.3).

3.2.1.3 Reference Documents

Reference documents of the Windows protocols documentation set can be reached from the Document Programs node as shown in the following diagram.

```
                    ┌─────────────┐
                    │  Document   │
                    │  Programs   │
                    └─────────────┘
                           │
              ┌────────────┴────────────┐
              │                         │
     ┌─────────────────┐       ┌─────────────────┐
     │   Microsoft     │       │   Workgroup     │
     │ Interoperability│       │    Server       │
     │    Program      │       │   Protocols     │
     │                 │       │    Program      │
     └─────────────────┘       └─────────────────┘
              │                         │
     ┌─────────────────┐       ┌─────────────────┐
     │    Windows      │       │      WSPP       │
     │    Client       │       │    Overview     │
     │   Operating     │       │      and        │
     │    System       │       │   Reference     │
     │   Protocols     │       │   Documents     │
     │ Documentation   │       │                 │
     └─────────────────┘       └─────────────────┘
```
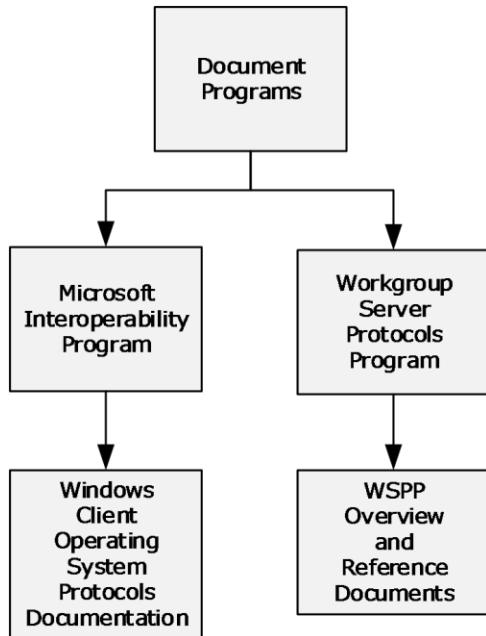
Figure 11: Reference documents

The nodes shown in the diagram contain links to references documents, as follows:

Windows Client Operating System Protocol Documentation: This node contains links to the following reference document:

- [MS-UCODEREF]: Windows Protocols Unicode Reference

WSPP Overview and Reference Documents: This node contains links to the following reference document:

- [MS-UCODEREF]: Windows Protocols Unicode Reference

3.2.2 Windows Protocols

This section shows the location of documents by type relative to the Windows Protocols node.

3.2.2.1 Overview Documents

Overview documents of the Windows protocols documentation set can be reached from the Windows Protocols node as shown in the following diagram.
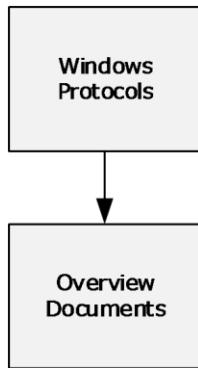
Figure 12: Overview documents

Overview Documents: This node contains links to the overview documents listed in Windows Protocols (section 3.1.2).

3.2.2.2 Technical Specifications

Technical specifications of the Windows protocols documentation set can be reached from the Windows Protocols node as shown in the following diagram.
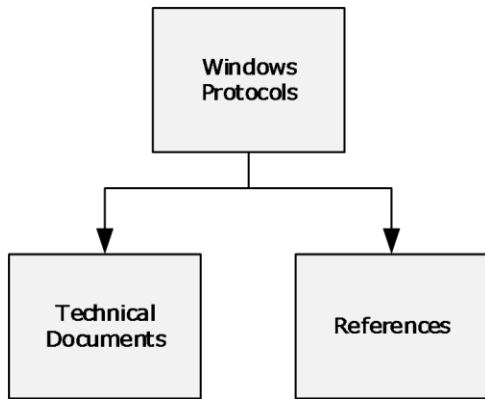
Figure 13: Technical specifications

The nodes shown in the diagram contain links to technical specifications, as follows:

Technical Documents: This node contains links to technical specifications for protocols, including extensions to industry-standard or other published protocols, which are used by Windows Servers to interoperate with Windows Client operating systems.

References: This node contains links to the following technical specifications:

- [MS-DTYP]: Windows Data Types

- [MS-ERREF]: Windows Error Codes

- [MS-LCID]: Windows Language Code Identifier (LCID) Reference

3.2.2.3 Reference Documents

Reference documents of the Windows protocols documentation set can be reached from the Windows Protocols node as shown in the following diagram.
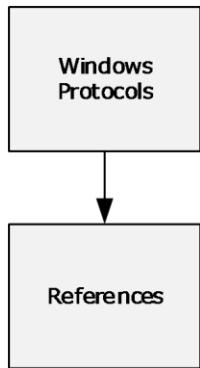
Figure 14: Reference documents

References: This node contains links to the following reference document:

- [MS-UCODEREF]: Windows Protocols Unicode Reference

3.3 By Tasks and Scenarios

Documents in the Windows protocols documentation set are categorized according to tasks, scenarios, and pricing models in the WSPP Technical Specifications Task and Scenario node, which is reached from the Open Specifications node as shown in the following diagram.
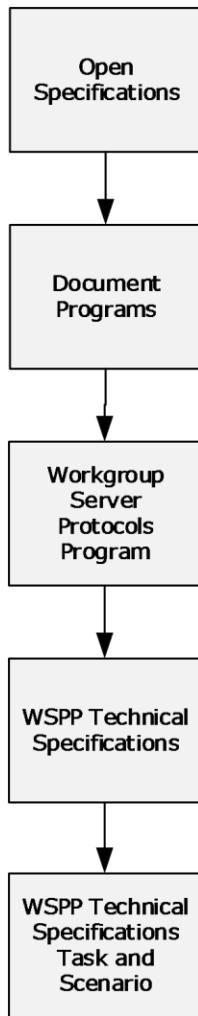
Figure 15: WSPP Technical Specifications Task and Scenario

A task is a collection of protocols used to implement a specific but fairly broad system function. Relevant tasks include:

- File and print

- User and group administration

- Networking transport

A scenario is a more limited set of functions that is part of a specific task. Relevant file and print scenarios include:

- Base file services

- **Distributed File System (DFS)** and **File Replication Service (FRS)** server

- Print RPC services

- Internet file print services

- Advanced file services

Relevant user and group administration scenarios include:

- Base authentication and authorization

- Domain services interaction server

- Multi-factor authentication & certificate server

- Group Policy server

- Systems health management server

- Directory and **global catalog (GC)** replication server

- **Kerberos** group membership

- Windows remote **registry** services

- **Windows Event** logging services

- Network time services

- Network connection management

- Remote procedure calls (RPCs)

- **Network Access Protection (NAP)**

- Rights management services

Technical specifications are also grouped by pricing model, as follows:

- Royalty-free protocols

- One-time flat fee (uniform pricing) protocols

- One-time flat fee (variable pricing) protocols

3.4   By Document Citation

It is possible to navigate to every other document in the Windows protocols documentation set from this roadmap document. The following figure shows the hierarchy of citations in the documentation set.
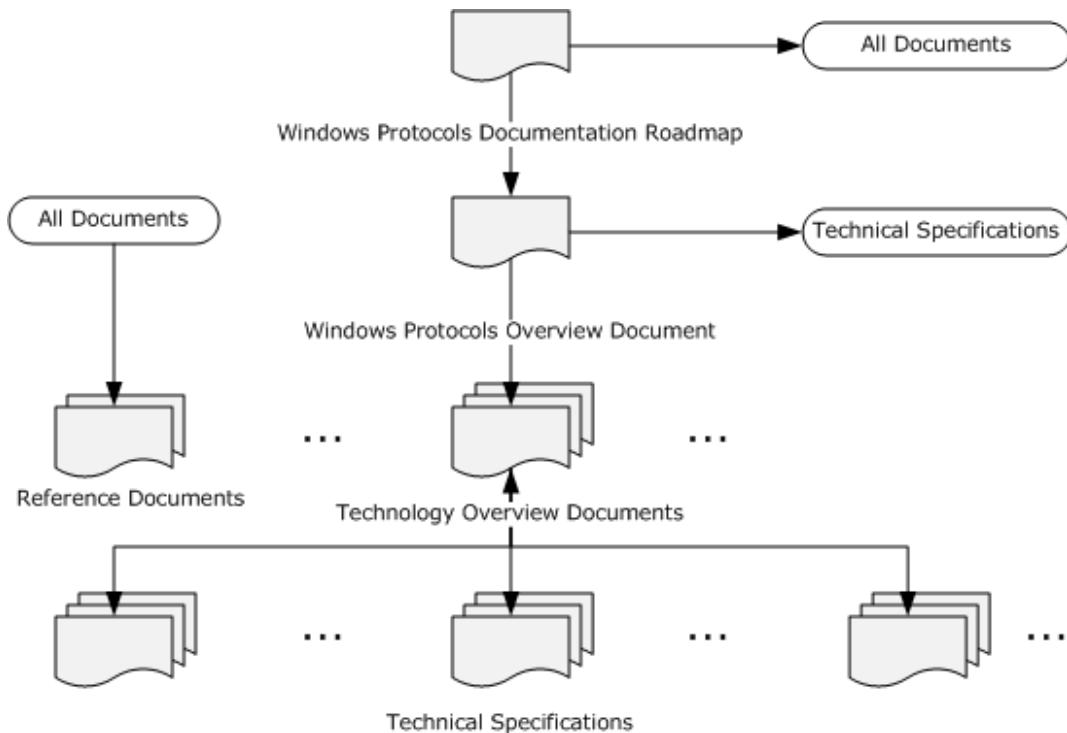
Figure 16: Citations in the Windows protocols documentation set

The connections represented in this figure can be summarized as follows:

- The Windows Protocols Documentation Roadmap contains links to all other types of documents.

- The Windows Protocols Overview contains links to technology overviews, technical specifications, and reference documents.

- Technology overview documents contain links to technical specifications and reference documents.

- Technical specifications contain links to technology overviews and reference documents.

- All documents can contain links to reference documents.

The contents of each type of document shown in the figure are described in Documentation Contents (section 2).

Each technical specification contains lists of the normative and informative references it cites, with links. References that are part of the Windows protocols documentation set do not include dates of publication, because the citations always link to the latest version. References to other documents include a publishing year when one is available.

The subsections in this section describe the types of links in the Windows protocols documentation set.

3.4.1 Normative Citations

Normative citations refer to information that is required in order to understand or implement the technology defined in a specification or for that technology to work.

Citations to normative content are distinguished by the use of the words "defined", "specified", and "details".

3.4.1.1 External Normative Citations

External citations to normative content include references to any of the following:

- Documents published by standards organizations (section 2.4.2).

- RFCs (section 2.4.3).

- Normative sections in other Windows technical specifications (section 3.4.1.2).

All external normative documents are listed in the normative references section of the referencing technical specification.

3.4.1.2 Internal Normative Citations

Internal citations to normative content are references to normative sections within a technical specification. The sections—including their subsections—that contain normative content in a technical specification vary according to the template type, as follows:

Algorithm protocol template:

- 1.6 Standards Assignments

- 2.0 Algorithm Details

Block, HTTP, RPC, and SOAP protocol templates:

- 1.5 Prerequisites and Preconditions

- 1.8 Vendor Extensible Fields

- 1.9 Standards Assignments

- 2.0 Messages

- 3.0 Protocol Details

Data and file structure templates:

- 1.7 Vendor -Extensible Fields

- 2.0 Structures

For more information about the document templates, see section 2.2.

3.4.2 Informative Citations

Informative citations refer to information that is not required in order to understand or implement the technology defined in a specification, such as background or implementation-specific information.

Citations to informative content are distinguished by the use of the words "described" and "information".

3.4.2.1 External Informative Citations

External citations to informative content include references to any of the following:

- Any content that could qualify as an external normative reference (section 3.4.1.1).

- MSDN articles.

- Windows overview documents (section 2.1).

- Informative sections in other Windows technical specifications (section 2.2).

- Windows reference documents (section 2.3).

All external informative documents are listed in the informative references section of the referencing technical specification.

3.4.2.2 Internal Informative Citations

Internal citations to informative content are references to informative sections within a technical specification. Any content that is not normative is by definition informative, including Windows product behavior. The sections—including their subsections—that contain informative content in a technical specification vary according to the template type.

For more information about the document templates, see section 2.2.

4   Appendix A: Cross-Reference Matrixes

4.1   Technical Specification Cross-Reference Matrix

This section contains a table that provides, for each technical specification in the Windows protocols documentation set, the following information:

- A link to the document

- Document title

- Template type (section 2.2)

- Technical area (section 2)

- Protocols specified

- Other technical specifications normatively cited

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MC-BUP]	Background Intelligent Transfer Service (BITS) Upload Protocol Specification	Block	Systems Management	Background Intelligent Transfer Service (BITS) Upload Protocol	[MS-BPCR] [MS-ERREF] [MS-NTHT] [MS-SMB]
[MC-CCFG]	Server Cluster: Configuration (ClusCfg) Protocol Specification	RPC	Systems Management	Server Cluster: Configuration (ClusCfg) Protocol	[MS-CMRP] [MS-DCOM] [MS-ERREF] [MS-OAUT] [MS-RPCE] [MS-RRP] [MS-SCMR]
[MC-COMQC]	Component Object Model Plus (COM+) Queued Components Protocol Specification	Block	Application Services	Component Object Model Plus (COM+) Queued Components Protocol	[MS-COM] [MS-DCOM] [MS-MQDMPR] [MS-MQMP] [MS-MQMQ] [MS-OAUT]
[MC-CSDL]	Conceptual Schema Definition File Format	Structure	Application Services	Conceptual Schema Definition File Format	None
[MC-DPL4CS]	DirectPlay 4 Protocol: Core and Service Providers Specification	Block	Multiplayer Games	DirectPlay 4 Protocol: Core and Service Providers	[MC-DPL4R] [MC-DPLVP] [MS-DPDX] [MS-ERREF] [MS-NLMP]
[MC-DPL4R]	DirectPlay 4 Protocol: Reliable Specification	Block	Multiplayer Games	DirectPlay 4 Protocol	[MC-DPL4CS] [MS-DPDX]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MC-DPL8CS]	DirectPlay 8 Protocol: Core and Service Providers Specification	Block	Multiplayer Games	DirectPlay 8 Protocol: Core and Service Providers	[MC-DPL8R] [MS-DPDX] [MS-ERREF]
[MC-DPL8R]	DirectPlay 8 Protocol: Reliable Specification	Block	Multiplayer Games	DirectPlay 8 Protocol	[MS-DPDX] [MS-DTYP]
[MC-DPLHP]	DirectPlay 8 Protocol: Host and Port Enumeration Specification	Block	Multiplayer Games	DirectPlay 8 Protocol: Host and Port Enumeration	[MC-DPL8CS] [MC-DPL8R] [MS-DPDX] [MS-DTYP]
[MC-DPLNAT]	DirectPlay 8 Protocol: NAT Locator Specification	Block	Multiplayer Games	DirectPlay 8 Protocol: NAT Locator	[MC-DPL8CS] [MC-DPL8R] [MS-DPDX] [MS-DTYP]
[MC-DPLVP]	DirectPlay Voice Protocol Specification	Block	Multiplayer Games	DirectPlay Voice Protocol	[MC-DPL4CS] [MC-DPL8CS] [MC-DPL8R] [MS-DPDX] [MS-DTYP] [MS-ERREF]
[MC-DRT]	Distributed Routing Table (DRT) Version 1.0 Specification	Block	Home server	Distributed Routing Table (DRT) Version 1.0	[MS-PNRP]
[MC-DTCXA]	MSDTC Connection Manager: OleTx XA Protocol Specification	Block	Application Services	MSDTC Connection Manager: OleTx XA Protocol	[MS-CMP] [MS-CMPO] [MS-DTCO] [MS-DTYP] [MS-ERREF]
[MC-EDMX]	Entity Data Model for Data Services Packaging Format	Structure	Application Services	Entity Data Model for Data Services Packaging Format	[MC-CSDL]
[MC-IISA]	Internet Information Services (IIS) Application Host COM Protocol Specification	RPC	Application Services	Internet Information Services (IIS) Application Host COM Protocol	[MS-DTYP] [MS-ERREF] [MS-OAUT] [MS-RPCE]
[MC-MQAC]	Message Queuing (MSMQ): ActiveX Client Protocol Specification	RPC	Application Services	Message Queuing (MSMQ): ActiveX Client Protocol	[MS-ADTS] [MS-COM] [MS-DCOM] [MS-DTCO] [MS-DTYP] [MS-ERREF]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-MQDMPR] [MS-MQDSSM] [MS-MQMR] [MS-MQMQ] [MS-MQQB] [MS-OAUT] [MS-RPCE]
[MC-MQSRM]	Message Queuing (MSMQ): SOAP Reliable Messaging Protocol (SRMP) Specification	Block	Application Services	Message Queuing (MSMQ): SOAP Reliable Messaging Protocol (SRMP)	[MS-DTYP] [MS-MQDMPR] [MS-MQDSSM] [MS-MQMQ] [MS-MQQB]
[MC-NBFS]	.NET Binary Format: SOAP Data Structure	Structure	Application Services	.NET Binary Format: SOAP Data Structures .NET Binary Format: for XML	[MC-NBFSE] [MC-NBFX] [MC-NMF]
[MC-NBFSE]	.NET Binary Format: SOAP Extension	Structure	Application Services	.NET Binary Format: SOAP Extension .NET Binary Format for XML	[MC-NBFS] [MC-NBFX] [MC-NMF]
[MC-NBFX]	.NET Binary Format: XML Data Structure	Structure	Application Services	.NET Binary Format: XML Data Structure .NET Binary Format: for XML	[MS-OAUT]
[MC-NETCEX]	.NET Context Exchange Protocol Specification	Block	Application Services	.NET Context Exchange Protocol	None
[MC-NMF]	.NET Message Framing Protocol Specification	Block	Application Services	.NET Message Framing Protocol	[MC-NBFS] [MC-NBFSE] [MS-DTYP] [MS-MQMQ]
[MC-NPR]	.NET Packet Routing Protocol Specification	Block	Application Services	.NET Packet Routing Protocol	None
[MC-PRCH]	Peer Channel Protocol Specification	SOAP	Application Services	Peer Channel Protocol	[MC-NBFS] [MC-NBFSE] [MC-NMF] [MS-DTYP] [MS-ERREF] [MS-WSPOL]
[MC-PRCR]	Peer Channel Custom Resolver Protocol Specification	SOAP	Application Services Home server	Peer Channel Custom Resolver Protocol	[MC-NBFS] [MC-NBFSE] [MC-NMF] [MS-DTYP]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-WSPOL]
[MC-SMP]	Session Multiplex Protocol Specification	Block	Application Services	Session Multiplex Protocol	[MS-DTYP]
[MC-SQLR]	SQL Server Resolution Protocol Specification	Block	Application Services	SQL Server Resolution Protocol	None
[MS-ABTP]	Automatic Bluetooth Pairing Protocol	Block	Device-Specific	Automatic Bluetooth Pairing Protocol	None
[MS-ADA1]	Active Directory Schema Attributes A-L	None	Directory Services	Active Directory Schema Attributes A-L	[MS-ADA3] [MS-ADTS] [MS-DTYP] [MS-LSAD] [MS-SAMR]
[MS-ADA2]	Active Directory Schema Attributes M	None	Directory Services	Active Directory Schema Attributes M	[MS-ADTS] [MS-DRSR] [MS-DTYP] [MS-LSAD] [MS-RCMP] [MS-SAMR]
[MS-ADA3]	Active Directory Schema Attributes N-Z	None	Directory Services	Active Directory Schema Attributes N-Z	[MS-ADSC] [MS-ADTS] [MS-DRSR] [MS-DTYP] [MS-LSAD] [MS-SAMR]
[MS-ADCAP]	Active Directory Web Services: Custom Action Protocol Specification	SOAP	Directory Services	Active Directory Web Services: Custom Action Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADDM] [MS-ADLS] [MS-ADSC] [MS-ADTS] [MS-DRSR] [MS-DTYP] [MS-ERREF] [MS-NNS] [MS-SAMR] [MS-WSDS] [MS-WSPELD] [MS-WSTIM]
[MS-ADDM]	Active Directory Web Services:	Structure	Directory Services	Active Directory Web Services: Custom	[MS-ADCAP] [MS-ADTS]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Data Model and Common Elements			Action Protocol WS-Transfer: Identity Management Operations for Directory Access Protocol Extensions WS-Transfer: Directory Services Protocol Extensions WS-Enumeration: Directory Services Protocol Extensions	[MS-DTYP] [MS-ERREF] [MS-WSDS] [MS-WSPELD] [MS-WSTIM]
[MS-ADFSOAL]	Active Directory Federation Services OAuth Authorization Code Lookup Protocol	HTTP	Security and Identity Management	Active Directory Federation Services OAuth Authcode Lookup Protocol	None
[MS-ADFSPIP]	Active Directory Federation Services and Proxy Integration Protocol	HTTP	Security and Identity Management	Active Directory Federation Services Proxy and Web Application Proxy Integration Protocol Active Directory Federation Services and Proxy Configuration Protocol Active Directory Federation Services and Proxy Communication Protocol Federation Service Proxy Protocol	[MS-OAPX]
[MS-ADFSPP]	Active Directory Federation Service (AD FS) Proxy Protocol	Block	Security and Identity Management	Federation Service Web Agent Protocol	[MS-MWBF]
[MS-ADFSWAP]	Active Directory Federation Service (AD FS) Web Agent Protocol	SOAP	Security and Identity Management	Federation Service Web Agent and Proxy Protocol	[MS-ADTS] [MS-MWBF]
[MS-ADLS]	Active Directory Lightweight Directory Services Schema	None	Directory Services	Active Directory Lightweight Directory Services Schema	[MS-ADTS] [MS-DTYP]
[MS-ADSC]	Active Directory Schema Classes	None	Directory Services	Active Directory Schema Classes	[MS-ADTS]
[MS-ADTG]	Remote Data Services (RDS) Transport Protocol Specification	Block	Networking	DCOM Interfaces for Remote Data Services Remote Data Services Transport Protocol	[MS-DTYP] [MS-ERREF] [MS-LCID] [MS-OAUT]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
				(RDST) DCOM Interfaces for Remote Data Services Remote Data Services Transport Protocol (RDST)	
[MS-ADTS]	Active Directory Technical Specification	Block	Directory Services	Lightweight Directory Access Protocol (LDAP) V3: Microsoft Profile Active Directory Lightweight Directory Access Protocol (LDAP) Extensions Active Directory Data Structures Active Directory Algorithms	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADLS] [MS-ADSC] [MS-APDS] [MS-DRSR] [MS-DTYP] [MS-ERREF] [MS-FRS1] [MS-KILE] [MS-LSAD] [MS-MAIL] [MS-NLMP] [MS-NRPC] [MS-PAC] [MS-SAMR] [MS-SFU] [MS-SPNG] [MS-SRPL] [MS-W32T]
[MS-AIPS]	Authenticated Internet Protocol Specification	Block	Security and Identity Management	Authenticated Internet Protocol	[MS-ERREF] [MS-IKEE] [MS-KILE] [MS-NLMP]
[MS-APDS]	Authentication Protocol Domain Support Specification	Block	Security and Identity Management	Authentication Protocol Domain Support (APDS) NetLogon Remote Protocol: Challenge Handshake Authentication Protocol (CHAP)/EAP-MD5 SubAuthentication Extension	[MS-ADA3] [MS-ADTS] [MS-DPSP] [MS-DTYP] [MS-ERREF] [MS-KILE] [MS-LSAD] [MS-NLMP] [MS-NRPC] [MS-PAC] [MS-RCMP] [MS-RPCE] [MS-SAMR]
[MS-ASP]	ASP.NET State	Block	Application	ASP.NET State Server	None

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Server Protocol Specification		Services	Protocol	
[MS-AZMP]	Authorization Manager (AzMan) Policy File Format	Structure	Security and Identity Management Application Services	Authorization Manager (AzMan) Policy File Format	None
[MS-BDSRR]	Business Document Scanning: Scan Repository Capabilities and Status Retrieval Protocol Specification	SOAP	File, Fax, and Printing Services	Business Document Scanning: Scan Repository Capabilities and Status Retrieval Protocol	None
[MS-BKRP]	BackupKey Remote Protocol Specification	RPC	Security and Identity Management	BackupKey Remote Protocol	[MS-DTYP] [MS-ERREF] [MS-KILE] [MS-LSAD] [MS-NLMP] [MS-RPCE] [MS-SMB] [MS-SMB2] [MS-SPNG]
[MS-BKUP]	Microsoft NT Backup File Structure	Structure	File, Fax, and Printing Services	File Replication Service (FRS) Protocol	[MS-FRS1] [MS-FRS2] [MS-FSCC]
[MS-BPAU]	Background Intelligent Transfer Service (BITS) Peer-Caching: Peer Authentication Protocol Specification	RPC	Systems Management	Background Intelligent Transfer Service (BITS) Peercaching: Peer Authentication Protocol	[MS-DTYP] [MS-ERREF] [MS-KILE] [MS-RPCE]
[MS-BPCR]	Background Intelligent Transfer Service (BITS) Peer-Caching: Content Retrieval Protocol Specification	RPC	Systems Management	Background Intelligent Transfer Service (BITS) Peercaching: Content Retrieval Protocol	[MS-BPAU] [MS-BPDP] [MS-DTYP] [MS-ERREF]
[MS-BPDP]	Background Intelligent Transfer Service (BITS) Peer-Caching: Peer Discovery Protocol Specification	RPC	Systems Management	Background Intelligent Transfer Service (BITS) Peercaching: Peer Discovery Protocol	[MS-DTYP]
[MS-BRWS]	Common Internet File System (CIFS) Browser Protocol	RPC	File, Fax, and Printing Services	Common Internet File System (CIFS)	[MS-BRWSA] [MS-ERREF]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Specification			Browser Protocol	[MS-LSAD] [MS-MAIL] [MS-NBTE] [MS-RAP] [MS-SAMR] [MS-SMB] [MS-SRVS] [MS-WKST]
[MS-BRWSA]	Common Internet File System (CIFS) Browser Auxiliary Protocol Specification	RPC	File, Fax, and Printing Services	Common Internet File System (CIFS) Browser Auxiliary Protocol	[MS-DTYP] [MS-RPCE] [MS-SMB]
[MS-CAPR]	Central Access Policy Identifier (ID) Retrieval Protocol	RPC	File, Fax, and Printing Services	Central Access Policy ID Retrieval Protocol	[MS-DTYP] [MS-ERREF] [MS-LSAT] [MS-RPCE]
[MS-CBCP]	Callback Control Protocol Specification	Block	Networking	Callback Control Protocol	[MS-DTYP]
[MS-CDP]	Connected Devices Platform Protocol Version 3	Block	Networking	Connected Devices Platform Service Protocol	[MS-DTYP]
[MS-CER]	Corporate Error Reporting Version 1.0 Protocol Specification	Block	Systems Management	Corporate Error Reporting Version 1.0 Protocol	[MS-SMB]
[MS-CER2]	Corporate Error Reporting V.2 Protocol Specification	Block	Systems Management	Corporate Error Reporting V.2 Protocol Specification	[MS-LCID] [MS-NTHT]
[MS-CFB]	Compound File Binary File Format	Structure	Networking	Compound File Binary File Format	None
[MS-CHAP]	Extensible Authentication Protocol Method for Microsoft Challenge Handshake Authentication Protocol (CHAP) Specification	RPC	Networking	Extensible Authentication Protocol Method for Microsoft Challenge Handshake Authentication Protocol (CHAP)	None
[MS-CIFS]	Common Internet File System (CIFS) Protocol Specification	Block	File, Fax, and Printing Services	Common Internet File System (CIFS) Protocol	[MS-BRWS] [MS-DFSC] [MS-DFSNM] [MS-DTYP] [MS-ERREF] [MS-FSCC]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-LSAD] [MS-MSRP] [MS-NLMP] [MS-RAP] [MS-RPCE] [MS-SRVS]
[MS-CMOM]	MSDTC Connection Manager: OleTx Management Protocol Specification	Block	Application Services	MSDTC Connection Manager: OleTx Management Protocol	[MC-DTCXA] [MS-CMP] [MS-CMPO] [MS-CMRP] [MS-DTCLU] [MS-DTCM] [MS-DTCO] [MS-DTYP] [MS-RRP] [MS-SCMR]
[MS-CMP]	MSDTC Connection Manager: OleTx Multiplexing Protocol Specification	Block	Application Services	MSDTC Connection Manager: OleTx Multiplexing Protocol	[MS-CMPO] [MS-ERREF]
[MS-CMPO]	MSDTC Connection Manager: OleTx Transports Protocol Specification	RPC	Application Services	MSDTC Connection Manager: OleTx Transports Protocol	[MS-DTYP] [MS-ERREF] [MS-RPCE]
[MS-CMRP]	Failover Cluster: Management API (ClusAPI) Protocol Specification	RPC	Systems Management	Failover Cluster: Management API (ClusAPI) Protocol	[MS-DMRP] [MS-DTYP] [MS-ERREF] [MS-LSAD] [MS-NLMP] [MS-RPCE] [MS-RRP] [MS-SCMR] [MS-SPNG]
[MS-COM]	Component Object Model Plus (COM+) Protocol Specification	RPC	Application Services	Component Object Model Plus (COM+) Protocol	[MS-DCOM] [MS-DTCO] [MS-DTYP] [MS-ERREF]
[MS-COMA]	Component Object Model Plus (COM+) Remote Administration Protocol Specification	RPC	Application Services	Component Object Model Plus (COM+) Remote Administration Protocol	[MS-CIFS] [MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-LCID] [MS-OAUT] [MS-RPCE]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-COMEV]	Component Object Model Plus (COM+) Event System Protocol Specification	RPC	Application Services	Object Model Plus (COM+) Event System Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-OAUT]
[MS-COMT]	Component Object Model Plus (COM+) Tracker Service Protocol Specification	RPC	Application Services	Component Object Model Plus (COM+) Tracker Service Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-OAUT] [MS-RPCE]
[MS-CPSP]	Connection Point Services: Phonebook Data Structure	Structure	Networking	Connection Point Services: Phonebook Data Structure	None
[MS-CRTD]	Certificate Templates Structure	Structure	Security and Identity Management	Certificate Templates	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADTS] [MS-DTYP] [MS-WCCE]
[MS-CSRA]	Certificate Services Remote Administration Protocol Specification	RPC	Security and Identity Management	Certificate Services Remote Administration Protocol	[MS-ADA1] [MS-ADTS] [MS-CRTD] [MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-ICPR] [MS-KILE] [MS-LSAD] [MS-LSAT] [MS-NLMP] [MS-NRPC] [MS-OAUT] [MS-RPCE] [MS-RRP] [MS-WCCE]
[MS-CSSP]	Credential Security Support Provider (CredSSP) Protocol Specification	Block	Security and Identity Management	Certificate Services Remote Administration Protocol	[MS-KILE] [MS-NLMP] [MS-SPNG]
[MS-CSVP]	Failover Cluster: Setup and Validation Protocol (ClusPrep) Specification	RPC	Systems Management	Failover Cluster: Setup and Validation Protocol (ClusPrep)	[MS-CMRP] [MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-FASP]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-OAUT] [MS-RPCE] [MS-SMB2]
[MS-CTA]	Claims Transformation Algorithm	Algorithm	Security and Identity Management	Claims Transformation Algorithm	None
[MS-DCHT]	Desktop Chat Protocol Specification	Block	Collaboration and Communications	Desktop Chat Protocol	[MS-DTYP]
[MS-DCLB]	Desktop Clipboard Protocol Specification	Block	Collaboration and Communications	Desktop Clipboard Protocol	[MS-DTYP] [MS-EMF] [MS-WMF]
[MS-DCOM]	Distributed Component Object Model (DCOM) Remote Protocol Specification	RPC	Networking	Distributed Component Object Model (DCOM) Remote Protocol	[MS-DTYP] [MS-ERREF] [MS-RPCE]
[MS-DFSC]	Distributed File System (DFS): Referral Protocol Specification	RPC	File, Fax, and Printing Services	Distributed File System (DFS): Namespace Referral Protocol	[MS-ADTS] [MS-CIFS] [MS-DFSNM] [MS-DRSR] [MS-ERREF] [MS-NRPC] [MS-SMB] [MS-SMB2]
[MS-DFSNM]	Distributed File System (DFS): Namespace Management Protocol Specification	RPC	File, Fax, and Printing Services	Distributed File System (DFS): Namespace Management Protocol	[MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-DFSC] [MS-DTYP] [MS-ERREF] [MS-RPCE] [MS-SMB] [MS-SMB2] [MS-SRVS]
[MS-DFSRH]	DFS Replication Helper Protocol Specification	RPC	File, Fax, and Printing Services	Distributed File System: Replication Helper Protocol (DFS-R Helper)	[MS-ADTS] [MS-DCOM] [MS-FRS2] [MS-OAUT] [MS-RPCE]
[MS-DHA]	Device Health Attestation Protocol	HTTP	Networking	Device Health Attestation (DHA) Protocol	None

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-DHCPE]	Dynamic Host Configuration Protocol (DHCP) Extensions	Block	Networking	Dynamic Host Configuration Protocol (DHCP) Extensions Dynamic Host Configuration Protocol (DHCP): User Class Option Extensions Dynamic Host Configuration Protocol (DHCP): Remote Access Server (RAS) Specific Client Identifier Extensions Dynamic Host Configuration Protocol (DHCP) Server Management: Secondary DHCP Server Delay Response Extensions	[MS-ADA1] [MS-ADSC] [MS-ADTS] [MS-DHCPM]
[MS-DHCPF]	DHCP Failover Protocol Extension	Block	Networking	DHCP Failover Protocol Extension	None
[MS-DHCPM]	Microsoft Dynamic Host Configuration Protocol (DHCP) Server Management Protocol Specification	Block	Networking	Microsoft Dynamic Host Configuration Protocol (DHCP) Server Management Protocol	[MS-DHCPE] [MS-DHCPN] [MS-DTYP] [MS-ERREF] [MS-LSAT] [MS-RPCE] [MS-SAMR]
[MS-DHCPN]	Dynamic Host Configuration Protocol (DHCP) Extensions for Network Access Protection (NAP)	Block	Networking	Dynamic Host Configuration Protocol (DHCP) Extensions for Network Access Protection (NAP)	[MS-DHCPE] [MS-RNAP]
[MS-DLNHND]	Digital Living Network Alliance (DLNA) Networked Device Interoperability Guidelines: Microsoft Extensions	Block	Collaboration and Communications	Digital Living Network Alliance (DLNA) Networked Device Interoperability Guidelines: Microsoft Extensions	[MS-DTYP] [MS-RTSP] [MS-UPMC]
[MS-DLTCS]	Distributed Link Tracking Central Store Protocol Specification	Block	File, Fax, and Printing Services	Distributed Link Tracking: Central Store Protocol	[MS-ADTS] [MS-DLTM] [MS-SMB]
[MS-DLTM]	Distributed Link Tracking: Central Manager Protocol Specification	Block	File, Fax, and Printing Services	Distributed Link Tracking: Central Manager Protocol	[MS-ADTS] [MS-DLTW] [MS-DTYP] [MS-ERREF]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-RPCE] [MS-SAMR] [MS-SMB] [MS-SPNG]
[MS-DLTW]	Distributed Link Tracking: Workstation Protocol Specification	RPC	File, Fax, and Printing Services	Distributed Link Tracking: Workstation Protocol	[MS-DTYP] [MS-ERREF] [MS-FSCC] [MS-RPCE] [MS-SMB] [MS-SMB2]
[MS-DMCT]	Device Media Control Protocol Specification	Block	Systems Management	Device Media Control Protocol	[MS-DSLR] [MS-DTYP] [MS-RTSP]
[MS-DMRP]	Disk Management Remote Protocol Specification	RPC	Systems Management	Disk Management Remote Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-RPCE]
[MS-DNSP]	Domain Name Service (DNS) Server Management Protocol Specification	RPC	Systems Management	Domain Name Service (DNS) Server Management Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-DTYP] [MS-ERREF] [MS-NRPC] [MS-RPCE]
[MS-DPDX]	DirectPlay DXDiag Usage Protocol Specification	Block	Multiplayer Games	DirectPlay DXDiag Usage Protocol	[MS-DTYP]
[MS-DPSP]	Digest Protocol Extensions	Block	Security and Identity Management	Digest Access Authentication: Microsoft Extensions	None
[MS-DPWSRP]	Devices Profile for Web Services (DPWS): Shared Resource Publishing Data Structure	Structure	File, Fax, and Printing Services	DPWS: Shared Resource Publishing	[MS-DTYP] [MS-HGRP] [MS-SHLLINK]
[MS-DPWSSN]	Devices Profile for Web Services (DPWS): Size Negotiation Extension	SOAP	Systems Management	Devices Profile for Web Services (DPWS): Size Negotiation Extension	None
[MS-DRM]	Digital Rights Management	Block	Collaboration and	Management License Protocol	[MS-DTYP] [MS-ERREF]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	License Protocol Specification		Communications		
[MS-DRMCD]	Windows Media Digital Rights Management (WMDRM): MTP Command Extension	Block	Collaboration and Communications	WMDRM MTP Command Extension	[MS-DRM]
[MS-DRMND]	Windows Media Digital Rights Management (WMDRM): Network Devices Protocol Specification	Block	Collaboration and Communications	WMDRM Network Devices Protocol	[MS-DTYP]
[MS-DRMRI]	Windows Media Digital Rights Management for Network Devices (WMDRM-ND): Registrar Initiation Protocol Specification	Block	Collaboration and Communications	WMDRM-ND: Registrar Initiation Protocol	[MS-DSLR] [MS-DRMND]
[MS-DRSR]	Directory Replication Service (DRS) Remote Protocol Specification	RPC	Directory Services	Directory Replication Service Remote Protocol (drsuapi) - Replication Directory Replication Service Remote Protocol (drsuapi) - Management	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADLS] [MS-ADSC] [MS-ADTS] [MS-DTYP] [MS-ERREF] [MS-KILE] [MS-LSAD] [MS-NRPC] [MS-RPCE] [MS-SRPL]
[MS-DSCPM]	Desired State Configuration Pull Model Protocol	Rest	Systems Management	Desired State Configuration Pull Model Protocol	None
[MS-DSLR]	Device Services Lightweight Remoting Protocol Specification	Block	Systems Management	Device Services Lightweight Remoting Protocol	[MS-DTYP] [MS-ERREF]
[MS-DSML]	Directory Services Markup Language (DSML) 2.0 Protocol Extensions	SOAP	Application Services	Directory Services Markup Language (DSML) 2.0 Protocol Extensions Directory Services Markup Language (DSML) 2.0 Protocol	[MS-ADDM]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
				Extensions	
[MS-DSMN]	Device Session Monitoring Protocol Specification	Block	Systems Management	Device Session Monitoring Protocol	[MS-DSLR] [MS-DTYP]
[MS-DSPA]	Device Session Property Access Protocol Specification	Block	Systems Management	Device Session Property Access Protocol	[MS-DSLR] [MS-DTYP]
[MS-DSSP]	Directory Services Setup Remote Protocol Specification	RPC	Systems Management	Directory Services Setup Remote Protocol	[MS-ADTS] [MS-DSLR] [MS-DTYP] [MS-ERREF] [MS-RPCE] [MS-SAMR] [MS-SMB]
[MS-DTAG]	Device Trust Agreement Protocol Specification	SOAP	Security and Identity Management	Device Trust Agreement Protocol	None
[MS-DTCLU]	MSDTC Connection Manager: OleTx Transaction Protocol Logical Unit Mainframe Extension	Block	Application Services	MSDTC Connection Manager: OleTx Transaction Protocol Logical Unit Mainframe Extension	[MS-CMP] [MS-CMPO] [MS-DTCO]
[MS-DTCM]	MSDTC Connection Manager: OleTx Transaction Internet Protocol Specification	Block	Application Services	Connection Manager: OleTx Transaction Internet Protocol	[MS-CMP] [MS-CMPO] [MS-DTCO] [MS-DTYP] [MS-RPCE]
[MS-DTCO]	MSDTC Connection Manager: OleTx Transaction Protocol Specification	Block	Application Services	MSDTC Connection Manager: OleTx Transaction Protocol	[MS-CMOM] [MS-CMP] [MS-CMPO] [MS-CMRP] [MS-DTYP] [MS-RRP] [MS-TIPP] [MS-WSRVCAT]
[MS-DTYP]	Windows Data Types	Structure	Reference	Windows Data Types	[MS-ADTS] [MS-APDS] [MS-ERREF] [MS-KILE] [MS-LSAD] [MS-NBTE] [MS-NLMP]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-RPCE] [MS-SFU] [MS-TLSP]
[MS-DVRD]	Device Registration Discovery Protocol	HTTP	Device-Specific	Device Registration Discovery Protocol	[MS-DVRE]
[MS-DVRE]	Device Registration Enrollment Protocol	SOAP	Device-Specific	Device Registration Enrollment Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-DVRD] [MS-WSTEP]
[MS-DVRJ]	Device Registration Join Protocol	HTTP	Directory Services	Device Registration Join Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-DRSR]
[MS-ECS]	Enterprise Client Synchronization Protocol	HTTP	Device-Specific	Enterprise Client Synchronization Protocol	[MS-DTYP]
[MS-EERR]	Extended Error Remote Data Structure	Structure	Networking	Extended Error Remote Data Structure	[MS-DTYP] [MS-RPCE]
[MS-EFSR]	Encrypting File System Remote (EFSRPC) Protocol Specification	RPC	File, Fax, and Printing Services	Encrypting File System Remote Protocol	[MS-ADTS] [MS-CRTD] [MS-DTYP] [MS-ERREF] [MS-RPCE] [MS-SMB] [MS-SMB2] [MS-WCCE]
[MS-EMF]	Enhanced Metafile Format	Structure	File, Fax, and Printing Services	Enhanced Metafile (EMF) Format	[MS-WMF]
[MS-EMFPLUS]	Enhanced Metafile Format Plus Extensions	Structure	File, Fax, and Printing Services	Enhanced Metafile (EMF) Format: Plus Extensions (EMF+)	[MS-EMF] [MS-WMF]
[MS-EMFSPOOL]	Enhanced Metafile Spool Format	Structure	File, Fax, and Printing Services	Enhanced Metafile (EMF) Spool Format	[MS-DTYP] [MS-EMF] [MS-RPRN] [MS-WMF]
[MS-ERREF]	Windows Error Codes	Structure	Reference	Windows Error Codes	None
[MS-EVEN]	EventLog Remoting	RPC	Systems	EventLog Remoting	[MS-ADTS]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Protocol Specification		Management	Protocol Version 1.0	[MS-DTYP] [MS-EERR] [MS-ERREF] [MS-LCID] [MS-LSAD] [MS-LSAT] [MS-RPCE] [MS-RRP] [MS-SMB]
[MS-EVEN6]	EventLog Remoting Protocol Version 6.0 Specification	RPC	Systems Management	EventLog Remoting Protocol Version 6.0	[MS-DTYP] [MS-ERREF] [MS-EVEN] [MS-GPSI] [MS-KILE] [MS-LSAD] [MS-NLMP] [MS-RPCE]
[MS-FASP]	Firewall and Advanced Security Protocol Specification	RPC	Networking	Firewall and Advanced Security Protocol	[MS-AIPS] [MS-DTYP] [MS-ERREF] [MS-GPFAS] [MS-IKEE] [MS-IPHTTPS] [MS-KILE] [MS-NLMP] [MS-RPCE]
[MS-FAX]	Fax Server and Client Remote Protocol Specification	RPC	File, Fax, and Printing Services	Fax Server and Client Remote Protocol	[MS-DTYP] [MS-ERREF] [MS-RPCE] [MS-SMB]
[MS-FCIADS]	File Classification Infrastructure Alternate Data Stream (ADS) File Format	Structure	File, Fax, and Printing Services	File Classification Infrastructure ADS File Format	[MS-DTYP] [MS-FSRM]
[MS-FRS1]	File Replication Service Protocol Specification	RPC	File, Fax, and Printing Services	File Replication Service (FRS) Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADLS] [MS-ADSC] [MS-ADTS] [MS-BKUP] [MS-DFSC] [MS-DFSNM] [MS-DFSRH]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-DRSR] [MS-DTYP] [MS-ERREF] [MS-FRS2] [MS-FSCC] [MS-RPCE] [MS-RRP]
[MS-FRS2]	Distributed File System Replication Protocol Specification	RPC	File, Fax, and Printing Services	Distributed File System: Replication (DFS-R) Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADLS] [MS-ADSC] [MS-ADTS] [MS-BKUP] [MS-DTYP] [MS-FSCC] [MS-KILE] [MS-LSAD] [MS-NLMP] [MS-RDC] [MS-RPCE]
[MS-FSA]	File System Algorithms	Algorithm	File, Fax, and Printing Services	File System Algorithms	[MS-DTYP] [MS-ERREF] [MS-FSCC] [MS-LSAD]
[MS-FSCC]	File System Control Codes	Structure	File, Fax, and Printing Services	Server Message Block (SMB) Version 1.0 Protocol Server Message Block (SMB) Version 2 Protocol Common Internet File System (CIFS) Protocol File System Control Codes File Level Trim Data Structure	[MS-DTYP] [MS-ERREF] [MS-LSAD] [MS-SMB] [MS-SMB2]
[MS-FSRM]	File Server Resource Manager Protocol Specification	Block	File, Fax, and Printing Services	File Server Resource Manager Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADLS] [MS-ADSC] [MS-ADTS] [MS-DCOM] [MS-DTYP]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-ERREF] [MS-OAUT] [MS-RPCE]
[MS-FSRVP]	File Server Remote VSS Protocol Specification	RPC	File, Fax, and Printing Services	File Server Remote VSS Protocol	[MS-CIFS] [MS-DTYP] [MS-ERREF] [MS-RPCE] [MS-SMB2] [MS-SRVS]
[MS-FSVCA]	File Set Version Comparison Algorithms	Algorithm	File, Fax, and Printing Services	File Set Version Comparison Algorithms	[MS-DTYP]
[MS-FTPS]	File Transfer Protocol over Secure Sockets Layer (FTPS) Specification	Block	File, Fax, and Printing Services	File Transfer Protocol over Secure Sockets Layer (FTPS)	None
[MS-GKDI]	Group Key Distribution Protocol Specification	RPC	Systems Management Security and Identity Management	Group Key Distribution Protocol	[MS-ADA2] [MS-ADSC] [MS-ADTS] [MS-DTYP] [MS-ERREF] [MS-NRPC] [MS-RPCE] [MS-SPNG]
[MS-GPAC]	Group Policy: Audit Configuration Extension	Block	Systems Management	Group Policy: Audit Configuration Extension	[MS-DTYP] [MS-GPOL]
[MS-GPCAP]	Group Policy: Central Access Policies Protocol Extension	Block	Systems Management	Group Policy: Central Access Policies Protocol Extension	[MS-ADA2] [MS-ADSC] [MS-ADTS] [MS-DTYP] [MS-GPOL] [MS-SMB] [MS-SMB2]
[MS-GPDPC]	Group Policy: Deployed Printer Connections Extension	Block	Systems Management	Group Policy: Deployed Printer Connections Protocol Extension	[MS-ADA3] [MS-ADSC] [MS-DTYP] [MS-GPOL] [MS-RPRN] [MS-SPNG]
[MS-GPEF]	Group Policy: Encrypting File System Extension	Block	Systems Management	Group Policy: Encrypting File System Extension	[MS-DTYP] [MS-EFSR] [MS-GPOL]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-GPREG]
[MS-GPFAS]	Group Policy: Firewall and Advanced Security Data Structure	Block	Systems Management	Group Policy: Firewall and Advanced Security Data Structure	[MS-FASP] [MS-GPOL] [MS-GPREG]
[MS-GPFR]	Group Policy: Folder Redirection Protocol Extension	Block	Systems Management	Group Policy: Folder Redirection Protocol Extension	[MS-DTYP] [MS-GPOL] [MS-SMB]
[MS-GPIE]	Group Policy: Internet Explorer Maintenance Extension	Block	Systems Management	Group Policy: Internet Explorer Maintenance Extension	[MS-GPOL] [MS-GPREG]
[MS-GPIPSEC]	Group Policy: IP Security (IPsec) Protocol Extension	Block	Networking Systems Management	Group Policy: IP Security (IPsec) Protocol Extension	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-DTYP] [MS-GPOL] [MS-NRPC]
[MS-GPNAP]	Group Policy: Network Access Protection (NAP) Extension	Structure	Systems Management	Group Policy: Network Access Protection (NAP) Extension	[MS-DHCPN] [MS-DTYP] [MS-GPOL] [MS-GPREG] [MS-HCEP] [MS-LCID] [MS-PEAP] [MS-TSGU] [MS-WSH]
[MS-GPNRPT]	Group Policy: Name Resolution Policy Table (NRPT) Data Extension	Block	Systems Management	Group Policy: NRPT Data Extension	[MS-GPOL] [MS-GPREG]
[MS-GPOL]	Group Policy: Core Protocol Specification	Block	Systems Management	Group Policy: Core Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADLS] [MS-ADSC] [MS-ADTS] [MS-DFSC] [MS-DRSR] [MS-DTYP] [MS-GPFR] [MS-GPSI] [MS-GPIPSEC]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-GPREG] [MS-GPSCR] [MS-KILE] [MS-NLMP] [MS-NRPC] [MS-SPNG] [MS-WMI]
[MS-GPPREF]	Group Policy: Preferences Extension Data Structure	Block	Systems Management	Group Policy: Preferences Extension	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADLS] [MS-ADSC] [MS-ADTS] [MS-GPOL] [MS-SMB] [MS-SMB2]
[MS-GPREG]	Group Policy: Registry Extension Encoding	Block	Systems Management	Group Policy: Registry Extension Encoding	[MS-GPOL]
[MS-GPSB]	Group Policy: Security Protocol Extension	Block	Systems Management	Group Policy: Host Security Configuration	[MS-DTYP] [MS-GPOL] [MS-KILE] [MS-LSAD] [MS-SAMR] [MS-SCMR] [MS-SMB] [MS-SMB2] [MS-RRP]
[MS-GPSCR]	Group Policy: Scripts Extension Encoding	Block	Systems Management	Group Policy: Scripts Protocol Extension	[MS-GPOL]
[MS-GPSI]	Group Policy: Software Installation Protocol Extension	Block	Systems Management	Group Policy: Software Installation Protocol Extension	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-DTYP] [MS-KILE] [MS-LCID] [MS-SPNG]
[MS-GPWL]	Group Policy: Wireless/Wired Protocol Extension	Block	Systems Management	Group Policy: Wireless/Wired Protocol Extension	[MS-ADA2] [MS-ADSC] [MS-ADTS] [MS-CHAP] [MS-GPOL]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-PEAP]
[MS-GSSA]	Generic Security Service Algorithm for Secret Key Transaction Authentication for DNS (GSS-TSIG) Protocol Extension	Block	Networking Security and Identity Management	Generic Security Service Algorithm for Secret Key Transaction Authentication for DNS (GSS-TSIG) Protocol Extension	None
[MS-H245]	H.245 Protocol: Microsoft Extensions	Block	Collaboration and Communications	Microsoft Extensions to H.245 protocol	None
[MS-H26XPF]	Real-Time Transport Protocol (RTP/RTCP): H.261 and H.263 Video Streams Extensions	Block	Collaboration and Communications	RTP/RTCP: H.261 and H.263 Video Streams Extensions	[MS-RTPME]
[MS-HCEP]	Health Certificate Enrollment Protocol Specification	Block	Networking	Health Certificate Enrollment Protocol	[MS-WCCE]
[MS-HGRP]	HomeGroup Protocol Specification	Block	File, Fax, and Printing Services Home Server Networking Systems Management	DPWS: Printer Sharing Protocol HomeGroup Credential Distribution Protocol	[MS-DTYP] [MS-FSCC] [MS-PPGRH] [MS-PPSEC] [MS-RPRN] [MS-WMF]
[MS-HNDS]	Host Name Data Structure Extension	Structure	Networking	Host Name Data Structure Extension	None
[MS-HTTP2E]	Hypertext Transfer Protocol Version 2 (HTTP/2) Extension	Block	Networking	Hypertext Transfer Protocol Version 2 (HTTP/2) Extension	None
[MS-HTTPE]	Hypertext Transfer Protocol (HTTP) Extensions	Block	Networking	Hypertext Transfer Protocol (HTTP) Extensions	[MS-UCODEREF]
[MS-HRL]	Hyper-V Replica Log (HRL) File Format	Structure	File, Fax, and Printing Services	Hyper-V Replica Log (HRL) File Format	None
[MS-HVRS]	Hyper-V Remote Storage Profile	Block	File, Fax, and Printing Services	Hyper-V Storage over SMB Protocol	[MS-FSA] [MS-FSCC] [MS-FSRVP] [MS-RSVD] [MS-SMB2] [MS-SQOS]
[MS-ICPR]	ICertPassage Remote Protocol	RPC	Security and Identity	ICertPassage Remote Protocol	[MS-CRTD] [MS-DCOM]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Specification		Management		[MS-DTYP] [MS-RPCE] [MS-WCCE]
[MS-IISS]	Internet Information Services (IIS) ServiceControl Protocol Specification	RPC	Application Services	IIS ServiceControl Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-OAUT] [MS-RPCE] [MS-SCMR]
[MS-IKEE]	Internet Key Exchange Protocol Extensions	Block	Security and Identity Management	Internet Key Exchange Protocol Extensions IKE: Fragmentation Extension IKEv2: Negotiation Correlation Extension	[MS-AIPS] [MS-ERREF]
[MS-IMSA]	Internet Information Services (IIS) IMSAdminBaseW Remote Protocol Specification	RPC	Application Services	IIS IMSAdminBaseW Remote Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-OAUT] [MS-RPCE]
[MS-IOI]	IManagedObject Interface Protocol Specification	RPC	Application Services	IManagedObject Interface Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-NRBF] [MS-NRTP]
[MS-IPAMM]	IP Address Management (IPAM) Management Protocol	SOAP	Systems Management	IPAM Management Protocol	[MS-DTYP] [MS-EVEN6] [MS-NMFTB] [MS-NRTP] [MS-WSPOL]
[MS-IPAMM2]	IP Address Management (IPAM) Management ProtocolVersion 2	SOAP	Networking	IP Address Management (IPAM) Protocol	[MS-DTYP] [MS-EVEN6] [MS-NMFTB] [MS-IPAMM] [MS-NRTP] [MS-TDS] [MS-WSPOL]
[MS-IPHTTPS]	IP over HTTPS (IP-HTTPS) Tunneling Protocol Specification	Block	Networking	IP over HTTPS (IP-HTTPS) Protocol	None
[MS-IRDA]	IrDA Object Exchange (OBEX) Protocol Profile	Block	Networking	IrDA Object Exchange (OBEX) Protocol	None

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-IRP]	Internet Information Services (IIS) Inetinfo Remote Protocol Specification	RPC	Application Services	IIS Inetinfo Remote Protocol	[MS-DTYP] [MS-ERREF] [MS-LCID] [MS-RPCE]
[MS-KILE]	Kerberos Protocol Extensions	Block	Security and Identity Management	Kerberos Network Authentication Service (V5) Extensions	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-DRSR] [MS-DTYP] [MS-GPSB] [MS-LSAD] [MS-PAC] [MS-RPCE] [MS-SAMR] [MS-SNTP] [MS-SPNG]
[MS-KKDCP]	Kerberos Key Distribution Center (KDC) Proxy Protocol Specification	Block	Security and Identity Management	Kerberos Key Distribution Center (KDC) Proxy Protocol	[MS-NRPC]
[MS-KPP]	Key Provisioning Protocol	HTTP	Directory Services	Key Provisioning Protocol	[MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-DRSR]
[MS-L2TPIE]	Layer 2 Tunneling Protocol (L2TP) IPsec Extensions	Block	Networking	L2TP IPsec Extensions	[MS-DTYP]
[MS-LCID]	Windows Language Code Identifier (LCID) Reference	Structure	Reference	Windows Language Code Identifier (LCID) Reference	[MS-DTYP]
[MS-LLMNRP]	Link Local Multicast Name Resolution (LLMNR) Profile	Block	Networking	Link Local Multicast Name Resolution (LLMNR) Profile	None
[MS-LLTD]	Link Layer Topology Discovery (LLTD) Protocol Specification	Block	Networking	LLTD Protocol	None
[MS-LREC]	Live Remote Event Capture (LREC) Protocol	Block	Networking	Live Remote Event Capture Control Protocol	[MS-DTYP] [MS-ERREF] [MS-EVEN]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-EVEN6] [MS-RPCE]
[MS-LSAD]	Local Security Authority (Domain Policy) Remote Protocol Specification	RPC	Directory Services Security and Identity Management	Local Security Authority (Domain Policy) Remote Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-DTYP] [MS-ERREF] [MS-GPEF] [MS-KILE] [MS-LSAT] [MS-RPCE] [MS-SAMR] [MS-SMB] [MS-SMB2] [MS-WKST]
[MS-LSAT]	Local Security Authority (Translation Methods) Remote Protocol Specification	RPC	Security and Identity Management	Local Security Authority (Translation Methods) Remote Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-DRSR] [MS-DTYP] [MS-ERREF] [MS-LSAD] [MS-NRPC] [MS-RPCE] [MS-SAMR] [MS-SCMR]
[MS-LWSSP]	Lightweight Web Services Security Profile	Block	Networking Security and Identity Management	Lightweight Web Services Profile	None
[MS-MAIL]	Remote Mailslot Protocol Specification	Block	Networking	Remote Mailslot Protocol	[MS-DTYP] [MS-SMB]
[MS-MCIS]	Content Indexing Services Protocol Specification	Block	Systems Management	Content Indexing Services Protocol	[MS-DTYP] [MS-ERREF] [MS-LCID] [MS-SMB]
[MS-MDE]	Mobile Device Enrollment Protocol	SOAP	Networking	Mobile Device Management Enrollment Protocol	[MS-MDM] [MS-WSTEP] [MS-XCEP]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-MDE2]	Mobile Device Enrollment Protocol Version 2	SOAP	Networking	Mobile Device Enrollment Protocol Version 2	[MS-MDE] [MS-MDM] [MS-WSTEP] [MS-XCEP]
[MS-MDM]	Mobile Device Management Protocol	HTTP	Networking	Mobile Device Management Protocol	[MS-MDE]
[MS-MMSP]	Microsoft Media Server (MMS) Protocol Specification	Block	Collaboration and Communications	MMS Protocol	[MS-DTYP] [MS-ERREF] [MS-NLMP]
[MS-MNPR]	Microsoft NetMeeting Protocol Specification	Block	Collaboration and Communications	Microsoft NetMeeting Protocol	[MS-DTYP] [MS-EMF] [MS-H245] [MS-RDPBCGR] [MS-WMF]
[MS-MQBR]	Message Queuing (MSMQ): Binary Reliable Message Routing Algorithm	Block	Application Services	MSMQ: Binary Reliable Message Routing Algorithm	[MS-DTYP] [MS-MQDMPR] [MS-MQDSSM] [MS-MQMQ] [MS-MQQB]
[MS-MQCN]	Message Queuing (MSMQ): Directory Service Change Notification Protocol Specification	Block	Application Services	MSMQ: Directory Service Change Notification Protocol	[MS-ADTS] [MS-DTYP] [MS-MQBR] [MS-MQDMPR] [MS-MQDS] [MS-MQDSSM] [MS-MQMQ] [MS-MQQB]
[MS-MQDMPR]	Message Queuing (MSMQ): Common Data Model and Processing Rules	Block	Application Services	MSMQ: Common Data Model and Processing Rules	[MS-ADTS] [MS-DTCO] [MS-DTYP] [MS-ERREF] [MS-LSAD] [MS-MQDSSM] [MS-MQMQ] [MS-MQRR]
[MS-MQDS]	Message Queuing (MSMQ): Directory Service Protocol Specification	RPC	Application Services	MSMQ: Directory Service Protocol	[MS-ADTS] [MS-DTYP] [MS-MQCN] [MS-MQDMPR] [MS-MQDSSM] [MS-MQMQ] [MS-RPCE]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-RDPBCGR]
[MS-MQDSSM]	Message Queuing (MSMQ): Directory Service Schema Mapping	RPC	Application Services	MSMQ: Directory Service Schema Mapping	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-DTYP] [MS-MQDMPR] [MS-MQMQ]
[MS-MQMP]	Message Queuing (MSMQ): Queue Manager Client Protocol Specification	RPC	Application Services	MSMQ: Queue Manager Client Protocol	[MS-DTCO] [MS-DTYP] [MS-ERREF] [MS-MQDMPR] [MS-MQMQ] [MS-MQQB] [MS-MQQP] [MS-MQRR] [MS-RPCE]
[MS-MQMQ]	Message Queuing (MSMQ): Data Structures	Structure	Application Services	MSMQ: Data Structures	[MS-ADTS] [MS-DTYP] [MS-ERREF] [MS-MQMR] [MS-MQRR] [MS-RDPBCGR] [MS-SAMR]
[MS-MQMR]	Message Queuing (MSMQ): Queue Manager Management Protocol Specification	RPC	Application Services	MSMQ: Queue Manager Management Protocol	[MS-DTYP] [MS-ERREF] [MS-MQDMPR] [MS-MQMQ] [MS-MQQB] [MS-RPCE]
[MS-MQQB]	Message Queuing (MSMQ): Message Queuing Binary Protocol Specification	Block	Application Services	MSMQ: Message Queuing Binary Protocol	[MS-ADTS] [MS-DTYP] [MS-LCID] [MS-MQBR] [MS-MQDMPR] [MS-MQDSSM] [MS-MQMQ] [MS-PAC] [MS-SFU]
[MS-MQQP]	Message Queuing (MSMQ): Queue Manager to Queue Manager Protocol	RPC	Application Services	MSMQ: Queue Manager to Queue Manager Protocol	[MS-DTYP] [MS-ERREF] [MS-MQDMPR]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Specification				[MS-MQDSSM] [MS-MQMQ] [MS-MQMP] [MS-MQRR] [MS-RPCE]
[MS-MQRR]	Message Queuing (MSMQ): Queue Manager Remote Read Protocol Specification	RPC	Application Services	MSMQ: Queue Manager Remote Read Protocol	[MC-MQSRM] [MS-DTCO] [MS-DTYP] [MS-ERREF] [MS-MQBR] [MS-MQDMPR] [MS-MQMQ] [MS-MQQB] [MS-MQQP] [MS-RPCE]
[MS-MQSD]	Message Queuing (MSMQ): Directory Service Discovery Protocol Specification	Block	Application Services	Message Queuing (MSMQ): Directory Service Discovery Protocol	[MS-DTYP] [MS-MQDMPR] [MS-MQMP]
[MS-MSB]	Media Stream Broadcast (MSB) Protocol Specification	Block	Collaboration and Communications	Media Stream Broadcast (MSB) Protocol	[MS-DTYP] [MS-WMLOG]
[MS-MSBD]	Media Stream Broadcast Distribution (MSBD) Protocol Specification	Block	Collaboration and Communications	Media Stream Broadcast Distribution (MSBD) Protocol	[MS-DTYP] [MS-ERREF] [MS-MSB]
[MS-MSRP]	Messenger Service Remote Protocol Specification	Block	Collaboration and Communications File, Fax, and Printing Services Networking	Messenger Service Name Management Protocol Messenger Service Messaging Protocol	[MS-DTYP] [MS-ERREF] [MS-MAIL] [MS-NBTE] [MS-RPCE] [MS-SMB]
[MS-MWBE]	Microsoft Web Browser Federated Sign-On Protocol Extensions	Block	Security and Identity Management	WS-Federation: Marshaling and SAML Advice Extensions	[MS-ADA1] [MS-ADA2] [MS-DTYP] [MS-MWBF]
[MS-MWBF]	Microsoft Web Browser Federated Sign-On Protocol Specification	Block	Security and Identity Management	WS-Federation: Browser Extensions Version 2 WS-Federation: Browser Extensions	[MS-ADA1] [MS-ADA3] [MS-ADTS] [MS-DTYP] [MS-MWBE]
[MS-N2HT]	Negotiate and	Block	Security and	Negotiate and Nego2	[MS-SPNG]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Nego2 HTTP Authentication Protocol Specification		Identity Management	HTTP Authentication Protocol	
[MS-NBTE]	NetBIOS over TCP (NetBT) Extensions	Block	Networking	NetBIOS over TCP (NetBT) Extensions NetBT Name Data Structure Extension	None
[MS-NCNBI]	Network Controller Northbound Interface	HTTP	Networking	Network Controller Northbound Interface	None
[MS-NCT]	Network Cost Transfer Protocol	Block	Networking	Network Cost Transfer Protocol	None
[MS-NETTR]	.NET Tracing Protocol Specification	Block	Application Services	.NET Tracing Protocol	[MS-DTYP]
[MS-NFPB]	Near Field Proximity: Bidirectional Services Protocol	Block	Networking	Near Field Proximity: Bidirectional Services Protocol	None
[MS-NFPS]	Near Field Proximity: Sharing Protocol	Block	Networking	Near Field Proximity: Sharing Protocol	[MS-NFPB]
[MS-NKPU]	Network Key Protector Unlock Protocol Specification	Block	Networking	Network Key Protector Unlock (NKPU) Protocol	None
[MS-NLMP]	NT LAN Manager (NTLM) Authentication Protocol Specification	Block	Security and Identity Management	NT LAN Manager (NTLM) Authentication Protocol	[MS-APDS] [MS-DTYP] [MS-RPCE] [MS-SMB] [MS-SPNG]
[MS-NMFMB]	.NET Message Framing MSMQ Binding Protocol Specification	SOAP	Application Services	.NET Message Framing MSMQ Binding Protocol	[MC-NBFS] [MC-NBFSE] [MC-NMF] [MS-MQDMPR] [MS-MQMQ] [MS-MQQB]
[MS-NMFTB]	.NET Message Framing TCP Binding Protocol Specification	SOAP	Application Services	.NET Message Framing TCP Binding Protocol	[MC-NBFS] [MC-NBFSE] [MC-NMF]
[MS-NNS]	.NET NegotiateStream Protocol Specification	Block	Application Services	.NET NegotiateStream Protocol	[MS-ERREF] [MS-NLMP] [MS-SPNG]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-NNTP]	NT LAN Manager (NTLM) Authentication: Network News Transfer Protocol (NNTP) Extension	Block	Collaboration and Communications	NTLM Authentication: Network News Transfer Protocol	[MS-NLMP]
[MS-NRBF]	.NET Remoting: Binary Format Data Structure	Structure	Application Services	.NET Remoting: Binary Format Data Structure	[MS-DTYP] [MS-NRTP]
[MS-NRLS]	.NET Remoting: Lifetime Services Extension	RPC	Application Services	.NET Remoting: Lifetime Services Extension	[MS-NRTP]
[MS-NRPC]	Netlogon Remote Protocol Specification	RPC	Security and Identity Management	Netlogon Remote Protocol	[MS-ADA1] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-APDS] [MS-CIFS] [MS-DTYP] [MS-ERREF] [MS-GPSB] [MS-LSAD] [MS-LSAT] [MS-MAIL] [MS-NLMP] [MS-PAC] [MS-RCMP] [MS-RPCE] [MS-RPRN] [MS-RRP] [MS-SAMR] [MS-SAMS] [MS-SMB] [MS-SNTP]
[MS-NRTP]	.NET Remoting: Core Protocol Specification	Block	Application Services	.NET Remoting: Core Protocol	[MS-DTYP] [MS-NLMP] [MS-NNS] [MS-NRBF] [MS-NRLS] [MS-OAUT]
[MS-NSPI]	Name Service Provider Interface (NSPI) Protocol Specification	Block	Directory Services	Name Service Provider Interface (NSPI) Protocol	[MS-KILE]
[MS-NTHT]	NTLM Over HTTP Protocol	Block	Application Services	HTTP Authentication: NTLM over HTTP	[MS-NLMP] [MS-RPCE]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Specification		Security and Identity Management		
[MS-OAPX]	OAuth 2.0 Protocol Extensions	HTTP	Security and Identity Management	OAuth 2.0 Protocol Extensions	[MS-WCCE]
[MS-OAPXBC]	OAuth 2.0 Protocol Extensions for Broker Clients	HTTP	Security and Identity Management	OAuth 2.0 Protocol Extensions for Broker Clients	[MS-OAPX] [MS-ADA1] [MS-ADA2] [MS-ADSC]
[MS-OAUT]	OLE Automation Protocol Specification	RPC	Networking	OLE Automation Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-RPCE]
[MS-OCSP]	Online Certificate Status Protocol (OCSP) Extensions	Block	Security and Identity Management	Online Certificate Status Protocol (OCSP) Extensions	[MS-CSRA] [MS-OCSPA]
[MS-OCSPA]	Microsoft OCSP Administration Protocol Specification	RPC	Security and Identity Management	Microsoft OCSP Administration Protocol	[MS-CRTD] [MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-KILE] [MS-NLMP] [MS-OAUT] [MS-OCSP] [MS-RPCE] [MS-WCCE]
[MS-ODATA]	Open Data Protocol (OData) Specification	Block	Application Services	Open Data Protocol (OData)	[MC-CSDL] [MC-EDMX]
[MS-OIDCE]	OpenID Connect 1.0 Protocol Extensions	HTTP	Security and Identity Management	OpenID Connect 1.0 Protocol Extensions	[MS-OAPX]
[MS-OLEDS]	Object Linking and Embedding (OLE) Data Structures	Structure	Networking	OLE Data Structures	[MS-CFB] [MS-DTYP] [MS-EMF] [MS-ERREF] [MS-RPRN] [MS-WMF]
[MS-OLEPS]	Object Linking and Embedding (OLE) Property Set Data Structures	Structure	Networking	Object Linking and Embedding (OLE): Property Set Data Structures	[MS-CFB] [MS-OAUT]
[MS-OTPCE]	One-Time Password	Block	Other	One-Time Password Certificate Enrollment	[MS-ADTS]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Certificate Enrollment Protocol Specification			Protocol	
[MS-PAC]	Privilege Attribute Certificate Data Structure	Structure	Security and Identity Management	Privilege Attribute Certificate (PAC) Data Structure	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADTS] [MS-APDS] [MS-DTYP] [MS-KILE] [MS-NLMP] [MS-NRPC] [MS-PKCA] [MS-RCMP] [MS-RPCE] [MS-SAMR] [MS-SFU]
[MS-PAN]	Print System Asynchronous Notification Protocol Specification	RPC	File, Fax, and Printing Services	Print System Asynchronous Notification Protocol	[MS-DTYP] [MS-ERREF] [MS-RPCE] [MS-SPNG]
[MS-PAR]	Print System Asynchronous Remote Protocol Specification	RPC	File, Fax, and Printing Services	Print System Asynchronous Remote Protocol	[MS-DTYP] [MS-ERREF] [MS-RPCE] [MS-RPRN] [MS-SMB2] [MS-SPNG]
[MS-PASS]	Passport Server Side Include (SSI) Version 1.4 Protocol Specification	Block	Security and Identity Management	Server Side Include (SSI) 1.4 Protocol	None
[MS-PBSD]	Publication Services Data Structure	Structure	Home Server	Publication Services Data Structure	[MS-DPWSSN] [MS-DTYP]
[MS-PCCRC]	Peer Content Caching and Retrieval: Content Identification	Structure	Networking	Peer Content Caching & Retrieval: Discovery Protocol Peer Content Caching and Retrieval: Hosted Cache Protocol Peer Content Caching & Retrieval: Content Identification Peer Content Caching & Retrieval: Retrieval Protocol	[MS-DTYP] [MS-PCCRD] [MS-PCCRR]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-PCCRD]	Peer Content Caching and Retrieval Discovery Protocol Specification	SOAP	Networking	Peer Content Caching and Retrieval: Discovery Protocol	[MS-PCCRC] [MS-PCCRR]
[MS-PCCRR]	Peer Content Caching and Retrieval: Retrieval Protocol Specification	Block	Networking	Peer Content Caching and Retrieval: Retrieval Protocol	[MS-DTYP] [MS-PCCRC] [MS-PCCRD]
[MS-PCCRTP]	Peer Content Caching and Retrieval: HTTP Extensions	Block	Networking	Peer Content Caching and Retrieval: Hypertext Transfer Protocol	[MS-PCCRC]
[MS-PCHC]	Peer Content Caching and Retrieval: Hosted Cache Protocol Specification	Block	Networking	Peer Content Caching and Retrieval: Hosted Cache Protocol	[MS-DTYP] [MS-PCCRC] [MS-PCCRR] [MS-SPNG]
[MS-PCQ]	Performance Counter Query Protocol Specification	RPC	Systems Management	Performance Counter Query Protocol	[MS-DTYP] [MS-ERREF] [MS-LCID] [MS-RPCE]
[MS-PEAP]	Protected Extensible Authentication Protocol (PEAP) Specification	Block	Networking	Protected Extensible Authentication Protocol (PEAP)	[MS-DTYP]
[MS-PKAP]	Public Key Authentication Protocol	HTTP	Directory Services	Public Key Authentication Protocol	None
[MS-PKCA]	Public Key Cryptography for Initial Authentication (PKINIT) in Kerberos Protocol Specification	Block	Security and Identity Management	Public Key Cryptography for Initial Authentication in Kerberos (PKINIT): Microsoft Extensions	[MS-KILE] [MS-NLMP] [MS-PAC]
[MS-PLA]	Performance Logs and Alerts Protocol Specification	RPC	Systems Management	Performance Logs and Alerts Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-OAUT] [MS-PCQ] [MS-RPCE] [MS-RRP] [MS-TSCH] [MS-WMI]
[MS-PNRP]	Peer Name	Block	Application	Peer Name Resolution	None

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	Resolution Protocol (PNRP) Version 4.0 Specification		Services Home Server	Protocol (PNRP) Version 4.0	
[MS-POP3]	NT LAN Manager (NTLM) Authentication: Post Office Protocol - Version 3 (POP3) Extension	Block	Networking Security and Identity Management	POP3 Authentication Command Protocol Extension Post Office Protocol - Version 3 Extension	[MS-NLMP]
[MS-PPGRH]	Peer-to-Peer Graphing Protocol Specification	Block	Home Server	Peer-to-Peer Graphing Protocol	None
[MS-PPPI]	PPP Over IrDA Dialup Protocol Specification	Block	Networking	PPP Over IrDA Dialup Protocol	None
[MS-PPSEC]	Peer-to-Peer Grouping Security Protocol Specification	Block	Home Server	Peer-to-Peer Grouping Security Protocol	[MS-PNRP] [MS-PPGRH]
[MS-PROPSTORE]	Property Store Binary File Format	Structure	Other	Property Store Binary File Format	[MS-SHLLINK] [MS-OLEPS]
[MS-PSDP]	Proximity Service Discovery Protocol Specification	Block	Networking	Proximity Service Discovery Protocol Specification	None
[MS-PSRDP]	PowerShell Remote Debugging Protocol	Block	Systems Management	PowerShell Remote Debugging Protocol	[MS-PSRP]
[MS-PSRP]	PowerShell Remoting Protocol Specification	Block	Systems Management	PowerShell Remoting Protocol	[MS-NRBF] [MS-NRTP] [MS-WSMV]
[MS-PTPT]	Point-to-Point Tunneling Protocol (PPTP) Profile	Block	Networking	Point-to-Point Tunneling Protocol	None
[MS-QDP]	Quality Windows Audio/Video Experience (qWave): Wireless Diagnostics Protocol Specification	Block	Networking	Quality Windows Audio/Video Experience (qWave): Wireless Diagnostics Protocol	None
[MS-QLPB]	Quality Windows Audio/Video Experience (qWave): Layer 3 Probing Protocol Specification	Block	Networking	Quality Windows Audio/Video Experience (qWave): Layer 3 Probing Protocol	None
[MS-RA]	Remote Assistance Protocol	Block	Systems Management	Remote Assistance Protocol	[MS-DTYP] [MS-PNRP]

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	Specification				[MS-RAI] [MS-RAIOP] [MS-RDPBCGR] [MS-RDPEGDI] [MS-RDPEMC]
[MS-RAA]	Remote Authorization API Protocol Specification	RPC	File, Fax, and Printing Services	Remote Authorization API Protocol	[MS-DTYP] [MS-ERREF] [MS-KILE] [MS-LSAT] [MS-RPCE] [MS-SFU]
[MS-RAI]	Remote Assistance Initiation Protocol Specification	RPC	Systems Management	Remote Assistance Initiation Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-OAUT] [MS-RA] [MS-RDPBCGR] [MS-RPCE]
[MS-RAIOP]	Remote Assistance Initiation over PNRP Protocol Specification	Block	Systems Management	Remote Assistance Initiation over PNRP Protocol	[MS-PNRP] [MS-RA] [MS-RAI]
[MS-RAIW]	Remote Administrative Interface: WINS Specification	RPC	Systems Management	Remote Administrative Interface: WINS	[MS-DTYP] [MS-ERREF] [MS-RPCE] [MS-WINSRA]
[MS-RAP]	Remote Administration Protocol Specification	Block	File, Fax, and Printing Services	Remote Administration Protocol (RAP)	[MS-BRWS] [MS-CIFS] [MS-ERREF] [MS-RPRN] [MS-SAMR] [MS-SMB] [MS-SRVS]
[MS-RASA]	Remote Access Server Advertisement (RASADV) Protocol Specification	Block	Networking	Remote Access Server Advertisement (RASADV) Protocol	None
[MS-RCMP]	Remote Certificate Mapping Protocol Specification	Block	Security and Identity Management	Remote Certificate Mapping Protocol	[MS-ADA1] [MS-ADA3] [MS-ADTS] [MS-ERREF] [MS-KILE] [MS-NRPC]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-PAC]
[MS-RDC]	Remote Differential Compression Algorithm Specification	Block	File, Fax, and Printing Services	Remote Differential Compression (RDC) Algorithm	None
[MS-RDPADRV]	Remote Desktop Protocol: Audio Level and Drive Letter Persistence Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Audio Level and Drive Letter Persistence Virtual Channel Extension	[MS-RDPEDYC]
[MS-RDPBCGR]	Remote Desktop Protocol: Basic Connectivity and Graphics Remoting Specification	Block	Remote Connectivity	Remote Desktop Protocol: Basic Connectivity and Graphics Remoting	[MS-CSSP] [MS-DTYP] [MS-ERREF] [MS-RDPEA] [MS-RDPEGDI] [MS-RDPELE] [MS-RDPERP] [MS-RDPNSC] [MS-RDPRFX]
[MS-RDPCR2]	Remote Desktop Protocol: Composited Remoting V2 Specification	Block	Remote Connectivity	Remote Desktop Protocol: Composited Remoting V2	[MS-ERREF] [MS-RDPBCGR] [MS-RDPEDC] [MS-RDPEDYC] [MS-RDPEGDI]
[MS-RDPEA]	Remote Desktop Protocol: Audio Output Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Audio Output Virtual Channel Extension	[MS-RDPBCGR] [MS-RDPEDYC]
[MS-RDPEAI]	Remote Desktop Protocol: Audio Input Redirection Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Audio Input Redirection Virtual Channel Extension	[MS-ERREF] [MS-RDPBCGR] [MS-RDPEA] [MS-RDPEDYC]
[MS-RDPEAR]	Remote Desktop Protocol: Authentication Redirection Virtual Channel Protocol	Block	Remote Connectivity	Remote Desktop Protocol: Authentication Redirection Virtual Channel Protocol	[MS-CSSP] [MS-KILE] [MS-NLMP] [MS-PAC] [MS-RDPEDYC] [MS-RPCE]
[MS-RDPECLIP]	Remote Desktop Protocol: Clipboard Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Clipboard Virtual Channel Extension	[MS-RDPBCGR] [MS-WMF]
[MS-RDPEDC]	Remote Desktop Protocol: Desktop Composition	Block	Remote Connectivity	Remote Desktop Protocol: Desktop Composition Virtual	[MS-RDPBCGR] [MS-RDPEGDI]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Virtual Channel Extension			Channel Extension	
[MS-RDPEDISP]	Remote Desktop Protocol: Display Update Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Display Control Virtual Channel Extension	[MS-DTYP] [MS-RDPBCGR] [MS-RDPEDYC] [MS-RDPEGFX]
[MS-RDPEDYC]	Remote Desktop Protocol: Dynamic Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Dynamic Virtual Channel Extension	[MS-DTYP] [MS-ERREF] [MS-RDPBCGR]
[MS-RDPEECO]	Remote Desktop Protocol: Virtual Channel Echo Extension	Block	Remote Connectivity	Remote Desktop Protocol: Virtual Channel Echo Extension	[MS-DTYP] [MS-RDPEDYC]
[MS-RDPEFS]	Remote Desktop Protocol: File System Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: File System Virtual Channel Extension	[MS-ERREF] [MS-FSCC] [MS-RDPBCGR] [MS-RDPEDC] [MS-RDPESC] [MS-RDPESP] [MS-SMB2]
[MS-RDPEGDI]	Remote Desktop Protocol: Graphics Devices Interfaces (GDI) Acceleration Extension	Block	Remote Connectivity	Remote Desktop Protocol: GDI Acceleration Extensions	[MS-EMFPLUS] [MS-RDPBCGR] [MS-RDPEDC] [MS-RDPEPC] [MS-RDPERP]
[MS-RDPEGFX]	Remote Desktop Protocol: Graphics Pipeline Extension	Block	Remote Connectivity	Remote Desktop Protocol: Graphics Pipeline Extension	[MS-RDPBCGR] [MS-RDPEDYC] [MS-RDPEGDI] [MS-RDPNSC] [MS-RDPRFX]
[MS-RDPEGT]	Remote Desktop Protocol: Geometry Tracking Virtual Channel Protocol Extension	Block	Remote Connectivity	Remote Desktop Protocol: Geometry Tracking Virtual Channel Extension	[MS-ERREF] [MS-RDPBCGR] [MS-RDPEDYC]
[MS-RDPEI]	Remote Desktop Protocol: Input Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Input Virtual Channel Extension	[MS-RDPBCGR] [MS-RDPEDYC]
[MS-RDPELE]	Remote Desktop Protocol: Licensing Extension	Block	Remote Connectivity	Remote Desktop Protocol: Licensing Extension	[MS-RDPBCGR]
[MS-RDPEMC]	Remote Desktop Protocol: Multiparty Virtual	Block	Remote Connectivity	Remote Desktop Protocol: Multiparty Virtual Channel	[MS-ERREF] [MS-RDPBCGR]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Channel Extension			Extension	[MS-RDPEPS]
[MS-RDPEMT]	Remote Desktop Protocol: Multitransport Extension	Block	Remote Connectivity	Remote Desktop Protocol: Multitransport Extension	[MS-ERREF] [MS-RDPBCGR] [MS-RDPEUDP]
[MS-RDPEPC]	Remote Desktop Protocol: Print Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Print Virtual Channel Extension	[MS-ERREF] [MS-RDPEFS] [MS-RDPESP]
[MS-RDPEPNP]	Remote Desktop Protocol: Plug and Play Devices Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Plug and Play Devices Virtual Channel Extension	[MS-DTYP] [MS-ERREF] [MS-RDPBCGR] [MS-RDPEDYC]
[MS-RDPEPS]	Remote Desktop Protocol: Session Selection Extension	Block	Remote Connectivity	Remote Desktop Protocol: Session Selection Extension	[MS-RDPBCGR] [MS-RAI]
[MS-RDPERP]	Remote Desktop Protocol: Remote Programs Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Remote Programs Virtual Channel Extension	[MS-DTYP] [MS-ERREF] [MS-RDPBCGR] [MS-RDPEGDI]
[MS-RDPESC]	Remote Desktop Protocol: Smart Card Virtual Channel Extension	RPC	Remote Connectivity	Remote Desktop Protocol: Smart Card Virtual Channel Extension	[MS-DCOM] [MS-RPCE] [MS-RDPEFS]
[MS-RDPESP]	Remote Desktop Protocol: Serial and Parallel Port Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Serial and Parallel Port Virtual Channel Extension	[MS-ERREF] [MS-RDPBCGR] [MS-RDPEFS] [MS-SMB2]
[MS-RDPET]	Remote Desktop Protocol: Telemetry Virtual Channel Extension	Block		Remote Desktop Protocol: Telemetry Virtual Channel Extension	[MS-RDPBCGR] [MS-RDPEDYC]
[MS-RDPEUDP]	Remote Desktop Protocol: UDP Transport Extension	Block	Remote Connectivity	Remote Desktop Protocol: UDP Transport Extension	[MS-DTYP]
[MS-RDPEUSB]	Remote Desktop Protocol: USB Devices Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: USB Devices Virtual Channel Extension	[MS-DTYP] [MS-ERREF] [MS-DPEDYC] [MS-RDPEXPS]
[MS-RDPEV]	Remote Desktop Protocol: Video Redirection Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Video Redirection Virtual Channel Extension	[MS-DTYP] [MS-ERREF] [MS-RDPBCGR] [MS-RDPEDYC] [MS-RDPEXPS]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-RDPEVOR]	Remote Desktop Protocol: Video Optimized Remoting Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: Video Optimized Remoting Virtual Channel Extension	[MS-ERREF] [MS-RDPBCGR] [MS-RDPEDYC] [MS-RDPEGT]
[MS-RDPEXPS]	Remote Desktop Protocol: XML Paper Specification (XPS) Print Virtual Channel Extension	Block	Remote Connectivity	Remote Desktop Protocol: XML Paper Specification (XPS) Print Virtual Channel Extension	[MS-DTYP] [MS-ERREF] [MS-RDPBCGR] [MS-RDPEDYC] [MS-RDPEFS] [MS-RDPEPC] [MS-RDPERP]
[MS-RDPNSC]	Remote Desktop Protocol: NSCodec Extension	Block	Remote Connectivity	Remote Desktop Protocol: NSCodec Extension	[MS-RDPBCGR] [MS-RDPEGDI]
[MS-RDPRFX]	Remote Desktop Protocol: RemoteFX Codec Extension	Block	Remote Connectivity	Remote Desktop Protocol: RemoteFX Codec Extension	[MS-RDPBCGR]
[MS-RDWR]	Remote Desktop Workspace Runtime Protocol Specification	SOAP	Remote Connectivity	Remote Desktop Workspace Runtime Protocol	None
[MS-RMPR]	Rights Management Services (RMS): Client-to-Server Protocol Specification	SOAP	Security and Identity Management	Rights Management Services (RMS): Client-Server Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-DTYP] [MS-KILE] [MS-MWBE] [MS-MWBF] [MS-NLMP] [MS-NTHT] [MS-PAC]
[MS-RMPRS]	Rights Management Services (RMS): Server-to-Server Protocol Specification	SOAP	Security and Identity Management	Rights Management Services (RMS): Server-Server Protocol	[MS-NLMP] [MS-RMPR]
[MS-RMSI]	Rights Management Services (RMS): ISV Extension Protocol Specification	SOAP	Security and Identity Management	Rights Management Services (RMS): ISV Extension Protocol	[MS-DTYP] [MS-MWBF] [MS-RMPR]
[MS-RNAP]	Vendor-Specific RADIUS Attributes	Block	Networking	Remote Access Dial In User Service	[MS-DTYP]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	for Network Access Protection (NAP) Data Structure			(RADIUS): Network Access Protection (NAP) Attributes Protocol Extensions	[MS-HCEP] [MS-MSRP]
[MS-RNAS]	Vendor-Specific RADIUS Attributes for Network Policy and Access Server Data Structure	Block	Remote Connectivity	Remote Access Dial In User Service (RADIUS): Network Access Protection (NAP) Attributes Protocol Extensions	[MS-ADA2] [MS-DTYP] [MS-SSTP]
[MS-RPCE]	Remote Procedure Call Protocol Extensions	Block	Networking	Remote Procedure Call Protocol Extensions	[MS-APDS] [MS-CIFS] [MS-DTYP] [MS-EERR] [MS-ERREF] [MS-KILE] [MS-NLMP] [MS-NRPC] [MS-RPCH] [MS-RPCL] [MS-SPNG] [MS-TLSP]
[MS-RPCH]	Remote Procedure Call over HTTP Protocol Specification	Block	Networking	Remote Procedure Call (RPC) over HTTP Protocol	[MS-DTYP] [MS-EERR] [MS-ERREF] [MS-NTHT] [MS-RPCE]
[MS-RPCL]	Remote Procedure Call Location Services Extension	RPC	Networking	Remote Procedure Call Location Services Protocol Extensions	[MS-ADA1] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-DTYP] [MS-MAIL] [MS-NRPC] [MS-RPCE] [MS-SPNG]
[MS-RPRN]	Print System Remote Protocol Specification	RPC	File, Fax, and Printing Services	Print System Remote Protocol Print System Asynchronous Remote Protocol	[MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-DRSR] [MS-DTYP] [MS-ERREF] [MS-LCID] [MS-PAR] [MS-RPCE] [MS-RRP]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-SMB] [MS-SMB2]
[MS-RRASM]	Routing and Remote Access Server (RRAS) Management Protocol Specification	RPC	Systems Management	Routing and Remote Access Server (RRAS) Management Protocol	[MS-DTYP] [MS-ERREF] [MS-L2TPIE] [MS-RNAP] [MS-RPCE] [MS-RRP] [MS-SSTP] [MS-TRP]
[MS-RRP]	Windows Remote Registry Protocol Specification	RPC	Systems Management	Windows Remote Registry Protocol	[MS-DTYP] [MS-ERREF] [MS-RPCE] [MS-SMB] [MS-SMB2]
[MS-RRSP2]	Remote Rendering Server Protocol Version 2.0 Specification	Block	Collaboration and Communications	Remote Rendering Server Protocol Version 2.0	[MS-DSPA] [MS-DTAG] [MS-RXAD]
[MS-RSMC]	Remote Session Monitoring and Control Protocol	SOAP	Remote Connectivity	Remote Session Monitoring and Control Protocol	None
[MS-RSMP]	Removable Storage Manager (RSM) Remote Protocol Specification	Block	Systems Management	Removable Storage Manager (RSM) Remote Protocol	[MS-DCOM] [MS-DTYP] [MS-RPCE]
[MS-RSP]	Remote Shutdown Protocol Specification	RPC	Remote Connectivity	Remote Shutdown Protocol InitShutdown Protocol	[MS-ERREF] [MS-RPCE] [MS-RRP] [MS-SMB]
[MS-RSVD]	Remote Shared Virtual Disk Protocol	Block	Networking	Remote Shared Virtual Disk Protocol	[MS-SMB2]
[MS-RTPDT]	Real-Time Transport Protocol (RTP/RTCP): DTMF Digits, Telephony Tones and Telephony Signals Data Extensions	Block	Collaboration and Communications	RTP/RTCP: DTMF Digits, Telephony Tones and Telephony Signals Data Extensions	[MS-RTPME] [MS-RTPRAD] [MS-SDP]
[MS-RTPME]	Real-Time Transport Protocol (RTP/RTCP): Microsoft Extensions	Block	Collaboration and Communications	Real-Time Transport Protocol (RTP/RTCP): Microsoft Extensions	None
[MS-	Real-Time	Block	Collaboration	RTP/RTCP: Redundant	[MS-RTPME]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
RTPRAD]	Transport Protocol (RTP/RTCP): Redundant Audio Data Extensions		and Communications	Audio Data Extensions	[MS-SDP]
[MS-RTSP]	Real-Time Streaming Protocol (RTSP) Windows Media Extensions	Block	Collaboration and Communications	Real-Time Streaming Protocol (RTSP) Windows Media Extensions	[MS-WMLOG] [MS-WMSP]
[MS-RXAD]	Remote Experience Advertisement Protocol Specification	SOAP	Systems Management	Remote Experience Advertisement Protocol	None
[MS-SAMLPR]	Security Assertion Markup Language (SAML) Proxy Request Signing Protocol Specification	SOAP	Security and Identity Management	Security Assertion Markup Language (SAML) Proxy Request Signing Protocol	None
[MS-SAMR]	Security Account Manager (SAM) Remote Protocol Specification (Client-to-Server)	RPC	Security and Identity Management	Security Account Manager (SAM) Remote Protocol (Client-to-Server)	[MS-ADTS] [MS-DRSR] [MS-KILE] [MS-LSAD] [MS-LSAT] [MS-NLMP] [MS-NRPC] [MS-PAC] [MS-RPCE] [MS-SMB]
[MS-SAMS]	Security Account Manager (SAM) Remote Protocol Specification (Server-to-Server)	Block	Security and Identity Management	Security Account Manager Remote Protocol (Server-to-Server)	[MS-ADTS] [MS-DRSR] [MS-KILE] [MS-NRPC] [MS-RPCE] [MS-SAMR]
[MS-SCMP]	Shadow Copy Management Protocol Specification	RPC	File, Fax, and Printing Services	Shadow Copy Management Protocol	[MS-DCOM] [MS-OAUT] [MS-RPCE]
[MS-SCMR]	Service Control Manager Remote Protocol Specification	RPC	Systems Management	Service Control Manager Remote Protocol	[MS-CIFS] [MS-DTYP] [MS-LSAD] [MS-RPCE]
[MS-SDP]	Session Description Protocol (SDP) Extensions	Block	Collaboration and Communications	Session Description Protocol (SDP) Extensions	[MS-SIP]
[MS-SFMWA]	Server and File Management Web	HTTP	Systems	Server and File Management Web APIs	None

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	APIs Protocol		Management	Protocol	
[MS-SFU]	Kerberos Protocol Extensions: Service for User and Constrained Delegation Protocol Specification	Block	Security and Identity Management	Kerberos Network Authentication Service (V5) Service for User (S4U) Extension	[MS-ADA2] [MS-KILE] [MS-PAC]
[MS-SHLLINK]	Shell Link (.LNK) Binary File Format	Structure	File, Fax, and Printing Services	Shell Link Binary File Format	[MS-DFSNM] [MS-DTYP] [MS-LCID] [MS-PROPSTORE]
[MS-SIP]	Session Initiation Protocol Extensions	Block	Collaboration and Communications	Session Initiation Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-KILE] [MS-NLMP]
[MS-SMB]	Server Message Block (SMB) Protocol Specification	Block	File, Fax, and Printing Services	Server Message Block (SMB) Version 1.0 Protocol	[MS-CIFS] [MS-DFSC] [MS-DTYP] [MS-EFSR] [MS-FSA] [MS-FSCC] [MS-KILE] [MS-NLMP] [MS-RAP] [MS-SPNG]
[MS-SMB2]	Server Message Block (SMB) Version 2 Protocol Specification	Block	File, Fax, and Printing Services	Server Message Block (SMB) Version 2 Protocol	[MS-CIFS] [MS-DFSC] [MS-DTYP] [MS-ERREF] [MS-FSCC] [MS-KILE] [MS-NLMP] [MS-PCCRC] [MS-RPCE] [MS-SMB] [MS-SPNG] [MS-SRVS]
[MS-SMBD]	SMB2 Remote Direct Memory Access (RDMA) Transport Protocol Specification	Block	File, Fax, and Printing Services	SMB2 RDMA Transport Protocol	None

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-SMTPNTLM]	NT LAN Manager (NTLM) Authentication: Simple Mail Transfer Protocol (SMTP) Extension	Block	Collaboration and Communications Security and Identity Management	NTLM Authentication: Simple Mail Transfer Protocol	[MS-NLMP]
[MS-SNID]	Server Network Information Discovery Protocol	Block	Networking	Server Network Information Discovery Protocol	None
[MS-SNTP]	Network Time Protocol (NTP) Authentication Extensions	Block	Systems Management	Simple Network Time Protocol (SNTP) Network Time Protocol (NTP) Authentication Extensions	[MS-ADTS] [MS-NRPC] [MS-RRP] [MS-SCMR] [MS-W32T]
[MS-SPNG]	Simple and Protected GSS-API Negotiation Mechanism (SPNEGO) Extension	Block	Security and Identity Management	Simple and Protected Generic Security Service Application Program Interface Negotiation Mechanism (SPNEGO): Microsoft Extension	None
[MS-SQMCS]	Software Quality Metrics (SQM) Client-to-Service Version 1 Protocol Specification	Block	Systems Management	SQM Client-to-Service Protocol Version 1	[MS-DTYP]
[MS-SQMCS2]	Software Quality Metrics (SQM) Client-to-Service Version 2 Protocol Specification	Block	Other	SQM Client-to-Service Protocol Version 2	[MS-SQMCS] [MS-TPXS]
[MS-SQOS]	Storage Quality of Service Protocol	Block	File, Fax, and Printing Services	Storage Quality of Service Protocol	[MS-SMB2]
[MS-SRPL]	Directory Replication Service (DRS) Protocol Extensions for SMTP	Block	Directory Services	SMTP Replication Protocol Extensions	[MS-ADTS] [MS-DRSR] [MS-RPCE] [MS-WCCE]
[MS-SRVS]	Server Service Remote Protocol Specification	RPC	File, Fax, and Printing Services Systems Management	Server Service Remote Protocol (SRVSVC)	[MS-CIFS] [MS-DFSC] [MS-DFSNM] [MS-DTYP] [MS-EERR] [MS-ERREF] [MS-NRPC] [MS-RPCE] [MS-SMB] [MS-SMB2]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-SSDP]	SSDP: Networked Home Entertainment Devices (NHED) Extensions	Block	Systems Management	SSDP: NHED Extensions	None
[MS-SSEAN]	Simple Mail Transfer Protocol (SMTP) AUTH Extension for SPNEGO	Block	Collaboration and Communications	Simple Mail Transfer Protocol (SMTP) AUTH Extension for SPNEGO	[MS-SPNG]
[MS-SSTP]	Secure Socket Tunneling Protocol (SSTP) Specification	Block	Networking	Secure Socket Tunneling Protocol (SSTP)	[MS-DTYP] [MS-PEAP]
[MS-SSTR]	Smooth Streaming Protocol Specification	Block	Collaboration and Communications	Smooth Streaming Protocol	None
[MS-SWN]	Server Message Block Version 2 (SMB2) Witness Protocol Specification	RPC	File, Fax, and Printing Services	SMB2 Witness Protocol	[MS-DTYP] [MS-ERREF] [MS-RPCE]
[MS-SWSB]	SOAP Over WebSocket Protocol Binding Specification	SOAP	Application Services	SOAP Over WebSocket Protocol Binding	None
[MS-TAIL]	Telephony API Internet Locator Service Protocol Specification	Block	Collaboration and Communications	Telephony API Internet Locator Service Protocol	[MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-NLMP]
[MS-TCC]	Tethering Control Channel Protocol	Block	Device-Specific	Tethering Control Channel Protocol	None
[MS-TDS]	Tabular Data Stream Protocol Specification	Block	File, Fax, and Printing Services	Tabular Data Stream (TDS) Protocol	None
[MS-THCH]	Tracing HTTP Correlation Header Protocol Specification	Block	Application Services	Tracing HTTP Correlation Header	None
[MS-TIPP]	Transaction Internet Protocol (TIP) Extensions	Block	Application Services	TIP Profile Extensions	[MS-DTCO]
[MS-TLSP]	Transport Layer Security (TLS) Profile	Block	Security and Identity Management	Transport Layer Security (TLS) Profile	None
[MS-TNAP]	Telnet: NT LAN Manager (NTLM) Authentication	Block	Networking	Telnet: NT LAN Manager (NTLM) Authentication Protocol	[MS-DTYP] [MS-NLMP]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Protocol Specification				
[MS-TPMVSC]	Trusted Platform Module (TPM) Virtual Smart Card Management Protocol Specification	RPC	Systems Management	TPM Virtual Smart Card Device Management Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-RPCE] [MS-SPNG]
[MS-TPXS]	Telemetry Protocol XML Schema	Structure	Other	Telemetry Protocol XML Schema	None
[MS-TRP]	Telephony Remote Protocol Specification	RPC	Collaboration and Communications	Telephony Remote Protocol	[MS-ADA3] [MS-DTYP] [MS-ERREF] [MS-RPCE]
[MS-TSCH]	Task Scheduler Service Remoting Protocol Specification	RPC	Systems Management	Task Scheduler Service Remoting Protocol	[MS-CIFS] [MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-EVEN] [MS-EVEN6] [MS-RPCE] [MS-RRP] [MS-SFU] [MS-SMB]
[MS-TSGU]	Terminal Services Gateway Server Protocol Specification	RPC	Remote Connectivity	Terminal Services Gateway Server Protocol	[MS-DTYP] [MS-ERREF] [MS-RDPBCGR] [MS-RNAP] [MS-RPCE] [MS-RPCH]
[MS-TSRAP]	Telnet Server Remote Administration Protocol Specification	RPC	Networking	Telnet Server Remote Administration Protocol	[MS-DCOM] [MS-DTYP] [MS-OAUT] [MS-RPCE]
[MS-TSTS]	Terminal Services Terminal Server Runtime Interface Protocol Specification	RPC	Remote Connectivity	Terminal Services Terminal Server Runtime Interface Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-DTYP] [MS-ERREF] [MS-RDPBCGR] [MS-RDPERP] [MS-RPCE] [MS-RPCH]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-TSWP]	Terminal Services Workspace Provisioning Protocol Specification	RPC	Remote Connectivity	Terminal Services Workspace Provisioning Protocol	None
[MS-TVTT]	Telnet: VTNT Terminal Type Format Data Structure	Structure	Remote Connectivity	Telnet: VTNT Terminal Type Format Data Structure	None
[MS-UAMG]	Update Agent Management Protocol Specification	RPC	Systems Management	Update Agent Management Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-OAUT] [MS-RPCE]
[MS-UCODEREF]	Windows Protocols Unicode Reference	Block	Reference	Windows Protocols Unicode Reference	None
[MS-UNMP]	User Name Mapping Protocol Specification	Block	File, Fax, and Printing Services	User Name Mapping (UNM) Protocol	[MS-DTYP]
[MS-UPIGD]	UPnP Device and Service Templates: Internet Gateway Device (IGD) Extensions	Structure	Systems Management	UPnP: Device & Service Templates: Internet Gateway Device (IGD) Extensions	None
[MS-UPMC]	UPnP Device and Service Templates: Media Property and Compatibility Extensions	Structure	Collaboration and Communications	UPnP Device and Service Templates: Media Property and Compatibility Extensions	[MS-DTYP]
[MS-V4OF]	IPv4 Over IEEE 1394 Protocol Extensions	Block	Networking	IPv4 over IEEE 1394 Protocol Extensions	None
[MS-VAPR]	Virtual Application Publishing and Reporting (App-V) Protocol	HTTP	Application Services	Virtual Application Publishing and Reporting Protocol	[MS-DTYP]
[MS-VDS]	Virtual Disk Service (VDS) Protocol Specification	Block	Systems Management	Virtual Disk Service (VDS) Remote Protocol	[MS-CHAP] [MS-DCOM] [MS-DMRP] [MS-DTYP] [MS-ERREF] [MS-RPCE]
[MS-VHDX]	Virtual Hard Disk v2 (VHDX) File Format	Structure	File, Fax, and Printing Services	Virtual Hard Disk v2 (VHDX) File Format	None
[MS-VUVP]	VT-UTF8 and VT100+ Protocols	Block	Networking	VT-UTF8 and VT100+ Protocols	None

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Specification				
[MS-W32T]	W32Time Remote Protocol Specification	RPC	Systems Management	W32Time Remote Protocol	[MS-ERREF] [MS-RPCE] [MS-SMB] [MS-SPNG]
[MS-WCCE]	Windows Client Certificate Enrollment Protocol Specification	RPC	Security and Identity Management	Windows Client Certificate Enrollment Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-CRTD] [MS-CSRA] [MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-ICPR] [MS-LSAT] [MS-NRPC] [MS-RPCE]
[MS-WCFESAN]	WCF-Based Encrypted Server Administration and Notification Protocol	SOAP	Windows - General	WCF-Based Encrypted Server Administration and Notification Protocol	[MS-ADA1] [MS-KILE] [MS-NMFTB] [MS-WSPOL]
[MS-WDHCE]	Wi-Fi Display Protocol: Hardware Cursor Extension	Block	Networking	Wi-Fi Display Protocol: Hardware Cursor Extension	[MS-ERREF]
[MS-WDSC]	Windows Deployment Services Control Protocol Specification	RPC	Networking	Windows Deployment Services Control Protocol	[MS-DTYP] [MS-ERREF] [MS-RPCE]
[MS-WDSMA]	Windows Deployment Services Multicast Application Protocol Specification	Block	Networking	Windows Deployment Services Multicast Application Protocol	None
[MS-WDSMSI]	Windows Deployment Services Multicast Session Initiation Protocol Specification	Block	Networking	Windows Deployment Services Multicast Session Initiation Protocol	[MS-ERREF] [MS-WDSC] [MS-WDSMT]
[MS-WDSMT]	Windows Deployment Services Multicast Transport Protocol	Block	Networking	Windows Deployment Services Multicast Transport Protocol	[MS-WDSMSI] [MS-WDSMA]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Specification				
[MS-WDSOSD]	Windows Deployment Services Operation System Deployment Protocol Specification	Block	Networking	Windows Deployment Services Operation System Deployment Protocol	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADLS] [MS-ADSC] [MS-ERREF] [MS-WDSC]
[MS-WDV]	Web Distributed Authoring and Versioning (WebDAV) Protocol: Client Extensions	Block	File, Fax, and Printing Services	Web Distributed Authoring and Versioning (WebDAV) Protocol: Client Extensions	None
[MS-WDVSE]	Web Distributed Authoring and Versioning (WebDAV) Protocol: Server Extensions	Block	File, Fax, and Printing Services	Web Distributed Authoring and Versioning (WebDAV) Protocol: Server Extensions	None
[MS-WFDAA]	Wi-Fi Direct (WFD) Application to Application Protocol	Block	Device-Specific	Wi-Fi Direct (WFD) Protocol: Proximity Extensions	
[MS-WFDPE]	Wi-Fi Display Protocol Extension	Structure	Collaboration and Communications	Wi-Fi Display Protocol Extension	[MS-ERREF]
[MS-WFIM]	Workflow Instance Management Protocol Specification	SOAP	Application Services	Workflow Instance Management Protocol	[MS-DTCO] [MS-DTYP] [MS-WSPOL]
[MS-WINSRA]	Windows Internet Naming Service (WINS) Replication and Autodiscovery Protocol Specification	Block	Networking	Windows Internet Naming Service (WINS) Replication Protocol	[MS-DTYP]
[MS-WKST]	Workstation Service Remote Protocol Specification	RPC	File, Fax, and Printing Services	Workstation Service Remote Protocol (WKSSVC)	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADSC] [MS-ADTS] [MS-BRWS] [MS-BRWSA] [MS-CIFS] [MS-DTYP] [MS-ERREF] [MS-LSAT]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
					[MS-NLMP] [MS-NRPC] [MS-RPCE] [MS-SMB] [MS-SMB2] [MS-SPNG]
[MS-WMF]	Windows Metafile Format	Structure	File, Fax, and Printing Services	Windows Metafile (WMF) Format	[MS-DTYP]
[MS-WMHTTP]	Windows Media HTTP Push Distribution Protocol Specification	Block	Collaboration and Communications	Windows Media HTTP Push Distribution Protocol	[MS-DTYP] [MS-ERREF] [MS-NLMP] [MS-NTHT] [MS-WMSP]
[MS-WMI]	Windows Management Instrumentation Remote Protocol Specification	RPC	Systems Management	Windows Management Instrumentation Remote Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-LCID] [MS-OAUT] [MS-RPCE] [MS-WMIO]
[MS-WMIO]	Windows Management Instrumentation Encoding Version 1.0 Protocol Specification	Structure	Systems Management	Windows Management Instrumentation Remote Protocol Windows Management Instrumentation Encoding Version 1.0	[MS-DCOM] [MS-WMI]
[MS-WMLOG]	Windows Media Log Data Structure	Structure	Collaboration and Communications	Windows Media Log Data Structure	None
[MS-WMSP]	Windows Media HTTP Streaming Protocol Specification	Block	Collaboration and Communications	Windows Media HTTP Streaming Protocol	[MS-DTYP] [MS-ERREF] [MS-NLMP] [MS-NTHT] [MS-OAUT] [MS-RTSP] [MS-WMLOG]
[MS-WPE376]	WordPad ECMA 376 Standards Support	Standards Support	Other	WordPad ECMA 376 Standards Support	None
[MS-WPODF]	WordPad ODF 1.1 Standards Support	Standards Support	Other	WordPad ODF 1.1 Standards Support	None
[MS-WPRN]	Web Point-and-Print Protocol Specification	Block	File, Fax, and Printing Services	Web Point-and-Print Protocol	[MS-DTYP] [MS-RPRN] [MS-RRP]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
[MS-WSDS]	WS-Enumeration: Directory Services Protocol Extensions	SOAP	Directory Services	WS-Enumeration: Directory Services Protocol Extensions	[MS-ADDM] [MS-ADTS]
[MS-WSH]	Windows Security Health Agent (WSHA) and Windows Security Health Validator (WSHV) Protocol Specification	Block	Networking	Windows Security Health Agent (WSHA) and Windows Security Health Validator (WSHV) Protocol	[MS-DTYP]
[MS-WSMAN]	Web Services Management Protocol Extensions for Windows Server 2003	SOAP	Systems Management	WS-Management Protocol Extensions	[MS-DTYP] [MS-WSMV]
[MS-WSMV]	Web Services Management Protocol Extensions for Windows Vista	SOAP	Systems Management	WS-Management Protocol: Extensions Version 2.0	[MS-CSSP] [MS-DTYP] [MS-WMI]
[MS-WSP]	Windows Search Protocol Specification	Block	File, Fax, and Printing Services	Windows Search Protocol	[MS-DTYP] [MS-ERREF] [MS-LCID] [MS-SMB] [MS-SMB2]
[MS-WSPE]	WebSocket Protocol Extensions	Block	Networking	WebSocket Protocol	None
[MS-WSPELD]	WS-Transfer and WS-Enumeration Protocol Extension for Lightweight Directory Access Protocol v3 Controls Specification	SOAP	Directory Services	WS-Transfer: Lightweight Directory Access Protocol (LDAP) v3 Control Extension	[MS-ADDM] [MS-ADTS] [MS-WSDS] [MS-WSTIM]
[MS-WSPOL]	Web Services: Policy Assertions and WSDL Extensions	SOAP	Application Services	Web Services: Policy Assertions and WSDL Extensions	[MC-NBFS] [MC-NBFSE] [MC-NMF] [MC-NPR] [MS-NNS] [MS-NTHT]
[MS-WSRM]	Windows System Resource Manager (WSRM) Protocol Specification	RPC	Systems Management	Windows System Resource Manager (WSRM) Protocol	[MS-DCOM] [MS-DTYP] [MS-ERREF] [MS-OAUT] [MS-RPCE]
[MS-WSRVCAT]	WS-AtomicTransaction (WS-AT) Version	Block	Application Services	WS-AtomicTransaction (WS-AT) Version 1.0	[MS-CMP] [MS-CMPO]

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	1.0 Protocol Extensions			Protocol	[MS-DTCO] [MS-DTYP]
[MS-WSRVCRM]	WS-ReliableMessaging Protocol: Advanced Flow Control Extension	Block	Application Services	WS-ReliableMessaging Protocol: Advanced Flow Control Extension	None
[MS-WSRVCRR]	WS-ReliableMessaging Protocol: Reliable Request-Reply Extension	Block	Application Services	WS-ReliableMessaging Protocol: Reliable Request-Reply Extension	None
[MS-WSTC]	WS-Discovery: Termination Criteria Protocol Extensions	SOAP	Application Services	WS-Discovery: Termination Criteria Protocol	None
[MS-WSTEP]	WS-Trust X.509v3 Token Enrollment Extensions	SOAP	Security and Identity Management	WS-Trust X.509v3 Token Enrollment Protocol Extensions	[MS-ADA1] [MS-ADSC] [MS-WCCE]
[MS-WSTIM]	WS-Transfer: Identity Management Operations for Directory Access Extensions	SOAP	Security and Identity Management	WS-Transfer: Identity Management Operations for Directory AccessExtensions	[MS-ADA1] [MS-ADDM] [MS-ADTS]
[MS-WSUSAR]	Windows Server Update Services: Administrative API Remoting Protocol (WSUSAR)	SOAP	Systems Management	Windows Server Update Services: Administrative API Remoting Protocol	[MS-DTYP] [MS-TDS] [MS-WSUSSS] [MS-WUSP]
[MS-WSUSSS]	Windows Update Services: Server-Server Protocol Specification	SOAP	Systems Management	Windows Server Update Services: Server-Server Protocol	[MS-DRSR] [MS-LCID] [MS-WUSP]
[MS-WUSP]	Windows Update Services: Client-Server Protocol Specification	SOAP	Systems Management	Windows Server Update Services: Client-Server Protocol	[MS-ERREF] [MS-GPOL] [MS-LCID]
[MS-XCA]	Xpress Compression Algorithm	Algorithm	Application Services	Xpress Compression Algorithm	None
[MS-XCEP]	X.509 Certificate Enrollment Policy Protocol Specification	SOAP	Security and Identity Management	X.509 Certificate Enrollment Policy Protocol	[MS-ADLS] [MS-CRTD] [MS-WCCE] [MS-WSTEP]
[MS-XOPP]	XML-binary Optimized Packaging (XOP)	SOAP	Networking Security and Identity	Lightweight Web Services Profile	None

Document short name	Document title	Template type	Technical area	Protocols specified	Technical specifications cited
	Profile		Management		

4.2   Technical Area Cross-Reference Matrix

This section contains a table that shows, for each technical area, the following information:

- Technology overviews (section 2.1.3) in the technical area

- Technical specifications in the technical area

Note The categorization of a technical specification in a technical area does not guarantee that the specification is cited by one of the technology overviews in that technical area. See the Technology Collection Cross-Reference Matrix (section 4.3) for listings of such citations.

Technical area	Technology overviews	Technical specifications
Application Services	[MS-MQOD] [MS-NETOD] [MS-TPSOD]	[MC-COMQC] [MC-CSDL] [MC-DTCXA] [MC-EDMX] [MC-IISA] [MC-MQAC] [MC-MQSRM] [MC-NBFS] [MC-NBFSE] [MC-NBFX] [MC-NETCEX] [MC-NMF] [MC-NPR] [MC-PRCH] [MC-PRCR] [MS-ASP] [MS-CMOM] [MS-CMP] [MS-CMPO] [MS-COM] [MS-COMA] [MS-COMEV] [MS-COMT] [MS-DSML] [MS-DTCLU] [MS-DTCM] [MS-DTCO] [MS-IISS] [MS-IOI] [MS-IMSA] [MS-IRP]

Technical area	Technology overviews	Technical specifications
		[MS-MQBR]
		[MS-MQCN]
		[MS-MQDMPR]
		[MS-MQDS]
		[MS-MQDSSM]
		[MS-MQMP]
		[MS-MQMQ]
		[MS-MQMR]
		[MS-MQQB]
		[MS-MQQP]
		[MS-MQRR]
		[MS-MQSD]
		[MS-NETTR]
		[MS-NMFMB]
		[MS-NMFTB]
		[MS-NNS]
		[MS-NRBF]
		[MS-NRLS]
		[MS-NRTP]
		[MS-NTHT]
		[MS-ODATA]
		[MS-PNRP]
		[MS-SWSB]
		[MS-THCH]
		[MS-TIPP]
		[MS-VAPR]
		[MS-WFIM]
		[MS-WSPOL]
		[MS-WSRVCAT]
		[MS-WSRVCRM]
		[MS-WSRVCRR]
		[MS-WSTC]
		[MS-XCA]
Collaboration and Communication	[MS-MSSOD]	[MS-DCHT]
		[MS-DCLB]
		[MS-DLNHND]
		[MS-DRM]
		[MS-DRMCD]
		[MS-DRMND]
		[MS-DRMRI]
		[MS-H245]
		[MS-H26XPF]
		[MS-MMSP]
		[MS-MNPR]
		[MS-MSB]
		[MS-MSBD]
		[MS-NNTP]

Technical area	Technology overviews	Technical specifications
		[MS-RRSP2]
		[MS-RTPDT]
		[MS-RTPME]
		[MS-RTPRAD]
		[MS-RTSP]
		[MS-SDP]
		[MS-SIP]
		[MS-SMTPNTLM]
		[MS-SSEAN]
		[MS-SSTR]
		[MS-TAIL]
		[MS-TRP]
		[MS-UPMC]
		[MS-WFDPE]
Directory Services	[MS-ADFSOD] [MS-ADOD]	[MS-ADA1]
		[MS-ADA2]
		[MS-ADA3]
		[MS-ADCAP]
		[MS-ADDM]
		[MS-ADFSOAL]
		[MS-ADFSPIP]
		[MS-ADFSPP]
		[MS-ADFSWAP]
		[MS-ADLS]
		[MS-ADSC]
		[MS-ADTS]
		[MS-DRSR]
		[MS-DSSP]
		[MS-DVRD]
		[MS-DVRE]
		[MS-DVRJ]
		[MS-KPP]
		[MS-LSAD]
		[MS-LSAT]
		[MS-MAIL]
		[MS-MWBE]
		[MS-MWBF]
		[MS-NSPI]
		[MS-OAPX]
		[MS-OAPXBC]
		[MS-PKAP]
		[MS-SAMLPR]
		[MS-SAMR]
		[MS-SAMS]
		[MS-SRPL]
		[MS-WSDS]
		[MS-WSPELD]

Technical area	Technology overviews	Technical specifications
		[MS-WSTIM]
File, Fax, and Printing Services	[MS-CCROD] [MS-FASOD] [MS-FSMOD] [MS-PRSOD] [MS-STOROD]	[MC-BUP] [MS-BDSRR] [MS-BKUP] [MS-BPCR] [MS-BPDP] [MS-BRWS] [MS-BRWSA] [MS-CAPR] [MS-CIFS] [MS-DFSC] [MS-DFSNM] [MS-DFSRH] [MS-DLTCS] [MS-DLTM] [MS-DLTW] [MS-DMRP] [MS-DPWSRP] [MS-EFSR] [MS-EMF] [MS-EMFPLUS] [MS-EMFSPOOL] [MS-FAX] [MS-FCIADS] [MS-FRS1] [MS-FRS2] [MS-FSA] [MS-FSCC] [MS-FSRM] [MS-FSRVP] [MS-FSVCA] [MS-FTPS] [MS-HGRP] [MS-HRL] [MS-HVRS] [MS-PAN] [MS-PAR] [MS-PCCRC] [MS-PCHC] [MS-RAA] [MS-RAP] [MS-RDC] [MS-RPRN] [MS-RSMP] [MS-SCMP] [MS-SHLLINK] [MS-SMB]

Technical area	Technology overviews	Technical specifications
		[MS-SMB2]
		[MS-SMBD]
		[MS-SQOS]
		[MS-SRVS]
		[MS-SWN]
		[MS-TDS]
		[MS-UNMP]
		[MS-VDS]
		[MS-VHDX]
		[MS-WDV]
		[MS-WDVSE]
		[MS-WKST]
		[MS-WMF]
		[MS-WPE376]
		[MS-WPODF]
		[MS-WPRN]
		[MS-WSP]
Home Server		[MC-DRT]
		[MC-PRCR]
		[MS-HGRP]
		[MS-PBSD]
		[MS-PNRP]
		[MS-PPGRH]
		[MS-PPSEC]
Multiplayer Games		[MC-DPL4CS]
		[MC-DPL4R]
		[MC-DPL8CS]
		[MC-DPL8R]
		[MC-DPLHP]
		[MC-DPLNAT]
		[MC-DPLVP]
		[MS-DPDX]
Networking	[MS-NAPOD]	[MS-ADTG]
		[MS-CBCP]
		[MS-CDP]
		[MS-CFB]
		[MS-CHAP]
		[MS-CPSP]
		[MS-DHA]
		[MS-DHCPE]
		[MS-DHCPF]
		[MS-DHCPM]
		[MS-DHCPN]
		[MS-EERR]
		[MS-FASP]
		[MS-HCEP]

Technical area	Technology overviews	Technical specifications
		[MS-HNDS]
		[MS-HTTP2E]
		[MS-IPAMM2]
		[MS-IPHTTPS]
		[MS-IRDA]
		[MS-L2TPIE]
		[MS-LLMNRP]
		[MS-LLTD]
		[MS-LWSSP]
		[MS-MDE2]
		[MS-MSRP]
		[MS-NBTE]
		[MS-NCNBI]
		[MS-NCT]
		[MS-NFPB]
		[MS-NFPS]
		[MS-NKPU]
		[MS-OAUT]
		[MS-OLEDS]
		[MS-OLEPS]
		[MS-PEAP]
		[MS-PPPI]
		[MS-PSDP]
		[MS-PTPT]
		[MS-QDP]
		[MS-QLPB]
		[MS-RASA]
		[MS-RNAP]
		[MS-RPCE]
		[MS-RPCH]
		[MS-RPCL]
		[MS-SNID]
		[MS-SSTP]
		[MS-TNAP]
		[MS-TSRAP]
		[MS-V4OF]
		[MS-VUVP]
		[MS-WDHCE]
		[MS-WDSC]
		[MS-WDSMA]
		[MS-WDSMSI]
		[MS-WDSMT]
		[MS-WDSOSD]
		[MS-WINSRA]
		[MS-WSH]
		[MS-WSPE]
		[MS-XOPP]

Technical area	Technology overviews	Technical specifications
Remote Connectivity	[MS-RDSOD]	[MS-RDPADRV]
		[MS-RDPBCGR]
		[MS-RDPCR2]
		[MS-RDPEA]
		[MS-RDPEAI]
		[MS-RDPEAR]
		[MS-RDPECLIP]
		[MS-RDPEDC]
		[MS-RDPEDISP]
		[MS-RDPEDYC]
		[MS-RDPEECO]
		[MS-RDPEFS]
		[MS-RDPEGDI]
		[MS-RDPEGFX]
		[MS-RDPEGT]
		[MS-RDPEI]
		[MS-RDPELE]
		[MS-RDPEMC]
		[MS-RDPEMT]
		[MS-RDPEPC]
		[MS-RDPEPNP]
		[MS-RDPEPS]
		[MS-RDPERP]
		[MS-RDPESC]
		[MS-RDPESP]
		[MS-RDPEUDP]
		[MS-RDPEUSB]
		[MS-RDPEV]
		[MS-RDPEVOR]
		[MS-RDPEXPS]
		[MS-RDPNSC]
		[MS-RDPRFX]
		[MS-RDWR]
		[MS-RNAS]
		[MS-RSMC]
		[MS-RSP]
		[MS-TSGU]
		[MS-TSTS]
		[MS-TSWP]
		[MS-TVTT]
Security and Identity Management	[MS-AUTHSOD]	[MS-ADFSOAL]
	[MS-CERSOD]	[MS-ADFSPIP]
	[MS-RMSOD]	[MS-ADFSPP]
		[MS-ADFSWAP]
		[MS-AIPS]
		[MS-APDS]
		[MS-AZMP]

Technical area	Technology overviews	Technical specifications
		[MS-BKRP]
		[MS-CRTD]
		[MS-CSRA]
		[MS-CSSP]
		[MS-CTA]
		[MS-DPSP]
		[MS-DTAG]
		[MS-GKDI]
		[MS-GPREG]
		[MS-GSSA]
		[MS-ICPR]
		[MS-IKEE]
		[MS-KILE]
		[MS-KKDCP]
		[MS-LWSSP]
		[MS-MWBE]
		[MS-MWBF]
		[MS-N2HT]
		[MS-NLMP]
		[MS-NRPC]
		[MS-NTHT]
		[MS-OAPX]
		[MS-OAPXBC]
		[MS-OCSP]
		[MS-OCSPA]
		[MS-OIDCE]
		[MS-PAC]
		[MS-PASS]
		[MS-PKCA]
		[MS-POP3]
		[MS-RCMP]
		[MS-RMPR]
		[MS-RMPRS]
		[MS-RMSI]
		[MS-SAMLPR]
		[MS-SFU]
		[MS-SMTPNTLM]
		[MS-SPNG]
		[MS-TLSP]
		[MS-WCCE]
		[MS-WSTEP]
		[MS-XCEP]
Systems Management	[MS-GPOD] [MS-WMOD] [MS-WSUSOD]	[MC-CCFG] [MS-BPAU] [MS-CER] [MS-CER2] [MS-CMRP]

Technical area	Technology overviews	Technical specifications
		[MS-CSVP]
		[MS-DCOM]
		[MS-DMCT]
		[MS-DNSP]
		[MS-DPWSSN]
		[MS-DSCPM]
		[MS-DSLR]
		[MS-DSMN]
		[MS-DSPA]
		[MS-EVEN]
		[MS-EVEN6]
		[MS-GPAC]
		[MS-GPCAP]
		[MS-GPDPC]
		[MS-GPEF]
		[MS-GPFAS]
		[MS-GPFR]
		[MS-GPIE]
		[MS-GPIPSEC]
		[MS-GPNAP]
		[MS-GPNRPT]
		[MS-GPOL]
		[MS-GPPREF]
		[MS-GPSB]
		[MS-GPSCR]
		[MS-GPSI]
		[MS-GPWL]
		[MS-HGRP]
		[MS-IPAMM]
		[MS-LREC]
		[MS-MCIS]
		[MS-PCQ]
		[MS-PLA]
		[MS-PSRDP]
		[MS-PSRP]
		[MS-RA]
		[MS-RAI]
		[MS-RAIOP]
		[MS-RAIW]
		[MS-RRASM]
		[MS-RRP]
		[MS-RXAD]
		[MS-SCMR]
		[MS-SFMWA]
		[MS-SNTP]
		[MS-SQMCS]
		[MS-SQMCS2]
		[MS-SSDP]

Technical area	Technology overviews	Technical specifications
		[MS-TPMVSC]
		[MS-TSCH]
		[MS-UAMG]
		[MS-UPIGD]
		[MS-W32T]
		[MS-WMI]
		[MS-WMIO]
		[MS-WSMAN]
		[MS-WSMV]
		[MS-WSRM]
		[MS-WSUSAR]
		[MS-WSUSSS]
		[MS-WUSP]

4.3   Technology Collection Cross-Reference Matrix

This section contains a table that shows the technology collections in the Windows protocols documentation set. Each technology collection consists of a technology overview (section 2.1.3) in a technical area (section 2) and the technical specifications it references.

Technology overview	Technical area	Technical specifications
[MS-ADFSOD]: Active Directory Federation Services (AD FS) Protocols Overview	Directory Services	[MS-ADFSOAL] [MS-ADFSPIP] [MS-ADFSPP] [MS-ADFSWAP] [MS-DVRJ] [MS-KPP] [MS-MWBE] [MS-MWBF] [MS-OAPX] [MS-SAMLPR]
[MS-ADOD]: Active Directory Protocols Overview	Directory Services	[MS-ADA1] [MS-ADA2] [MS-ADA3] [MS-ADCAP] [MS-ADDM] [MS-ADLS] [MS-ADSC] [MS-ADTS] [MS-APDS] [MS-CIFS] [MS-DFSC] [MS-DPSP] [MS-DRSR] [MS-DSSP]

Technology overview	Technical area	Technical specifications
		[MS-DVRE]
		[MS-KILE]
		[MS-LSAD]
		[MS-LSAT]
		[MS-MAIL]
		[MS-NLMP]
		[MS-NRPC]
		[MS-PAC]
		[MS-RCMP]
		[MS-RPCE]
		[MS-SAMR]
		[MS-SAMS]
		[MS-SMB]
		[MS-SMB2]
		[MS-SNTP]
		[MS-SRPL]
		[MS-WSDS]
		[MS-WSPELD]
		[MS-WSTIM]
[MS-AUTHSOD]: Authentication Services Protocols Overview	Security and Identity Management	[MS-ADFSOAL]
		[MS-ADFSPIP]
		[MS-APDS]
		[MS-CIFS]
		[MS-CSSP]
		[MS-DPSP]
		[MS-KILE]
		[MS-KKDCP]
		[MS-NLMP]
		[MS-NNTP]
		[MS-NRPC]
		[MS-PAC]
		[MS-PKCA]
		[MS-POP3]
		[MS-RCMP]
		[MS-RDPBCGR]
		[MS-SFU]
		[MS-SMB]
		[MS-SMB2]
		[MS-SNTP]
		[MS-SPNG]
		[MS-TLSP]
		[MS-WSMV]
[MS-AZOD]: Authorization Protocols Overview	Security and Identity Management	[MS-ADA3]
		[MS-ADSC]
		[MS-ADTS]
		[MS-APDS]

Technology overview	Technical area	Technical specifications
		[MS-AZMP] [MS-CAPR] [MS-CIFS] [MS-COMA] [MS-CTA] [MS-DPSP] [MS-FCIADS] [MS-FSA] [MS-FSRM] [MS-GPCAP] [MS-KILE] [MS-LSAD] [MS-NLMP] [MS-NRPC] [MS-PAC] [MS-PAN] [MS-PKCA] [MS-RAA] [MS-RCMP] [MS-RPRN] [MS-RRP] [MS-SFU] [MS-SMB] [MS-SMB2] [MS-SPNG] [MS-TDS] [MS-TLSP]
[MS-CCROD]: Content Caching and Retrieval Protocols Overview	File, Fax, and Printing Services	[MC-BUP] [MS-BPCR] [MS-BPDP] [MS-CIFS] [MS-FSA] [MS-FSCC] [MS-KILE] [MS-PCCRC] [MS-PCCRD] [MS-PCCRR] [MS-PCCRTP] [MS-PCHC] [MS-SMB] [MS-SMB2] [MS-TLSP]
[MS-CERSOD]: Certificate Services Protocols Overview	Security and Identity Management	[MS-ADTS] [MS-CRTD] [MS-CSRA] [MS-DCOM]

Technology overview	Technical area	Technical specifications
		[MS-DRSR] [MS-GPREG] [MS-ICPR] [MS-WCCE] [MS-WSTEP] [MS-XCEP]
[MS-FASOD]: File Access Services Protocols Overview	File, Fax, and Printing Services	[MS-BRWS] [MS-BRWSA] [MS-CIFS] [MS-DFSC] [MS-FSA] [MS-FSCC] [MS-FSRM] [MS-PCHC] [MS-RAP] [MS-RPCE] [MS-RRP] [MS-SMB] [MS-SMB2] [MS-SMBD] [MS-SRVS] [MS-UNMP] [MS-WDV] [MS-WDVSE] [MS-WKST]
[MS-FSMOD]: File Services Management Protocols Overview	File, Fax, and Printing Services	[MS-BRWS] [MS-CIFS] [MS-DCOM] [MS-DFSNM] [MS-DFSRH] [MS-FRS1] [MS-FRS2] [MS-FSRM] [MS-RAP] [MS-RDC] [MS-RPCE] [MS-SMB] [MS-SMB2] [MS-SRVS] [MS-WKST]
[MS-GPOD]: Group Policy Protocols Overview	Systems Management	[MS-ADTS] [MS-GPAC] [MS-GPCAP] [MS-GPDPC] [MS-GPEF] [MS-GPFAS]

Technology overview	Technical area	Technical specifications
		[MS-GPFR] [MS-GPIE] [MS-GPIPSEC] [MS-GPNAP] [MS-GPOL] [MS-GPPREF] [MS-GPREG] [MS-GPSB] [MS-GPSCR] [MS-GPSI] [MS-GPWL] [MS-KILE] [MS-NLMP] [MS-NRPC] [MS-SMB] [MS-SPNG] [MS-WMI] [MS-WUSP]
[MS-MQOD]: Message Queuing Protocols Overview	Application Services	[MC-COMQC] [MC-MQAC] [MC-MQSRM] [MS-ADA2] [MS-ADTS] [MS-DTCO] [MS-MQBR] [MS-MQCN] [MS-MQDMPR] [MS-MQDS] [MS-MQDSSM] [MS-MQMP] [MS-MQMQ] [MS-MQMR] [MS-MQQB] [MS-MQQP] [MS-MQRR] [MS-MQSD] [MS-RDPBCGR]
[MS-MSSOD]: Media Streaming Server Protocols Overview	Collaboration and Communications	[MS-DRM] [MS-MMSP] [MS-MSB] [MS-MSBD] [MS-NLMP] [MS-RTSP] [MS-WMHTTP] [MS-WMLOG] [MS-WMSP]

Technology overview	Technical area	Technical specifications
[MS-NAPOD]: Network Access Protection Protocols Overview	Networking	[MS-APDS] [MS-DHCPM] [MS-DHCPN] [MS-GPNAP] [MS-HCEP] [MS-IKEE] [MS-PEAP] [MS-PTPT] [MS-RNAP] [MS-SNTP] [MS-TLSP] [MS-TSGU] [MS-WCCE] [MS-WSH]
[MS-NETOD]: Microsoft .NET Framework Protocols Overview	Application Services	[MC-CSDL] [MC-EDMX] [MC-NBFS] [MC-NBFSE] [MC-NBFX] [MC-NETCEX] [MC-NPR] [MC-PRCH] [MC-PRCR] [MS-ASP] [MS-DSML] [MS-IOI] [MS-NETTR] [MS-NMFMB] [MS-NMFTB] [MS-NNS] [MS-NRBF] [MS-NRLS] [MS-NRTP] [MS-NTHT] [MS-ODATA] [MS-PNRP] [MS-WFIM] [MS-WSPOL] [MS-WSRVCAT] [MS-WSRVCRM] [MS-WSRVCRR] [MS-WSTC]
[MS-PRSOD]: Print Services Protocols Overview	File, Fax, and Printing Services	[MS-ADLS] [MS-ADSC] [MS-BRWS] [MS-CIFS]

Technology overview	Technical area	Technical specifications
		[MS-DRSR] [MS-EMFSPOOL] [MS-FSCC] [MS-GPDPC] [MS-GPOL] [MS-NRPC] [MS-PAN] [MS-PAR] [MS-RAP] [MS-RPRN] [MS-SMB] [MS-SMB2] [MS-SPNG] [MS-WPRN] [MS-WUSP]
[MS-RDSOD]: Remote Desktop Services Protocols Overview	Remote Connectivity	[MS-RDPBCGR] [MS-RDPCR2] [MS-RDPEA] [MS-RDPEAI] [MS-RDPECLIP] [MS-RDPEDC] [MS-RDPEDISP] [MS-RDPEDYC] [MS-RDPEECO] [MS-RDPEFS] [MS-RDPEGDI] [MS-RDPEGFX] [MS-RDPEI] [MS-RDPELE] [MS-RDPEMC] [MS-RDPEMT] [MS-RDPEPC] [MS-RDPEPNP] [MS-RDPEPS] [MS-RDPERP] [MS-RDPESC] [MS-RDPESP] [MS-RDPEUDP] [MS-RDPEUSB] [MS-RDPEV] [MS-RDPEVOR] [MS-RDPEXPS] [MS-RDPNSC] [MS-RDPRFX] [MS-TSGU] [MS-TSTS] [MS-TSWP]

Technology overview	Technical area	Technical specifications
[MS-RMSOD]: Rights Management Services Protocols Overview	Security and Identity Management	[MS-MWBE] [MS-MWBF] [MS-NTHT] [MS-RMPR] [MS-RMPRS] [MS-RMSI]
[MS-STOROD]: Storage Services Protocols Overview	File, Fax, and Printing Services	[MS-ADTS] [MS-DCOM] [MS-DMRP] [MS-EFSR] [MS-FSRVP] [MS-OAUT] [MS-RPCE] [MS-RSMP] [MS-SCMP] [MS-VDS] [MS-WCCE]
[MS-TPSOD]: Transaction Processing Services Protocols Overview	Application Services	[MC-DTCXA] [MS-CMOM] [MS-CMP] [MS-CMPO] [MS-COM] [MS-DTCLU] [MS-DTCM] [MS-DTCO] [MS-RPCE] [MS-TIPP] [MS-WSRVCAT]
[MS-WMOD]: Windows Management Protocols Overview	Systems Management	[MS-DCOM] [MS-KILE] [MS-NLMP] [MS-ODATA] [MS-PSRP] [MS-WMI] [MS-WMIO] [MS-WSMAN] [MS-WSMV]
[MS-WSUSOD]: Windows Server Update Services Protocols Overview	Systems Management	[MS-GPOL] [MS-WSUSSS] [MS-WUSP]

5   Appendix B: Open Specifications Site Map
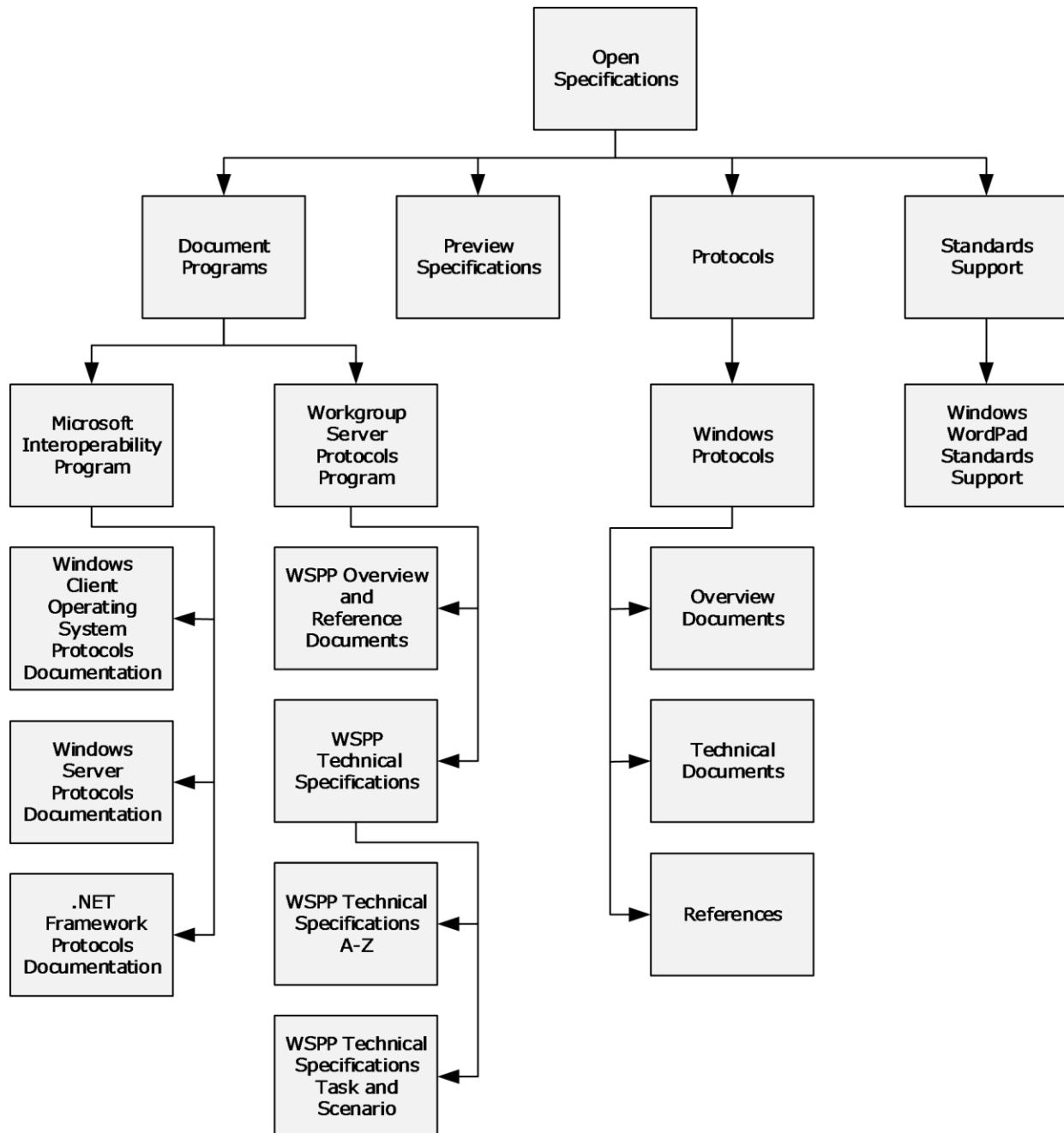
Figure 17: Open Specifications site map

6   Change Tracking

This section identifies changes that were made to this document since the last release. 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
1.3.2 Relationships Among Documents	Updated content for this version of Windows and Windows Server.	Y	Content update.
2.2 Technical Specifications	Added normative content, informative content and template sections.	Y	Content update.
2.2.1 Normative Content	Added normative content, informative content, and template sections.	Y	New content added.
2.2.2 Informative Content	Added normative content, informative content and template sections.	Y	New content added.
2.2.3 Template Types	Added normative content, informative content and template sections.	Y	New content added.
2.2.3.2 Block	Added normative content, informative content and template sections.	Y	Content update.
2.2.3.5 HTTP	Added normative content, informative content, and template sections.	Y	Content update.
2.2.3.5 HTTP	Changed [MS-ODATA] from a CSDL requirement to an open data model requirement.	Y	Content update.
2.2.3.6 RPC	Added normative content, informative content and template sections.	Y	Content update.
2.2.3.7 SOAP	Added normative content, informative content and template sections.	Y	Content update.
4.1 Technical Specification Cross-Reference Matrix	Updated the technical area for various documents.	Y	Content update.
4.1 Technical Specification Cross-Reference Matrix	Updated content for new documents MS-CDP, MS-HRL, MS-NCT, MS-RDPEAR, MS-VHDX.	Y	Content update.
4.2 Technical Area Cross-Reference Matrix	Moved [MS-NETOD] and its technical specifications from the "Networking" technical area to the "Application Services" technical area.	Y	Content update.
4.2 Technical Area Cross-Reference Matrix	Updated content for new documents MS-CDP, MS-HRL, MS-NCT, MS-RDPEAR, MS-VHDX.	Y	Content update.
4.3 Technology Collection Cross-Reference Matrix	Updated the technical area for [MS-NETOD]: Microsoft .NET Framework Protocols Overview from "Networking" to "Application Services".	Y	Content update.

Section	Tracking number (if applicable) and description	Major change (Y or N)	Change type
4.3 Technology Collection Cross-Reference Matrix	Updated content for new documents MS-CDP, MS-HRL, MS-NCT, MS-RDPEAR, MS-VHDX.	Y	Content update.

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