

[MS-IISS-Diff]:

Internet Information Services (IIS) ServiceControl Protocol

Intellectual Property Rights Notice for Open Specifications Documentation

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

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

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

Support. For questions and support, please contact dochelp@microsoft.com.

Revision Summary

Date	Revision History	Revision Class	Comments
7/20/2007	0.1	Major	MCPP Milestone 5 Initial Availability
9/28/2007	0.2	Minor	Made a change to the IDL.
10/23/2007	0.2.1	Editorial	Changed language and formatting in the technical content.
11/30/2007	0.2.2	Editorial	Changed language and formatting in the technical content.
1/25/2008	0.2.3	Editorial	Changed language and formatting in the technical content.
3/14/2008	0.2.4	Editorial	Changed language and formatting in the technical content.
5/16/2008	0.2.5	Editorial	Changed language and formatting in the technical content.
6/20/2008	1.0	Major	Updated and revised the technical content.
7/25/2008	2.0	Major	Updated and revised the technical content.
8/29/2008	2.0.1	Editorial	Fix capitalization issues.
10/24/2008	2.0.2	Editorial	Changed language and formatting in the technical content.
12/5/2008	3.0	Major	Updated and revised the technical content.
1/16/2009	3.0.1	Editorial	Changed language and formatting in the technical content.
2/27/2009	3.0.2	Editorial	Changed language and formatting in the technical content.
4/10/2009	3.0.3	Editorial	Changed language and formatting in the technical content.
5/22/2009	3.0.4	Editorial	Changed language and formatting in the technical content.
7/2/2009	4.0	Major	Updated and revised the technical content.
8/14/2009	4.0.1	Editorial	Changed language and formatting in the technical content.
9/25/2009	4.1	Minor	Clarified the meaning of the technical content.
11/6/2009	4.1.1	Editorial	Changed language and formatting in the technical content.
12/18/2009	4.1.2	Editorial	Changed language and formatting in the technical content.
1/29/2010	4.1.3	Editorial	Changed language and formatting in the technical content.
3/12/2010	4.1.4	Editorial	Changed language and formatting in the technical content.
4/23/2010	4.1.5	Editorial	Changed language and formatting in the technical content.
6/4/2010	4.1.6	Editorial	Changed language and formatting in the technical content.
7/16/2010	4.1.6	None	No changes to the meaning, language, or formatting of the technical content.
8/27/2010	4.1.6	None	No changes to the meaning, language, or formatting of the technical content.
10/8/2010	4.1.6	None	No changes to the meaning, language, or formatting of the technical content.

Date	Revision History	Revision Class	Comments
11/19/2010	4.1.6	None	No changes to the meaning, language, or formatting of the technical content.
1/7/2011	4.1.6	None	No changes to the meaning, language, or formatting of the technical content.
2/11/2011	4.1.6	None	No changes to the meaning, language, or formatting of the technical content.
3/25/2011	4.1.6	None	No changes to the meaning, language, or formatting of the technical content.
5/6/2011	4.1.6	None	No changes to the meaning, language, or formatting of the technical content.
6/17/2011	4.2	Minor	Clarified the meaning of the technical content.
9/23/2011	4.2	None	No changes to the meaning, language, or formatting of the technical content.
12/16/2011	5.0	Major	Updated and revised the technical content.
3/30/2012	5.0	None	No changes to the meaning, language, or formatting of the technical content.
7/12/2012	5.0	None	No changes to the meaning, language, or formatting of the technical content.
10/25/2012	5.0	None	No changes to the meaning, language, or formatting of the technical content.
1/31/2013	5.0	None	No changes to the meaning, language, or formatting of the technical content.
8/8/2013	6.0	Major	Updated and revised the technical content.
11/14/2013	6.0	None	No changes to the meaning, language, or formatting of the technical content.
2/13/2014	6.0	None	No changes to the meaning, language, or formatting of the technical content.
5/15/2014	6.0	None	No changes to the meaning, language, or formatting of the technical content.
6/30/2015	7.0	Major	Significantly changed the technical content.
10/16/2015	7.0	None	No changes to the meaning, language, or formatting of the technical content.
7/14/2016	7.0	None	No changes to the meaning, language, or formatting of the technical content.
6/1/2017	7.0	None	No changes to the meaning, language, or formatting of the technical content.
9/15/2017	8.0	Major	Significantly changed the technical content.
9/12/2018	9.0	Major	Significantly changed the technical content.

Table of Contents

1	Introduction	5
1.1	(Updated Section) Glossary	5
1.2	References	6
1.2.1	Normative References	6
1.2.2	Informative References	7
1.3	Overview	7
1.4	Relationship to Other Protocols	7
1.5	Prerequisites/Preconditions	7
1.6	Applicability Statement	7
1.7	Versioning and Capability Negotiation	7
1.8	Vendor-Extensible Fields	7
1.9	Standards Assignments	7
2	Messages	8
2.1	Transport	8
2.2	Common Data Types	8
2.2.1	SERIALIZED_ENUM_SERVICE_STATUS	8
2.2.2	STATUS_BLOB	9
3	Protocol Details	10
3.1	IIS Service Control Server Details	10
3.1.1	Abstract Data Model	10
3.1.2	Timers	10
3.1.3	Initialization	10
3.1.4	Message Processing Events and Sequencing Rules	10
3.1.4.1	Stop (Opnum 7)	11
3.1.4.2	Start (Opnum 8)	12
3.1.4.3	Reboot (Opnum 9)	13
3.1.4.4	Status (Opnum 10)	14
3.1.4.5	Kill (Opnum 11)	15
3.1.5	Timer Events	16
3.1.6	Other Local Events	16
4	Protocol Examples	17
4.1	Status Method Call Example	17
5	Security	18
5.1	Security Considerations for Implementers	18
5.2	Index of Security Parameters	18
6	Appendix A: Full IDL	19
7	(Updated Section) Appendix B: Product Behavior	20
8	Change Tracking	22
9	Index	23

1 Introduction

This specification defines the Internet Information Services (IIS) ServiceControl Protocol. This protocol is a client-to-server protocol which enables remote control of Internet services as a single unit. The interface can be used to start or stop these services. It also can be used to terminate the service processes or reboot the computer. Lastly, it provides status information about the services.

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

1.1 (Updated Section) Glossary

This document uses the following terms:

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

dynamic endpoint: A network-specific server address that is requested and assigned at run time. For more information, see [C706].

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 ncacl_ip_tcp), an endpoint might be TCP port 1025. For RPC over Server Message Block (RPC Protocol Sequence ncacl_np), an endpoint might be the name of a named pipe. For more information, see [C706].

graceful stop: Occurs when services are notified to stop and successfully complete that operation, including finishing any outstanding work, within a specified amount of time.

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.

Internet Information Services (IIS): The services provided in Windows implementation that support web server functionality. IIS consists of a collection of standard Internet protocol servers such as HTTP and FTP in addition to common infrastructures that are used by other Microsoft Internet protocol servers such as SMTP, NNTP, and so on. IIS has been part of the Windows operating system in some versions and a separate install package in others. IIS version 5.0 shipped as part of Windows 2000 operating system, IIS version 5.1 as part of Windows XP operating system, IIS version 6.0 as part of Windows Server 2003 operating system, and IIS version 7.0 as part of Windows Vista operating system and Windows Server 2008 operating system.

Internet services: A generic term used to refer to a server implementation of processes that support Internet functionality. In applicable Windows Server releases, this refers to a set of Windows NT services that handle protocols such as HTTP, FTP, SMTP, and others.

little-endian: Multiple-byte values that are byte-ordered with the least significant byte stored in the memory location with the lowest address.

remote procedure call (RPC): A context-dependent communication protocol used primarily between client and server. The term commonly overloaded with has three meanings. Note definitions that much of the industry literature concerning RPC technologies uses this term are often used interchangeably for any of the three meanings. Following are the three definitions: (*) The a runtime environment providing remote procedure call for communication facilities. The preferred usage for this meaning is "between computers (the RPC runtime)". (*)

The pattern); a set of request and response message exchanges between computers (the RPC exchange between two parties (typically, a client and a server). The preferred usage for this meaning is "RPC exchange" (A); and the single message from an RPC exchange as defined in (the previous definition. The preferred usage for this term is "RPC message".) For more information about RPC, see [C706].

RPC protocol sequence: A character string that represents a valid combination of a remote procedure call (RPC) protocol, a network layer protocol, and a transport layer protocol, as described in [C706] and [MS-RPCE].

RPC transport: The underlying network services used by the remote procedure call (RPC) runtime for communications between network nodes. For more information, see [C706] section 2.

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.

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

1.2 References

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

1.2.1 Normative References

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

[C706] The Open Group, "DCE 1.1: Remote Procedure Call", C706, August 1997, <https://www2.opengroup.org/ogsys/catalog/c706>

[MS-DCOM] Microsoft Corporation, "Distributed Component Object Model (DCOM) Remote Protocol".

[MS-DTYP] Microsoft Corporation, "Windows Data Types".

[MS-ERREF] Microsoft Corporation, "Windows Error Codes".

[MS-OAUT] Microsoft Corporation, "OLE Automation Protocol".

[MS-RPCE] Microsoft Corporation, "Remote Procedure Call Protocol Extensions".

[MS-SCMR] Microsoft Corporation, "Service Control Manager Remote Protocol".

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

1.2.2 Informative References

None.

1.3 Overview

The IIS ServiceControl Protocol provides a mechanism for remote control of Internet services as a single unit on a server. Through the IIS ServiceControl Protocol, a client can start or stop the services. The client can also terminate processes hosting the Internet services functionality or reboot the computer. Lastly, the client can also retrieve status about the services.

The IIS ServiceControl Protocol is expressed as a set of DCOM interfaces. The server end of the protocol implements support for the DCOM interface to manage the Internet services. The client end of the protocol invokes method calls on the interface to control the services on the server. The DCOM calls use standard DCOM marshaling.

1.4 Relationship to Other Protocols

This protocol depends on the remote protocol described in [MS-DCOM].

1.5 Prerequisites/Preconditions

This protocol requires that the DCOM protocol is implemented on both the client and server computers.

This protocol is implemented over DCOM and RPC and, as a result, has the prerequisites identified in [MS-DCOM] and [MS-RPCE] as being common to DCOM and RPC interfaces.

This protocol specification assumes that any security or authentication associations between the client and server are performed by the DCOM layer.

1.6 Applicability Statement

The IIS ServiceControl Protocol is applicable to remote control Internet services on a server as a single unit.

1.7 Versioning and Capability Negotiation

None.

1.8 Vendor-Extensible Fields

This protocol uses **HRESULT** values, as specified in [MS-ERREF]. Vendors can define their own **HRESULT** values, provided they set the C bit (0x20000000) for each vendor-defined value, indicating that the value is a customer code.

1.9 Standards Assignments

Parameter	Value	Reference
RPC interface UUID for IIS ServiceControl Protocol	E8FB8620-588F-11D2-9D61-00C04F79C5FE	None
COM class UUID for IIS ServiceControl Protocol	E8FB8621-588F-11D2-9D61-00C04F79C5FE	None

2 Messages

2.1 Transport

This protocol uses the DCOM protocol, as specified in [MS-DCOM], as its transport. On its behalf, the DCOM protocol uses the following RPC protocol sequence: RPC over TCP, as specified in [MS-RPCE].

This protocol uses RPC dynamic endpoints as specified in [C706] part 4.

To access an interface, the client requests a DCOM connection to its object UUID endpoint on the server, as specified in the Standards Assignments section.

The RPC version number for all interfaces is 0.0.

An implementation of the IIS ServiceControl Protocol SHOULD<1> configure its DCOM implementation or underlying RPC transport with the *RPC_C_AUTHN_LEVEL_PKT_PRIVACY* authentication flags to restrict client connections. See [C706] and [MS-RPCE] for more information on the meaning of this flag.

The IIS ServiceControl Protocol uses the underlying DCOM security framework (as specified in [MS-DCOM]) for access control. DCOM differentiates between launch and access. An implementation of the IIS ServiceControl Protocol MAY differentiate between launch and access permission, and impose different authorization requirements.<2>

2.2 Common Data Types

This protocol MUST indicate to the RPC runtime that it is to include support for both the NDR20 and NDR64 transfer syntaxes as well as provide the negotiation mechanism for determining which transfer syntax will be used, as specified in [MS-RPCE] section 3.

In addition to RPC base types and definitions specified in [C706] and [MS-DTYP], additional data types are defined as follows.

2.2.1 SERIALIZED_ENUM_SERVICE_STATUS

This data structure provides information about the state of the Internet services on a server. It is used by the server to return data to the client in the Status method, as specified in section 3.1.4.4.

The values in this structure MUST be present in little-endian format.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
iServiceName																															
iDisplayName																															
ServiceStatus (28 bytes)																															
...																															
...																															

iServiceName (4 bytes): The number of unsigned wide characters to use as an offset to the **WCHAR** string that contains the service name for this service. For more information, see section 2.2.2.

iDisplayName (4 bytes): The number of unsigned wide characters to use as an offset to the **WCHAR** string that contains the display name for this service. For more information, see section 2.2.2.

ServiceStatus (28 bytes): Provides status for the service, as specified in [MS-SCMR] section 2.2.47.

2.2.2 STATUS_BLOB

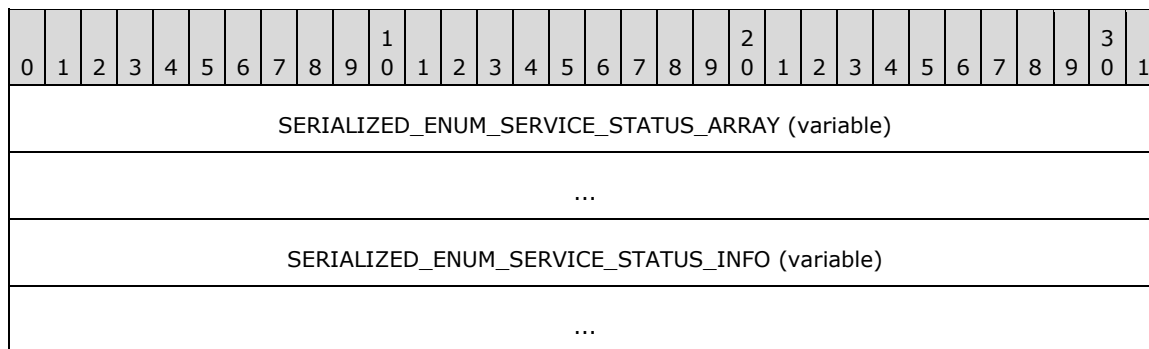
The STATUS_BLOB structure is marshaled to the client using the Status method over RPC using an **unsigned char** array. It is up to the client or user code, and not the RPC proxy, to interpret this data correctly. The following is a description of the data structure that will be found in this array.

This structure contains an array of **SERIALIZED_ENUM_SERVICE_STATUS** objects, as specified in section 2.2.1, which **MUST** be followed by a set of null-terminated **WCHAR** strings.

There **MUST** be exactly one **SERIALIZED_ENUM_SERVICE_STATUS** and two null-terminated **WCHAR** strings for each service that is being reported.

This structure is used in the **Status** method, as specified in section 3.1.4.4.

The values in this field **MUST** be present in little-endian format.



SERIALIZED_ENUM_SERVICE_STATUS_ARRAY (variable): An array of **SERIALIZED_ENUM_SERVICE_STATUS** structures, as specified in section 2.2.1. This array **MUST** be of length *pdwNumServices*, as specified in section 3.1.4.4.

SERIALIZED_ENUM_SERVICE_STATUS_INFO (variable): A set of null-terminated character strings. For each **SERIALIZED_ENUM_SERVICE_STATUS** structure contained in **SERIALIZED_ENUM_SERVICE_STATUS_ARRAY**, there **MUST** be one string containing the service name and one string containing a display name. These strings **MUST** be present at the offset indicated in the associated **SERIALIZED_ENUM_SERVICE_STATUS_ARRAY** array.

3 Protocol Details

The client side of this protocol is simply a pass-through. That is, there are no additional timers or other state requirements on the client side of this protocol. Calls made by the higher-layer protocol or application are passed directly to the transport, and the results returned by the transport are passed directly back to the higher-layer protocol or application.

3.1 IIS Service Control Server Details

3.1.1 Abstract Data Model

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

3.1.2 Timers

No timer events are used outside of specific call time-outs that are discussed within each method description.

3.1.3 Initialization

This protocol uses DCOM initialization.

3.1.4 Message Processing Events and Sequencing Rules

This protocol MUST indicate to the RPC runtime that it is to perform a strict NDR data consistency check at target level 5.0, as specified in [MS-RPCE] section 3.

This protocol MUST indicate to the RPC runtime that it is to reject a NULL unique or full pointer with non-zero conformant value, as specified in [MS-RPCE] section 3.

The **IIisServiceControl** interface allows programmatic control of the Internet services as one unit. This includes the ability to stop, start, restart, and determine the status of the Internet services, as well as to terminate their processes. The interface inherits opnums 0 to 6 from **IDispatch**, as specified in [MS-OAUT] section 3.1.4. The version for this interface is 0.0. To receive incoming remote calls for this interface, the server MUST implement a DCOM Object Class that supports this interface using the UUID {E8FB8620-588F-11D2-9D61-00C04F79C5FE} for this interface.

The interface includes the following methods beyond those in **IDispatch**.

Methods in RPC Opnum Order

Method	Description
Stop	Stops any running Internet services. Opnum: 7
Start	Starts the Internet services configured to start when computer starts. Opnum: 8
Reboot	Causes the system to reboot. Opnum: 9

Method	Description
Status	Returns the status of the Internet services. Opnum: 10
Kill	Terminates the Internet services. Opnum: 11

3.1.4.1 Stop (Opnum 7)

This method stops any running Internet services.<3>

The server can have all functionality through this interface disabled using actions taken local to the server machine. In this case the function MUST return an error when called (E_ERROR_RESOURCE_DISABLED) and MUST NOT perform any other action.

If the interface functionality is not disabled, the following actions SHOULD take place on the server when this method is called:

- The method SHOULD first attempt a graceful stop of the services. If the caller has requested that the services be forced to stop and the code either fails to request the stops or times out (based on the *dwTimeoutMsecs* parameter) while waiting for the services to stop, it SHOULD terminate the processes to ensure that they stop. This procedure SHOULD use the Kill method, as specified in section 3.1.4.5, to handle the forced termination.<4>

```
HRESULT Stop(
    DWORD dwTimeoutMsecs,
    DWORD dwForce
);
```

dwTimeoutMsecs: Length of time allowed for services to stop. If this time has elapsed, and not all services have stopped, then the conditional behavior that follows SHOULD occur.

dwForce: Boolean value that specifies whether the services will be forced to terminate. If the graceful stopping of any service fails, then the conditional behavior that follows SHOULD occur.

Value	Meaning
TRUE 0x00000001	Services MUST be forced to terminate.
FALSE 0x00000000	Services MUST NOT be forced to terminate.

Return Values: A signed, 32-bit value indicating return status. If the method returns a negative value, it has failed. If the 12-bit facility code (bits 16–27) is set to 0x007, the value contains a Win32 error code in the lower 16 bits. 0 or positive values indicate success, with the lower 16 bits in positive nonzero values containing warnings or flags defined in the method implementation. For more information about **HRESULT**, see [MS-ERREF] section 2.1.

The method MUST return S_OK (0x00000000) upon success.

Return value/code	Description
0x00000000	The call was successful.

Return value/code	Description
S_OK	
0x80070008 E_ERROR_NOT_ENOUGH_MEMORY	Not enough memory is available to process this command.
0x8007041D E_ERROR_SERVICE_REQUEST_TIMEOUT	A time-out has occurred while waiting for the Internet services to be stopped.
0x800710D5 E_ERROR_RESOURCE_DISABLED	The IISServiceControl interface is disabled.

If the length of time specified by *dwTimeoutMsecs* has elapsed and not all services have stopped, and if *dwForce* is set to 0x00000001 (True), then the remaining services SHOULD be forced to terminate.

3.1.4.2 Start (Opnum 8)

This method is used to start the Internet services.

The server can have all functionality through this interface disabled using actions taken local to the server. In this case the function MUST return an error when called (E_ERROR_RESOURCE_DISABLED) and MUST NOT perform any other action.

If the interface functionality is not disabled, the following SHOULD take place on the server when this method is called:

- The method SHOULD start all Internet services that are marked to start automatically when the computer starts up.

```
HRESULT Start(
    DWORD dwTimeoutMsecs
);
```

dwTimeoutMsecs: Length of time, in milliseconds, allowed to start the services. After this time has passed, the server MUST return 0x8000041D (E_ERROR_SERVICE_REQUEST_TIMEOUT).

Return Values: A signed, 32-bit value indicating return status. If the method returns a negative value, it has failed. If the 12-bit facility code (bits 16–27) is set to 0x007, the value contains a Win32 error code in the lower 16 bits. 0 or positive values indicate success, with the lower 16 bits in positive nonzero values containing warnings or flags defined in the method implementation. For more information about **HRESULT**, see [MS-ERREF] section 2.1.

The method MUST return S_OK (0x00000000) upon success.

Return value/code	Description
0x00000000 S_OK	The call was successful.
0x80070008 E_ERROR_NOT_ENOUGH_MEMORY	Not enough memory is available to process this command.
0x8007041D E_ERROR_SERVICE_REQUEST_TIMEOUT	A time-out has occurred while waiting for all Internet services to be started.
0x800710D5	The IISServiceControl Interface is disabled.

Return value/code	Description
E_ERROR_RESOURCE_DISABLED	

3.1.4.3 Reboot (Opnum 9)

This method is used to reboot the computer where the IIS service is running.

The server implementation MAY not implement this function. If it does not, then it MUST return E_NOTIMPL.

```
HRESULT Reboot(
    DWORD dwTimeoutMsecs,
    DWORD dwForceAppsClosed
);
```

dwTimeoutMsecs: Time, in milliseconds, that the user is to be provided to close applications before the computer restarts. After this time has elapsed, the applications MUST be forced to close if the *dwForceAppsClosed* parameter is set to 0x00000001.

dwForceAppsClosed: Boolean value that specifies whether applications will be forced to close.

Value	Meaning
TRUE 0x00000001	Applications MUST be forced to close.
FALSE 0x00000000	Applications MUST NOT be forced to close.

Return Values: A signed, 32-bit value indicating return status. If the method returns a negative value, it has failed. If the 12-bit facility code (bits 16–27) is set to 0x007, the value contains a Win32 error code in the lower 16 bits. 0 or positive values indicate success, with the lower 16 bits in positive nonzero values containing warnings or flags defined in the method implementation. For more information about **HRESULT**, see [MS-ERREF] section 2.1.

The method MUST return S_OK (0x00000000) upon success.

Return value/code	Description
0x00000000 S_OK	The call was successful.
0x80070008 E_ERROR_NOT_ENOUGH_MEMORY	Not enough memory is available to process this command.
0x800710D5 E_ERROR_RESOURCE_DISABLED	The IIisServiceControl interface is disabled.
0x80004001 E_NOTIMPL	This function is not supported for this version of the server.

3.1.4.4 Status (Opnum 10)

This method returns the status of the Internet services.

The server can have all functionality through this interface disabled using actions taken local to the server machine. In this case the function **MUST** return an error when called (E_ERROR_RESOURCE_DISABLED) and **MUST NOT** perform any other action.

If the interface functionality is not disabled, the following **SHOULD** take place on the server when this method is called:

- The method **SHOULD** return a buffer of unsigned chars as described in section 2.2.2. This buffer of unsigned chars **MUST** contain data about the status of the Internet services.
- If it is not possible to return all the data in the buffer provided, then the following conditional behavior **MUST** occur.

For more information about the unsigned char buffer returned, see section 2.2.2.

```
HRESULT Status(  
    [in] DWORD dwBufferSize,  
    [out, size_is(dwBufferSize)] unsigned char* pBuffer,  
    [out] DWORD* pdwMDRequiredBufferSize,  
    [out] DWORD* pdwNumServices  
);
```

dwBufferSize: Size, in bytes, of the *pBuffer* parameter. If this parameter is not greater than the amount of data the server wants to return in *pBuffer*, the conditional behavior that follows **MUST** occur.

If the *dwBufferSize* parameter value indicates that *pBuffer* is too small to contain all the status information about the Internet services, the following actions **MUST** occur:

- The *pdwMDRequiredBufferSize* parameter **MUST** be set to the number of bytes needed to contain the data that is to be returned.
- The *pBuffer* parameter **MUST** be set to zero.
- The method **MUST** be failed with code 0x8007007A (E_ERROR_INSUFFICIENT_BUFFER).

pBuffer: An array of unsigned chars that will be filled with information about the status of the Internet services. For more information, see section 2.2.2.

pBuffer **MAY** be set to null. In this case, the size will be calculated by the system for the buffer (regardless of whether a size was passed in for the buffer size) and E_ERROR_INSUFFICIENT_BUFFER will be returned. If *pdwMDRequiredBufferSize* is not null, it will be used to return the calculated size.

pdwMDRequiredBufferSize: On return from this method, if this parameter is not null, this parameter points to a **DWORD** containing the number of bytes that *pBuffer* must be able to contain for the method to return the services status information. This field **MAY** be used.

pdwNumServices: The number of services for which status is returned.

Return Values: A signed, 32-bit value indicating return status. If the method returns a negative value, it has failed. If the 12-bit facility code (bits 16–27) is set to 0x007, the value contains a Win32 error code in the lower 16 bits. 0 or positive values indicate success, with the lower 16 bits in positive nonzero values containing warnings or flags defined in the method implementation. For more information about **HRESULT**, see [MS-ERREF] section 2.1.

The method MUST return S_OK (0x00000000) upon success.

Return value/code	Description
0x00000000 S_OK	The call was successful.
0x8007007A E_ERROR_INSUFFICIENT_BUFFER	The size of the <i>pbBuffer</i> is too small to return the status data based on its size being declared in <i>dwBufferSize</i> parameter.
0x80070008 E_ERROR_NOT_ENOUGH_MEMORY	Not enough memory is available to process this command.
0x800710D5 E_ERROR_RESOURCE_DISABLED	The IisServiceControl interface is disabled.

3.1.4.5 Kill (Opnum 11)

This method is used to terminate the Internet services processes. This erases the IIS processes from memory, and is used to recover from failed instances of IIS processes.

The server can have all functionality through this interface disabled using actions taken local to the server machine. In this case the function MUST return an error when called (E_ERROR_RESOURCE_DISABLED) and MUST NOT perform any other action.

If the interface functionality is not disabled, the following SHOULD take place on the server when this method is called:

- The method SHOULD terminate all processes involved in supporting the Internet services on the server.

How the processes are terminated is implementation-dependent.<7>

```
HRESULT Kill();
```

This method has no parameters.

Return Values: A signed, 32-bit value indicating return status. If the method returns a negative value, it has failed. If the 12-bit facility code (bits 16–27) is set to 0x007, the value contains a Win32 error code in the lower 16 bits. 0 or positive values indicate success, with the lower 16 bits in positive nonzero values containing warnings or flags defined in the method implementation. For more information about **HRESULT**, see [MS-ERREF] section 2.1.

Each of the values that follow where the first byte contains 0x8007 is the **HRESULT** derived from the Win32 error code with the specified name.

The method MUST return S_OK (0x00000000) upon success.

Return value/code	Description
0x00000000 S_OK	The call was successful.
0x80070008 E_ERROR_NOT_ENOUGH_MEMORY	Not enough memory is available to process this command.

Return value/code	Description
0x800710D5 E_ERROR_RESOURCE_DISABLED	The IisServiceControl interface is disabled.

3.1.5 Timer Events

No timer events are used outside of specific call time-outs that are discussed within each method description.

3.1.6 Other Local Events

No local events are defined.

4 Protocol Examples

4.1 Status Method Call Example

The client allocates approximately enough memory in a buffer for data that is expected to be returned by the Status call. This buffer will hold an array of `SERIALIZED_ENUM_SERVICE_STATUS` structures followed by an array of **WCHAR** strings. For each Internet service, there will be one entry in the `SERIALIZED_ENUM_SERVICE_STATUS` array and two entries in the **WCHAR** strings array.

The client calls the **Status** method (as specified in section **3.1.4.4**). The client passes in the number of bytes allocated, the pointer to the buffer, a pointer to a **DWORD** that will receive the number of bytes needed if there was not enough memory allocated to the buffer, and a pointer to a **DWORD** that will receive the number of Internet services being described.

If the call returns with `E_ERROR_INSUFFICIENT_BUFFER` then the client can resize the buffer to the size requested by the server and try the call again.

After the client succeeds in getting the status buffer filled, it can iterate on the following algorithm for the number of services that have had data returned.

At the start of the buffer, the client casts the data to a `SERIALIZED_ENUM_SERVICE_STATUS` object and then uses the data provided as specified in section 2.2.1. To get the service name and display name, the client implementation will offset into the buffer by the number of bytes declared in the **iServiceName** and **iDisplayName** fields and then treat each string as an **LPWSTR**. Then, the client is able to display data for each service.

5 Security

5.1 Security Considerations for Implementers

Implementers need to be careful not to expose functionality through this interface to users who do not have permissions for such functionality. If users cannot reboot the server while logged on locally, do not allow them to reboot it by using this protocol. The exposed state of the services has to be available only to users with permission to see the state when logged on directly to the computer.

Implementations can decide to enforce security (as specified in [C706] section 2.7) as needed on the processes and operations defined in this specification.

Implementers need to review the security considerations as specified in [MS-RPCE] section 5.1 because these are valid for DCOM-based protocols.

5.2 Index of Security Parameters

None.

6 Appendix A: Full IDL

For ease of implementation, the full IDL is provided below, where "ms-dtyp.idl" is the IDL found in [MS-DTYP] Appendix A.

```
import "ms-dtyp.idl";
import "ms-oadt.idl";

[
    object,
    uuid(E8FB8620-588F-11D2-9D61-00C04F79C5FE),
    dual,
    pointer_default(unique)
]
interface IIisServiceControl : IDispatch
{
    HRESULT Stop(
        DWORD dwTimeoutMsecs,
        DWORD dwForce
    );
    HRESULT Start(
        DWORD dwTimeoutMsecs
    );
    HRESULT Reboot(
        DWORD dwTimeouMsecs,
        DWORD dwForceAppsClosed
    );
    HRESULT Status(
        [in] DWORD dwBufferSize,
        [out, size_is(dwBufferSize)] unsigned char *pbBuffer,
        [out] DWORD *pdwMDRequiredBufferSize,
        [out] DWORD *pdwNumServices
    );
    HRESULT Kill();
};
```

7 (Updated Section) Appendix B: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include updates to those products.

- Windows 2000 operating system
- Windows XP operating system
- Windows Server 2003 operating system
- Windows Vista operating system
- Windows Server 2008 operating system
- Windows 7 operating system
- Windows Server 2008 R2 operating system
- Windows 8 operating system
- Windows Server 2012 operating system
- Windows 8.1 operating system
- Windows Server 2012 R2 operating system
- Windows 10 operating system
- Windows Server 2016 operating system
- Windows Server operating system
- **Windows Server 2019 operating system**

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

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

<1> Section 2.1: Windows implementation configures the underlying RPC transport with the `RPC_C_AUTHN_LEVEL_PKT_PRIVACY` flag.

<2> Section 2.1: In the Windows implementation, the authorization constraints do not vary by operating system (OS) release. All interfaces described in this document require a level of access (both Local Service Launch and Execute) corresponding to any of the of the following Windows security groups:

```
Administrators  
SYSTEM
```

<3> Section 3.1.4.1: In the Windows implementation, all services that have declared dependencies upon the IIS Admin Service (IISAdmin) will constitute the Internet services. In Windows Server 2008

operating system, this also include all services that have declared dependencies on the Windows Process Activation service (WAS).

<4> Section 3.1.4.1: In the Windows implementation, the system will use the Service Control Manager (SCM) APIs to request that each service is stopped.

<5> Section 3.1.4.2: In the Windows implementation, this function will start only the services that are considered Internet services and are configured with the Service Control Manager (SCM) to start automatically when the computer starts up. The Windows implementation also uses the SCM API to request that the services are started.

<6> Section 3.1.4.3: Only Windows XP, Windows 2000, Windows NT operating system, and Windows Server 2003 implement this function. If the server implements this function, then the following rules apply.

The server can have all functionality through this interface disabled using actions taken locally on the server machine. In this case the function returns an error (E_ERROR_RESOURCE_DISABLED) when called and does not perform any other action.

If the interface functionality is not disabled and the function has been implemented, the server restarts.

<7> Section 3.1.4.5: The Windows implementation contains a hard-coded list of processes that support the Internet services. The Windows implementation also has an extension point where the administrator can provide an extra list of processes to terminate when this method is called.

8 Change Tracking

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

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

- A document revision that incorporates changes to interoperability requirements.
- A document revision that captures changes to protocol functionality.

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

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

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

Section	Description	Revision class
7 Appendix B: Product Behavior	Added Windows Server 2019 to the list of applicable products.	Major

9 Index

A

Abstract data model 10
 server 10
Applicability 7

C

Capability negotiation 7
Change tracking 22
Common data types 8

D

Data model - abstract 10
 server 10
Data types 8
 common - overview 8

E

Events
 local - server 16
 timer - server 16
Examples
 status method call example 17
Examples - status method call 17

F

Fields - vendor-extensible 7
Full IDL 19

G

Glossary 5

I

IDL 19
Implementer - security considerations 18
Index of security parameters 18
Informative references 7
Initialization 10
 server 10
Introduction 5

K

Kill (Opnum 11) method 15
Kill method 15

L

Local events 16
 server 16

M

Message processing 10

- server 10
- Messages
 - common data types 8
 - data types 8
 - transport 8
- Methods
 - Kill (Opnum 11) 15
 - Reboot (Opnum 9) 13
 - Start (Opnum 8) 12
 - Status (Opnum 10) 14
 - Stop (Opnum 7) 11

N

- Normative references 6

O

- Overview (synopsis) 7

P

- Parameters - security index 18
- Preconditions 7
- Prerequisites 7
- Product behavior 20
- Protocol Details
 - overview 10

R

- Reboot (Opnum 9) method 13
- Reboot method 13
- References 6
 - informative 7
 - normative 6
- Relationship to other protocols 7

S

- Security
 - implementer considerations 18
 - parameter index 18
- Sequencing rules 10
 - server 10
- SERIALIZED_ENUM_SERVICE_STATUS packet 8
- Server
 - abstract data model 10
 - initialization 10
 - Kill (Opnum 11) method 15
 - local events 16
 - message processing 10
 - Reboot (Opnum 9) method 13
 - sequencing rules 10
 - Start (Opnum 8) method 12
 - Status (Opnum 10) method 14
 - Stop (Opnum 7) method 11
 - timer events 16
 - timers 10
- Standards assignments 7
- Start (Opnum 8) method 12
- Start method 12
- Status (Opnum 10) method 14
- Status method 14

Status method call example 17
Status method call example example 17
STATUS_BLOB packet 9
Stop (Opnum 7) method 11
Stop method 11

T

Timer events 16
 server 16
Timers 10
 server 10
Tracking changes 22
Transport 8

V

Vendor-extensible fields 7
Versioning 7