[MS-RDWR]:

Remote Desktop Workspace Runtime Protocol

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Revision Summary

Date	Revision History	Revision Class	Comments
12/16/2011	1.0	New	Released new document.
3/30/2012	1.0	None	No changes to the meaning, language, or formatting of the technical content.
7/12/2012	1.0	None	Significantly changed the technical content.
10/25/2012	1.0	None	No changes to the meaning, language, or formatting of the technical content.
1/31/2013	1.0	None	No changes to the meaning, language, or formatting of the technical content.
8/8/2013	1.0	None	No changes to the meaning, language, or formatting of the technical content.
11/14/2013	1.0	None	No changes to the meaning, language, or formatting of the technical content.
2/13/2014	1.0	None	No changes to the meaning, language, or formatting of the technical content.
5/15/2014	1.0	None	No changes to the meaning, language, or formatting of the technical content.
6/30/2015	2.0	Major	Significantly changed the technical content.
10/16/2015	2.0	None	No changes to the meaning, language, or formatting of the technical content.
7/14/2016	2.0	None	No changes to the meaning, language, or formatting of the technical content.
6/1/2017	2.0	None	No changes to the meaning, language, or formatting of the technical content.
9/15/2017	3.0	Major	Significantly changed the technical content.
9/12/2018	4.0	Major	Significantly changed the technical content.
4/7/2021	5.0	Major	Significantly changed the technical content.
6/25/2021	6.0	Major	Significantly changed the technical content.

Table of Contents

1 Introduction

The Remote Desktop Workspace Runtime Protocol is a Web service-based protocol used to remotely retrieve the contents of the Remote Desktop Protocol (RDP) file that is associated to a user's remote desktop or application-sharing session on a remote computer.

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

1.1 Glossary

This document uses the following terms:

Hypertext Transfer Protocol Secure (HTTPS): An extension of HTTP that securely encrypts and decrypts web page requests. In some older protocols, "Hypertext Transfer Protocol over Secure Sockets Layer" is still used (Secure Sockets Layer has been deprecated). For more information, see [SSL3] and [RFC5246].

remote application: An application running on a remote server.

Remote Desktop Protocol (RDP): A multi-channel protocol that allows a user to connect to a computer running Microsoft Terminal Services (TS). RDP enables the exchange of client and server settings and also enables negotiation of common settings to use for the duration of the connection, so that input, graphics, and other data can be exchanged and processed between client and server.

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].

SOAP action: The HTTP request header field used to indicate the intent of the **SOAP** request, using a **URI** value. See [SOAP1.1] section 6.1.1 for more information.

SOAP body: A container for the payload data being delivered by a **SOAP message** to its recipient. See [SOAP1.2-1/2007] section 5.3 for more information.

SOAP message: An **XML** document consisting of a mandatory SOAP envelope, an optional SOAP header, and a mandatory **SOAP body**. See [SOAP1.2-1/2007] section 5 for more information.

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.

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].

Uniform Resource Locator (URL): A string of characters in a standardized format that identifies a document or resource on the World Wide Web. The format is as specified in [RFC1738].

WSDL message: An abstract, typed definition of the data that is communicated during a **WSDL operation** [WSDL]. Also, an element that describes the data being exchanged between web service providers and clients.

WSDL operation: A single action or function of a web service. The execution of a WSDL operation typically requires the exchange of messages between the service requestor and the service provider.

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

XML namespace: A collection of names that is used to identify elements, types, and attributes in XML documents identified in a URI reference [RFC3986]. A combination of XML namespace and local name allows XML documents to use elements, types, and attributes that have the same names but come from different sources. For more information, see [XMLNS-2ED].

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.

[MS-TSWP] Microsoft Corporation, "Terminal Services Workspace Provisioning Protocol".

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

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

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., et al., "Simple Object Access Protocol (SOAP) 1.1", W3C Note, May 2000, https://www.w3.org/TR/2000/NOTE-SOAP-20000508/

[SOAP1.2-1/2003] Gudgin, M., Hadley, M., Mendelsohn, N., et al., "SOAP Version 1.2 Part 1: Messaging Framework", W3C Recommendation, June 2003, http://www.w3.org/TR/2003/REC-soap12-part1-20030624

[SOAP1.2-2/2003] Gudgin, M., Hadley, M., Mendelsohn, N., et al., "SOAP Version 1.2 Part 2: Adjuncts", W3C Recommendation, June 2003, http://www.w3.org/TR/2003/REC-soap12-part2-20030624

[WSDL] Christensen, E., Curbera, F., Meredith, G., and Weerawarana, S., "Web Services Description Language (WSDL) 1.1", W3C Note, March 2001, https://www.w3.org/TR/2001/NOTE-wsdl-20010315

[XMLNS-2ED] Bray, T., Hollander, D., Layman, A., and Tobin, R., Eds., "Namespaces in XML 1.0 (Second Edition)", W3C Recommendation, August 2006, http://www.w3.org/TR/2006/REC-xml-names-20060816/

[XMLSCHEMA1] Thompson, H., Beech, D., Maloney, M., and Mendelsohn, N., Eds., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, https://www.w3.org/TR/2001/REC-xmlschema-1-20010502/

[XMLSCHEMA2] Biron, P.V., Ed. and Malhotra, A., Ed., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, https://www.w3.org/TR/2001/REC-xmlschema-2-20010502/

1.2.2 Informative References

[MS-RDPBCGR] Microsoft Corporation, "Remote Desktop Protocol: Basic Connectivity and Graphics Remoting".

[MSDN-TSCCRDP] Microsoft Corporation, "Terminal Services Client Configuration through the .rdp File", http://msdn.microsoft.com/en-us/library/aa915001.aspx

1.3 Overview

The Remote Desktop Workspace Runtime Protocol retrieves **Remote Desktop Protocol (RDP)** files, as described in [MSDN-TSCCRDP], that are required to reestablish connections to a user's session(s) on a remote server(s). The protocol returns the number of resources that corresponds to the number of connected and disconnected sessions the user has in the deployment. In addition, the type of session (desktop, remote application, or virtual machine (VM)) and the RDP file for reconnecting are returned. In order to reconnect the sessions, the presence of the **Terminal Services** client is required to launch the application, and the Terminal Services client will use the RDP protocol [MS-RDPBCGR] to connect.

1.4 Relationship to Other Protocols

The Remote Desktop Workspace Runtime Protocol uses **SOAP** over **Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)**, as specified in [RFC2818].

The following diagram illustrates the layering of the protocol stack.

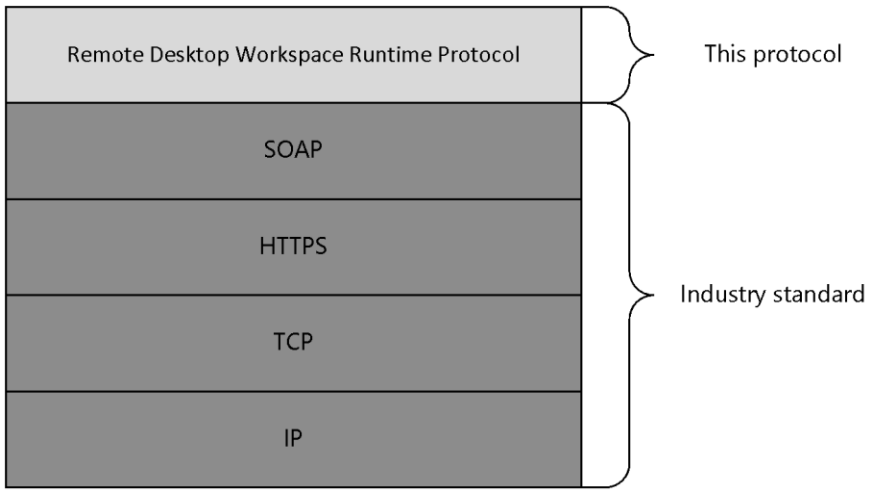

Figure 1: Protocol Stack

1.5 Prerequisites/Preconditions

The following are prerequisites for the operation of the Remote Desktop Workspace Runtime Protocol:

- The Remote Desktop Workspace Runtime Protocol does not provide a mechanism for a client to discover the **Uniform Resource Locator (URL)** to the server; consequently, the client requires a valid URL to the server.

- The client machine has the necessary applications to launch any of the **Remote Desktop Protocol (RDP)** configuration files [MSDN-TSCCRDP] returned by the protocol. For example, the **Terminal Services** client is required to launch the application or desktop and will use the RDP protocol [MS-RDPBCGR] to connect.
- Both client and server implementations of the Remote Desktop Workspace Runtime Protocol are present and running.
- The Remote Desktop Workspace Runtime Protocol uses the authentication model based on [MS-TSWP]. For example, the re-use of the authentication cookie negotiated prior to this protocol starting, as described in [MS-TSWP] section 3.1.1.1.

1.6 Applicability Statement

The use of the Remote Desktop Workspace Runtime Protocol is appropriate when the client requires the resource files required to reconnect to the user's remotely connected sessions. These resources represent the remote applications and or desktops that are associated to the user, in the form of RDP file contents.

1.7 Versioning and Capability Negotiation

The Remote Desktop Workspace Runtime Protocol defines a version field to facilitate the process of identifying the protocol version.

1.8 Vendor-Extensible Fields

The Remote Desktop Workspace Runtime Protocol does not define any vendor-extensible fields.

1.9 Standards Assignments

XML namespaces used by **SOAP**-based protocols are listed in section 2.2.1.

2 Messages

2.1 Transport

The Remote Desktop Workspace Runtime Protocol uses **SOAP** over HTTPS for communication. The Remote Desktop Workspace Runtime Protocol is used as the transport to provide access to the user's RDP file contents that are associated with their active **remote application** sessions and/or remote desktop sessions.

2.2 Common Message Syntax

This section contains common definitions used by this protocol. The syntax of the definitions uses XML Schema, as defined in [XMLSCHEMA1] and [XMLSCHEMA2], and Web Services Description Language, as defined in [WSDL].

2.2.1 Namespaces

This specification defines and references various **XML namespaces** using the mechanisms specified in [XMLNS-2ED]. Although this specification associates a specific XML namespace prefix for each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific and not significant for interoperability.

Prefix	NameSpaces URI	Reference
soap	http://schemas.xmlsoap.org/wsdl/soap/	[SOAP1.1]
xsd	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1], [XMLSCHEMA2]
soap12	http://schemas.xmlsoap.org/wsdl/soap12/	[SOAP1.2-1/2003], [SOAP1.2-2/2003]
tns	http://schemas.microsoft.com/ts/2010/09/rdweb	
wsaw	http://www.w3.org/2006/05/addressing/wsdl	
wsdl	http://schemas.xmlsoap.org/wsdl/	[WSDL]

2.2.2 Messages

This specification does not define any common XML schema message definitions.

2.2.3 Elements

This specification does not define any common XML schema element definitions.

2.2.4 Complex Types

This specification does not define any common XML schema complex type definitions.

2.2.5 Simple Types

This specification does not define any common XML schema simple type definitions.

2.2.6 Attributes

This specification does not define any common XML schema attribute definitions.

2.2.7 Groups

This specification does not define any common XML schema group definitions.

2.2.8 Attribute Groups

This specification does not define any common XML schema attribute group definitions.

2.2.9 Common Data Structures

This specification does not define any common XML schema data structures.

3 Protocol Details

3.1 RDWebServiceSoap Server Details

The following sections describe the behavior of the Remote Desktop Workspace Runtime Protocol. This protocol follows a client-server model, whereby a client sends a **SOAP message** that contains a request (a GetRDPFiles operation) to the server, and the server responds with a SOAP message that contains the response.

The following sections describe the behavior of the Remote Desktop Workspace Runtime Protocol.

3.1.1 Abstract Data Model

None.

3.1.2 Timers

None.

3.1.3 Initialization

When this protocol initializes, it MUST begin listening for **SOAP** requests using the standard SOAP protocol and ports.

3.1.4 Message Processing Events and Sequencing Rules

This specification includes the following **WSDL operations**.

WSDL Operation	Description
GetRDPFiles	Retrieves an array of resources.

3.1.4.1 GetRDPFiles

A server processes a GetRDPFiles request using the Remote Desktop Workspace Runtime Protocol upon receiving a **SOAP message** that contains the specified **Uniform Resource Identifier (URI)** as the **SOAP action**:

soapAction="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPFiles"

This operation is specified by the following WSDL.

```
<wsdl:operation name="GetRDPFiles">
  <wsdl:input wsaw:Action="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPFiles"
name="RDWebService_GetRDPFiles_InputMessage"
message="tns:RDWebService GetRDPFiles InputMessage"/>
  <wsdl:output wsaw:Action="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPFiles"
name="RDWebService GetRDPFiles OutputMessage"
message="tns:RDWebService_GetRDPFiles_OutputMessage"/>
</wsdl:operation>
```

3.1.4.1.1 Messages

The following table summarizes the set of **WSDL message** definitions that are specific to this operation.

Message	Description
RDWebService_GetRDPFiles_InputMessage	Contains a GetRDPFiles element. A message MUST NOT contain anything in the **SOAP body**.
RDWebService_GetRDPFiles_OutputMessage	The response to a GetRDPFilesSoapIn message, which contains a GetRDPFilesResponse element. A message that either MUST NOT contain anything if no resources are available to connect to or MUST contain resource-specific **XML** in the SOAP body for resources to connect to.

3.1.4.1.1.1 RDWebService_GetRDPFiles_InputMessage Message

A **WSDL message** containing the request for **GetRDPFiles** **WSDL operation**.

The **SOAP action** value is:

```
http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPFiles
```

The **SOAP body** contains **GetRDPFiles** element.

```
<wsdl:message name="RDWebService_GetRDPFiles_InputMessage">
  <wsdl:part name="GetRDPFiles" element="tns:GetRDPFiles"/>
</wsdl:message>
```

The GetRDPFilesSoapIn message contains a GetRDPFiles element, as specified in section 3.1.4.1.2.1.

3.1.4.1.1.2 RDWebService_GetRDPFiles_OutputMessage Message

A **WSDL message** containing the response for **GetRDPFiles** **WSDL operation**.

The **SOAP action** value is:

```
http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPFiles
```

The **SOAP body** contains **GetRDPFilesResponse** element.

```
<wsdl:message name="RDWebService_GetRDPFiles_OutputMessage">
  <wsdl:part name="GetRDPFilesResponse" element="tns:GetRDPFilesResponse"/>
</wsdl:message>
```

The GetRDPFilesSoapOut message contains a GetRDPFileResponse element in response to a GetRDPFilesSoapIn message. The GetRDPFileResponse element is specified in section 3.1.4.1.2.2.

3.1.4.1.2 Elements

The following table summarizes the **XML** schema element definitions that are specific to this operation.

Element	Description
GetRDPFiles	Forms the body of GetRDPFiles request. An empty type that is used when making the request for RDP files.

Element	Description
GetRDPFilesResponse	Contains the response to a GetRDPFiles request. The overall container that defines the protocol configuration.

3.1.4.1.2.1 GetRDPFiles

The GetRDPFiles element forms the body of the request. This element contains no child elements and conveys no information.

```
<xsd:element name="GetRDPFiles" nillable="true">
  <xsd:complexType/>
</xsd:element>
```

3.1.4.1.2.2 GetRDPFilesResponse

The GetRDPFilesResponse contains the response to a GetRDPFiles request.

```
<xsd:element name="GetRDPFilesResponse" nillable="true">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element minOccurs="1" maxOccurs="1" name="GetRDPFilesResult" nillable="true"
type="tns:ReconnectContents"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

GetRDPFilesResult:

GetRDPFilesResult is a complex type that contains a container called ReconnectContents types. The ReconnectContents container is described in section 3.1.4.1.3.3. GetRDPFilesResult contains the complex data type ReconnectContents.

The GetRDPFileResponse MUST contain at least one GetRDPFilesResult.

3.1.4.1.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

ComplexType	Description
ArrayOfReconnectContent	The container for the ReconnectContent complex type.
ReconnectContent	Used to contain the remote desktop file stream and type of resource defined.
ReconnectContents	The container that defines the version and array of contents received by the web server.

3.1.4.1.3.1 ArrayOfReconnectContent

ArrayOfReconnectContent is a complex type that specifies the collection of ReconnectContent types, as specified in section 3.1.4.1.3.2.

Namespace: http://schemas.microsoft.com/ts/2010/09/rdweb

```
<xsd:complexType name="ArrayOfReconnectContent">
```

```
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="unbounded" name="ReconnectContent" nillable="true"
type="tns:ReconnectContent"/>
  </xsd:sequence>
</xsd:complexType>
```

ReconnectContent: A collection of ReconnectContent types.

3.1.4.1.3.2 ReconnectContent

ReconnectContent has a string element that contains the RDP file stream, and a simple type called ReconnectContentType that is used to specify the type of RDP file stream. ReconnectContentType is specified in section 3.1.4.1.4.1. The RDP file stream consists of RDP files as described in [MSDN-TSCCRDP].

Namespace: http://schemas.microsoft.com/ts/2010/09/rdweb

```
<xsd:complexType name="ReconnectContent">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="1" name="rdpStream" nillable="true"
type="xsd:string"/>
    <xsd:element minOccurs="1" maxOccurs="1" name="rct" type="tns:ReconnectContentType"/>
  </xsd:sequence>
</xsd:complexType>
```

rct: ReconnectContentType is specified in section 3.1.4.1.4.1.

rdpStream: A file stream that consists of RDP files as described in [MSDN-TSCCRDP].

3.1.4.1.3.3 ReconnectContents

The ReconnectContents type has a version string element and either zero or one type of ArrayOfReconnectContent type. The ArrayOfReconnectContent type is specified in section 3.1.4.1.3.1.

Namespace: http://schemas.microsoft.com/ts/2010/09/rdweb

```
<xsd:complexType name="ReconnectContents">
  <xsd:sequence>
    <xsd:element minOccurs="0" maxOccurs="1" name="version" nillable="true"
type="xsd:string"/>
    <xsd:element minOccurs="0" maxOccurs="1" name="wkspRC" nillable="true"
type="tns:ArrayOfReconnectContent"/>
  </xsd:sequence>
</xsd:complexType>
```

version: A complex type that contains a string to represent versioning of the Remote Desktop Workspace Runtime protocol. Define a value in this operation when it is implemented.

wkspRC: An element of type ArrayOfReconnectContent.

3.1.4.1.4 Simple Types

The following table shows the Simple types inlcuded in the operation.

SimpleType	Description
ReconnectContentType	An enumerated type to indicate whether the user's resource is remote desktop, remote

SimpleType	Description
	application, or virtual machine-based.

3.1.4.1.4.1 ReconnectContentType

The valid values for this enumeration are "REMOTEDESKTOP", "VMREMOTEDESKTOP", or "REMOTEAPPLICATION".

Namespace: http://schemas.microsoft.com/ts/2010/09/rdweb

```
<xsd:simpleType name="ReconnectContentType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="REMOTEDESKTOP"/>
    <xsd:enumeration value="VMREMOTEDESKTOP"/>
    <xsd:enumeration value="REMOTEAPPLICATION"/>
  </xsd:restriction>
</xsd:simpleType>
```

The following table specifies the allowable values for **ReconnectContentType.**

Value	Meaning
REMOTEDESKTOP	Specifies a session type of remote desktop.
VMREMOTEDESKTOP	Specifies a session type of virtual machine.
REMOTEAPPLICATION	Specifies a session type of remote application.

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

3.2 RDWebServiceSoap Client Details

The client side of this protocol is simply a pass-through. That is, no additional timers or other state is required 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.

3.2.1 Abstract Data Model

None.

3.2.2 Timers

None.

3.2.3 Initialization

None.

3.2.4 Message Processing Events and Sequencing Rules

None.

3.2.5 Timer Events

None.

3.2.6 Other Local Events

None.

4 Protocol Examples

4.1 An HTTP post request for data from the web service

The following is a request and response operation for RDP files resources.

```
POST /RDWeb/myWeb/rdwebservice.asmx HTTP/1.1
Host: localhost
Content-Type: text/xml; charset=utf-8
Content-Length: length
SOAPAction: "http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPFiles"

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <GetRDPFiles xmlns="http://schemas.microsoft.com/ts/2010/09/rdweb" />
  </soap:Body>
</soap:Envelope>
HTTP/1.1 200 OK
Content-Type: text/xml; charset=utf-8
Content-Length: length

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <GetRDPFilesResponse xmlns="http://schemas.microsoft.com/ts/2010/09/rdweb">
      <GetRDPFilesResult>
        <version>string</version>
        <wkspRC>
          <ReconnectContent>
            <rdpStream>string</rdpStream>
            <rct>REMOTEAPPLICATION or REMOTEDESKTOP or VMREMOTEDESKTOP</rct>
          </ReconnectContent>
          <ReconnectContent>
            <rdpStream>string</rdpStream>
            <rct>REMOTEAPPLICATION or REMOTEDESKTOP or VMREMOTEDESKTOP</rct>
          </ReconnectContent>
        </wkspRC>
      </GetRDPFilesResult>
    </GetRDPFilesResponse>
  </soap:Body>
</soap:Envelope>
```

4.2 A sample of the resources returned

The request in section 4.1 is made and the return is an xml payload consisting of three resources (RDP file streams) that are associated to the user's remote desktop session, remote application session, or virtual machine.

```
<?xml version="1.0" encoding="UTF-8"?>
<ReconnectContents xmlns="http://schemas.microsoft.com/ts/2010/09/rdweb"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 <version>8.0</version>
  <wkspRC>
   <ReconnectContent>
    <rdpStream>redirectclipboard:i:0 redirectprinters:i:0 redirectcomports:i:1
redirectsmartcards:i:0 devicestoredirect:s: drivestoredirect:s:* redirectdrives:i:1 session
```

```
bpp:i:32 prompt for credentials on client:i:1 server port:i:3389 allow font smoothing:i:1
promptcredentialonce:i:1 authentication level:i:0 gatewayusagemethod:i:2
gatewayprofileusagemethod:i:0 gatewaycredentialssource:i:0 full address:s:RDVB9-
101180.rdvteam.stbtest.microsoft.com workspace id:s:RDVB9-
101180.rdvteam.stbtest.microsoft.com use redirection server name:i:1
loadbalanceinfo:s:tsv://MS Terminal Services Plugin.1.RDVB9-101180 use multimon:i:0 alternate
full address:s:RDVB9-101180.rdvteam.stbtest.microsoft.com signscope:s:Full Address,Alternate
Full Address,Use Redirection Server Name,Server
Port,GatewayUsageMethod,GatewayProfileUsageMethod,GatewayCredentialsSource,PromptCredentialOn
ce,Authentication
Level,RedirectDrives,RedirectPrinters,RedirectCOMPorts,RedirectSmartCards,RedirectClipboard,D
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Port,GatewayUsageMethod,GatewayProfileUsageMethod,GatewayCredentialsSource,PromptCredentialOn
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5 Security

5.1 Security Considerations for Implementers

There are no known additional security considerations for the Remote Desktop Workspace Runtime Protocol, but server implementers are encouraged to use transport mechanisms that support encryption and integrity verification of the messages.

5.2 Index of Security Parameters

None.

6 Appendix A: Full WSDL

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type="xsd:string"/>
          <xsd:element minOccurs="1" maxOccurs="1" name="rct"
type="tns:ReconnectContentType"/>
        </xsd:sequence>
      </xsd:complexType>
      <xsd:simpleType name="ReconnectContentType">
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="REMOTEDESKTOP"/>
          <xsd:enumeration value="VMREMOTEDESKTOP"/>
          <xsd:enumeration value="REMOTEAPPLICATION"/>
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:schema>
  </wsdl:types>
  <wsdl:portType name="RDWebService">
    <wsdl:operation name="GetRDPFiles">
      <wsdl:input wsaw:Action="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPFiles"
name="RDWebService GetRDPFiles InputMessage"
message="tns:RDWebService_GetRDPFiles_InputMessage"/>
      <wsdl:output wsaw:Action="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPFiles"
name="RDWebService_GetRDPFiles_OutputMessage"
message="tns:RDWebService GetRDPFiles OutputMessage"/>
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="RDWebServiceSoap" type="tns:RDWebService">
    <soap:binding transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="GetRDPFiles">
```

```
      <soap:operation soapAction="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPFiles"
style="document"/>
      <wsdl:input name="RDWebService_GetRDPFiles_InputMessage">
        <soap:body use="literal"/>
      </wsdl:input>
      <wsdl:output name="RDWebService GetRDPFiles OutputMessage">
        <soap:body use="literal"/>
      </wsdl:output>
    </wsdl:operation>
  </wsdl:binding>
  <wsdl:binding name="RDWebServiceSoap12" type="tns:RDWebService">
    <soap12:binding transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="GetRDPFiles">
      <soap12:operation
soapAction="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPFiles" style="document"/>
      <wsdl:input name="RDWebService_GetRDPFiles_InputMessage">
        <soap12:body use="literal"/>
      </wsdl:input>
      <wsdl:output name="RDWebService GetRDPFiles OutputMessage">
        <soap12:body use="literal"/>
      </wsdl:output>
    </wsdl:operation>
  </wsdl:binding>
  <wsdl:message name="RDWebService_GetRDPFiles_InputMessage">
    <wsdl:part name="GetRDPFiles" element="tns:GetRDPFiles"/>
  </wsdl:message>
  <wsdl:message name="RDWebService_GetRDPFiles_OutputMessage">
    <wsdl:part name="GetRDPFilesResponse" element="tns:GetRDPFilesResponse"/>
  </wsdl:message>
</wsdl:definitions>
```

7 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 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 2019 operating system
- Windows Server 2022 operating system
- Windows 11 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.

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	Updated for this version of Windows Client.	Major

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