

# [MS-RDWR]: Remote Desktop Workspace Runtime Protocol

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## Revision Summary

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# 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 1.8, 2, and 3 of this specification are normative and can contain the terms MAY, SHOULD, MUST, MUST NOT, and SHOULD NOT as defined in RFC 2119. Sections 1.5 and 1.9 are also normative but cannot contain those terms. All other sections and examples in this specification are informative.

## 1.1 Glossary

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

**Hypertext Transfer Protocol over Secure Sockets Layer (HTTPS)**  
**remote application**  
**Remote Desktop Protocol (RDP)**  
**SOAP**  
**SOAP action**  
**SOAP body**  
**SOAP message**  
**Terminal Services**  
**Uniform Resource Locator (URL)**  
**URI**  
**URL**  
**WSDL message**  
**WSDL operation**  
**XML**  
**XML namespace**

The following terms are specific to this document:

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

## 1.2 References

References to Microsoft Open Specifications documentation do not include a publishing year because links are to the latest version of the documents, which are updated frequently. References to other documents include a publishing year when one is available.

A reference marked "(Archived)" means that the reference document was either retired and is no longer being maintained or was replaced with a new document that provides current implementation details. We archive our documents online [\[Windows Protocol\]](#).

### 1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact [dochelp@microsoft.com](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information. Please check the archive site,

<http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[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, <http://www.rfc-editor.org/rfc/rfc2119.txt>

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

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., et al., "Simple Object Access Protocol (SOAP) 1.1", May 2000, <http://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, <http://www.w3.org/TR/2001/NOTE-wsdl-20010315>

[XMLNS-2ED] World Wide Web Consortium, "Namespaces in XML 1.0 (Second Edition)", August 2006, <http://www.w3.org/TR/2006/REC-xml-names-20060816/>

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

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

### 1.2.2 Informative References

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

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

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

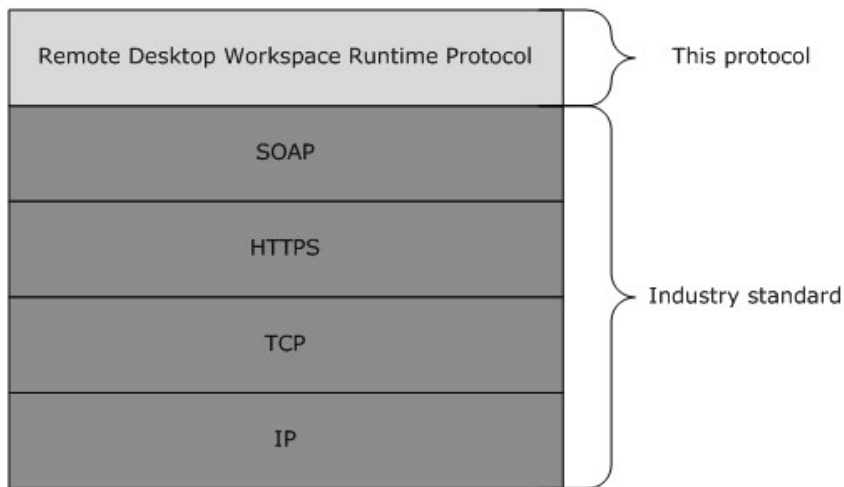
### 1.3 Overview

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   | <a href="http://schemas.xmlsoap.org/wsdl/soap/">http://schemas.xmlsoap.org/wsdl/soap/</a>                 | <a href="#">[SOAP1.1]</a>   |
| xsd    | <a href="http://www.w3.org/2001/XMLSchema">http://www.w3.org/2001/XMLSchema</a>                           | <a href="#">[XMLSCHEMA1]</a> , <a href="#">[XMLSCHEMA2]</a>         |
| soap12 | <a href="http://schemas.xmlsoap.org/wsdl/soap12/">http://schemas.xmlsoap.org/wsdl/soap12/</a>             | <a href="#">[SOAP1.2-1/2003]</a> , <a href="#">[SOAP1.2-2/2003]</a> |
| tns    | <a href="http://schemas.microsoft.com/ts/2010/09/rdweb">http://schemas.microsoft.com/ts/2010/09/rdweb</a> |   |
| wsaw   | <a href="http://www.w3.org/2006/05/addressing/wsdl">http://www.w3.org/2006/05/addressing/wsdl</a>         |   |
| wsdl   | <a href="http://schemas.xmlsoap.org/wsdl/">http://schemas.xmlsoap.org/wsdl/</a>                           | <a href="#">[WSDL]</a>  |

#### 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 <b>SOAP body</b> .   |
| 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 <b>XML</b> 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   |
|----------------------|---|
| GetRDPPFiles         | Forms the body of GetRDPPFiles request. An empty type that is used when making the request for RDP files.       |
| GetRDPPFilesResponse | Contains the response to a GetRDPPFiles request. The overall container that defines the protocol configuration. |

#### 3.1.4.1.2.1 GetRDPPFiles

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

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

#### 3.1.4.1.2.2 GetRDPPFilesResponse

The GetRDPPFilesResponse contains the response to a GetRDPPFiles request.

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

#### GetRDPPFilesResult:

GetRDPPFilesResult is a complex type that contains a container called ReconnectContents types. The ReconnectContents container is described in section [3.1.4.1.3.3](#). GetRDPPFilesResult contains the complex data type ReconnectContents.

The GetRDPPFileResponse MUST contain at least one GetRDPPFilesResult.

#### 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. |

| ComplexType       | Description  |
|-------------------|--|
| 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. A value should be defined 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 included in the operation.

| SimpleType           | Description   |
|----------------------|---|
| ReconnectContentType | An enumerated type to indicate whether the user's resource is remote desktop, remote application, or virtual machine-based. |

#### 3.1.4.1.4.1 ReconnectContentType

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

**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="REMOTEAAPPLICATION"/>
  </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.    |
| REMOTEAAPPLICATION | 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
evicesToRedirect,DrivesToRedirect,LoadBalanceInfo signature:s: Full Address,Alternate Full
Address,Use Redirection Server Name,Server
Port,GatewayUsageMethod,GatewayProfileUsageMethod,GatewayCredentialsSource,PromptCredentialOn
ce,Alternate
Shell,RemoteApplicationProgram,RemoteApplicationMode,RemoteApplicationName,RemoteApplicationC
mdLine,Authentication
Level,RedirectDrives,RedirectPrinters,RedirectCOMPorts,RedirectSmartCards,RedirectClipboard,D
evicesToRedirect,DrivesToRedirect,LoadBalanceInfo
signature:s:AQABAAEAAAEEgAAMIISFQYJKoZIHvcNAQcCoIISBjCCEgICAQExCzAJBgUrDgMC
GgUAMASGCSqGSIb3DQEHAACCEI8wggfFMIIGx6ADAgECAhBfZzkIP2oDi06PGDo+
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```

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```
</rdpStream>  
<rct>REMOTEDESKTOP</rct>  
</ReconnectContent>  
<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  
evicesToRedirect,DrivesToRedirect,LoadBalanceInfo signature:s: Full Address,Alternate Full  
Address,Use Redirection Server Name,Server  
Port,GatewayUsageMethod,GatewayProfileUsageMethod,GatewayCredentialsSource,PromptCredentialOn  
ce,Alternate  
Shell,RemoteApplicationProgram,RemoteApplicationMode,RemoteApplicationName,RemoteApplicationC  
mdLine,Authentication  
Level,RedirectDrives,RedirectPrinters,RedirectCOMPorts,RedirectSmartCards,RedirectClipboard,D  
evicesToRedirect,DrivesToRedirect,LoadBalanceInfo  
signature:s:AQABAAEAAAEEgAAMIISFQYJKoZlHvcNAQcCoIISBjCCEgICAQExCzAJBgUrDgMC  
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<rct>REMOTEDESKTOP</rct>

</ReconnectContent>

<ReconnectContent>

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redirectsmartcards:i:0 devicestoredirect:s: drivestoredirect:s:\* redirectdrives:i:1 session  
bpp:i:32 prompt for credentials on client:i:1 span monitors:i:1 use multimon:i:1  
remoteapplicationmode:i:1 server port:i:3389 allow font smoothing:i:1  
promptcredentialonce:i:1 authentication level:i:0 gatewayusagemethod:i:2  
gatewayprofileusagemethod:i:0 gatewaycredentialsource:i:0 full address:s:RDVB9-  
101180.rdvteam.stbtest.microsoft.com alternate shell:s:|cmd remoteapplicationprogram:s:|cmd  
remoteapplicationname:s:cmd.exe remoteapplicationcmdline:s: 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 alternate full  
address:s:RDVB9-101180.rdvteam.stbtest.microsoft.com signscope:s:Full Address,Alternate Full



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```
</rdpStream>  
<rect>REMOTEEAPPLICATION</rect>  
</ReconnectContent>  
</wksprc>  
</ReconnectContents>
```

## **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

```
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:tns="http://schemas.microsoft.com/ts/2010/09/rdweb"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
targetNamespace="http://schemas.microsoft.com/ts/2010/09/rdweb"
xmlns:wSDL="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:types>
    <xsd:schema elementFormDefault="qualified"
targetNamespace="http://schemas.microsoft.com/ts/2010/09/rdweb">
      <xsd:element name="GetRDPFiles" nillable="true">
        <xsd:complexType/>
      </xsd:element>
      <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>
      <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>
      <xsd:complexType name="ArrayOfReconnectContent">
        <xsd:sequence>
          <xsd:element minOccurs="0" maxOccurs="unbounded" name="ReconnectContent"
nillable="true" type="tns:ReconnectContent"/>
        </xsd:sequence>
      </xsd:complexType>
      <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>
      <xsd:simpleType name="ReconnectContentType">
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="REMOTEDESKTOP"/>
          <xsd:enumeration value="VMREMOTEDESKTOP"/>
          <xsd:enumeration value="REMOTEAAPPLICATION"/>
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:schema>
  </wsdl:types>
  <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:portType name="RDWebService">
  <wsdl:operation name="GetRDPPFiles">
    <wsdl:input wsaw:Action="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPPFiles"
name="RDWebService_GetRDPPFiles_InputMessage"
message="tns:RDWebService_GetRDPPFiles_InputMessage"/>
    <wsdl:output wsaw:Action="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPPFiles"
name="RDWebService_GetRDPPFiles_OutputMessage"
message="tns:RDWebService_GetRDPPFiles_OutputMessage"/>
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="RDWebServiceSoap" type="tns:RDWebService">
  <soap:binding transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="GetRDPPFiles">
    <soap:operation soapAction="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPPFiles"
style="document"/>
    <wsdl:input name="RDWebService_GetRDPPFiles_InputMessage">
      <soap:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="RDWebService_GetRDPPFiles_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="GetRDPPFiles">
    <soap12:operation
soapAction="http://schemas.microsoft.com/ts/2010/09/rdweb/GetRDPPFiles" style="document"/>
    <wsdl:input name="RDWebService_GetRDPPFiles_InputMessage">
      <soap12:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="RDWebService_GetRDPPFiles_OutputMessage">
      <soap12:body use="literal"/>
    </wsdl:output>
  </wsdl:operation>
</wsdl:binding>
</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 released service packs:

- Windows 8 operating system
- Windows Server 2012 operating system
- Windows 8.1 operating system
- Windows Server 2012 R2 operating system

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

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

## 8 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

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