

# <u>Firewall requirements for Parallels Remote Application Server</u> 19

- Parallels Remote Application Server 19.0
- Parallels Remote Application Server 19.1
- Parallels Remote Application Server 19.2

By default, **Remote Application Server** will install with a **Secure Gateway** and a **Connection Broker**. There can only be one master **Connection Broker** in a farm; however, multiple **Secure Gateway** access points and resource **Connection Brokers** (**RDSH Agent**) can be deployed where needed.

Below are the firewall requirements for each of the separate **Remote Application Server** functions:

All Components: TCP 135, 445 - remote agent push.

#### **Parallels Client**

Source	Destination	Protocols	Ports	Description
Parallels Client	Parallels Client HALB	TCP, UDP	80, 443	Management and user session conne
		TCP, UDP	20009	Device Manager shadowing via Fire
	RAS Secure Gateway Forwarding mode	TCP, UDP	80, 443	Management and user session conne
	Ç	TCP, UDP	3389	Optional - Used for user session if R
		UDP	20000	Secure Gateway lookup broadcast.
	RAS Secure Gateway Normal mode	TCP, UDP	80, 443,	Management and user session conne
	mode	TCP, UDP	3389	Optional - Used for user session if R
		TCP, UDP	20009	Device Manager shadowing via Fire
		UDP	20000	Secure Gateway Lookup Broadcast
	Session host (VDI, RDS, RemotePC)	TCP, UDP	3389	Used for user session connections in
	Azure Virtual Desktop Services	TCP	443	Azure Virtual Desktop Gateway com
		UDP	3390	Used for user session connections in
	Microsoft site	TCP	443	Download Microsoft Remote Deskto
	Parallels site	TCP	80, 443	Check for updates and download Par

#### Web (external)

Course	Destination	Duetecolo	Douto	Description
Source	Destination	Protocols	Ports	Description
Web browser	RAS Web Admin Service [RAS	TCP	20443	Admin access to HTML5-based Mar
(HTML5) and Let's	Management Portal]			
Encrypt service				
	HALB	TCP	80, 443	End-user access to Parallels RAS We

(Optional - required when using Let'

				(Optional - required when using Let'
HALB				
Source	Destination	Protocols	Ports	Description
HALB	HALB	VRRP	112	HALB-to-HALB communication is
	RAS Secure Gateway in Forwarding Mode	TCP, UDP	80, 443	Management and user session conne
	RAS Secure Gateway in Normal Mode	TCP, UDP	80, 443	Management and user session conne
		TCP, UDP	20009	Device Manager shadowing via Fire
RAS Secure Gateway	у			
Source	Destination	Protocols	Ports	Description
RAS Secure Gateway in	RAS Secure Gateway in Normal mode	TCP, UDP	80, 443	Management and user session conne
Forwarding mode		TCP, UDP	3389	Optional - Used for user session if R
	<b>RAS Performance Monitor</b>	TCP	8086	Agent (Telegraf service) sends colle
RAS Secure Gateway in Normal mode	Remote Desktop Services	TCP, UDP	3389	RDP Connections.
	RAS Connection Broker	TCP	20002	RAS Connection Broker service por Normal mode only).
		TCP, UDP	20009	Device Manager shadowing via Fire Broker
	RAS Performance Monitor	TCP	8086	Agent (Telegraf service) sends colle
	Localhost	TCP	20020	Communication with HTML5 Gatev
RAS Connection Bro	bker			
Source	Destination	Protocols	Ports	Description
RAS Connection Broker	AD DS controllers	TCP	389, 3268	LDAP
		TCP	636, 3269	LDAPS
		TCP, UDP	88, 53	Kerberos
		UDP		DNS
	RAS Connection Broker	TCP	20001	Redundancy service.
	Parallels Licensing Server	TCP	20030 443	Communication between RAS Connection Broker (primary C Server (https://ras.parallels.com).
	RAS Performance Monitor RAS RD Session Host Agent RAS Provider Agent	TCP TCP, UDP TCP, UDP	8086 30004 30006	Note: Not required for Tenant Broke Agent (Telegraf service) sends colle Server for Connection Broker reques Provider Agent communication port

TCP

80, 443

End-user access to Parallels RAS We

RAS Secure Gateway

RAS Remote PC Agent 2FA Server(s)	TCP, UDP TCP, UDP	30004 8080, 80	Remote PC Agent Communication P Deepnet/ Safenet
		1812, 1813	Radius
RAS Enrollment Server	TCP	30030	RAS Connection Broker Sends RAS
RAS Reporting	TCP	30008	Master RAS Connection Broker com
RAS Remote Installer Service	TCP	30020	Remote agent pushing
RAS RD Session Host Agent	TCP	135, 445, 49179	Remote Install Push/Takeover of Sof
RAS Guest Agent		., ., .	
RAS Remote PC Agent			
RAS Connection Broker			
RAS Secure Gateway			
RAS Enrollment Server			
SMTP	TCP	587	Notifdispatcher is the service that ser
Let's Encrypt Service	TCP	443	Communication between the Let's Enserver.

### **RAS Console**

Source	Destination	Protocols	Ports	Description
RAS Console	RAS Reporting	TCP	30008	RAS Console is connected to the prin (installed on the same host as SSRS) the settings).
	SSRS	TCP	443	Reports retrieval.
	HALB	TCP, UDP	31006	Used for configuration.
	Parallels Client	TCP	50005	Shadowing from the RAS Console in
	RAS RD Session Host Agent	UDP, TCP	30004	Used for the "Check Agent" task.
				Used to manage components.
	RAS Guest Agent	UDP	30009	Used for the "Check Agent" task.
		TCP	30010	Used to manage components.
	RAS Remote PC Agent	UDP, TCP	30004	Used for the "Check Agent" task.
				Used to manage components.
	RAS Provider Agent	UDP, TCP	30006	Used for the "Check Agent" task.
				Used to manage components.
	MFA Server(s)	TCP, UDP	8080, 80, 1812, 1813	Deepnet / Safenet / Radius
	Microsoft site	TCP	80, 443	Check for updates and download Par
	Parallels site	TCP	80	Check for updates and download Par
	RAS Secure Gateway	TCP	80, 443	Set the log level or clear/retrieve the
				Prefers to connect to the normal port is disabled

TCP

TCP

20002, 20001 Communication with Connection Br

20002, 20001 Communication with Connection Br

**RAS Performance Monitor** 

**RAS Connection Broker** 

	Wyse Broker	UDP	1234 (outbound only)	Used to manage components and for Wyse broker discovery request broad Wyse broker discovery reply packet
	SMTP	TCP	68 (inbound only) 587	RAS Console can send test emails us
SSRS				
Source	Destination	Protocols	Ports	Description
SSRS	Microsoft SQL Server	TCP	1433	RAS Console is connected to the RA
RAS Reporting				
Source	Destination	Protocols	Ports	Description
RAS Reporting Service	MS SQL	TCP	1433	Store RAS activity information
Service	SSRS	TCP	8085, 443	Enumeration of reports (incl. custom
RAS Web Administ	ration Service (REST/Management	Portal)		
Source	Destination	Protocols	Ports	Description
				•
RAS Web Administration Service	RAS RD Session Host Agent	TCP	30004	Log retrieval
	RAS RD Session Host Agent  RAS Guest Agent	TCP TCP	30004 30010	
Administration	-			Log retrieval
Administration	RAS Guest Agent	TCP	30010 30006 20002, 20001	Log retrieval
Administration	RAS Guest Agent RAS Provider Agent	TCP TCP	30010 30006	Log retrieval Log retrieval Log retrieval
Administration	RAS Guest Agent RAS Provider Agent	TCP TCP	30010 30006 20002, 20001	Log retrieval  Log retrieval  Log retrieval  Communication with PA and Redune
Administration	RAS Guest Agent RAS Provider Agent	TCP TCP	30010 30006 20002, 20001	Log retrieval  Log retrieval  Log retrieval  Communication with PA and Redune  Used during publishing to browse for
Administration	RAS Guest Agent RAS Provider Agent RAS Connection Broker	TCP TCP TCP	30010 30006 20002, 20001 30020	Log retrieval  Log retrieval  Log retrieval  Communication with PA and Redune  Used during publishing to browse for  30020 - remote agent pushing (pre-R
Administration	RAS Guest Agent RAS Provider Agent RAS Connection Broker  RAS RD Session Host Agent	TCP TCP TCP	30010 30006 20002, 20001 30020	Log retrieval  Log retrieval  Log retrieval  Communication with PA and Redune  Used during publishing to browse for  30020 - remote agent pushing (pre-R
Administration	RAS Guest Agent RAS Provider Agent RAS Connection Broker  RAS RD Session Host Agent RAS Guest Agent	TCP TCP TCP	30010 30006 20002, 20001 30020	Log retrieval  Log retrieval  Log retrieval  Communication with PA and Redune  Used during publishing to browse for  30020 - remote agent pushing (pre-R
Administration	RAS Guest Agent RAS Provider Agent RAS Connection Broker  RAS RD Session Host Agent RAS Guest Agent RAS Remote PC Agent	TCP TCP TCP	30010 30006 20002, 20001 30020	Log retrieval  Log retrieval  Log retrieval  Communication with PA and Redune  Used during publishing to browse for  30020 - remote agent pushing (pre-R
Administration	RAS Guest Agent RAS Provider Agent RAS Connection Broker  RAS RD Session Host Agent RAS Guest Agent RAS Remote PC Agent RAS Connection Broker	TCP TCP TCP	30010 30006 20002, 20001 30020	Log retrieval  Log retrieval  Log retrieval  Communication with PA and Redune  Used during publishing to browse for  30020 - remote agent pushing (pre-R
Administration	RAS Guest Agent RAS Provider Agent RAS Connection Broker  RAS RD Session Host Agent RAS Guest Agent RAS Remote PC Agent RAS Connection Broker RAS Secure Gateway	TCP TCP TCP	30010 30006 20002, 20001 30020	Log retrieval  Log retrieval  Log retrieval  Communication with PA and Redune  Used during publishing to browse for  30020 - remote agent pushing (pre-R

TCP, UDP

30030

Used for the "Check Agent" task.

RAS Enrollment Server

#### **RAS PowerShell**

Source	Destination	Protocols	Ports	Description
RAS PowerShell	RAS RD Session Host Agent	TCP	30004	Log retrieval
	RAS Guest Agent	TCP	30010	Log retrieval
	RAS Remote PC Agent	TCP	30004	Log retrieval
	RAS Provider Agent	TCP	30006	Log retrieval
	RAS Connection Broker	TCP	20002, 20001	Communication with PA and Redun

Used during publishing to browse fo

# **RAS Provider Agent**

Source	Destination	Protocols	Ports	Description
RAS Provider Agent	RAS Connection Broker	TCP	20003	Connection Broker communication p
	RAS Guest Agent	TCP	30010	TCP is used to send the commands.
		UDP	30009	UDP is used during the initial handsl
	RAS Performance Monitor	TCP	8086	Agent (Telegraf service) sends collect
	Hyper-V	TCP	135, 49152-65535	Used to check if the guest is powered
	Nutanix	TCP	9440	Used to check if the guest is powered
	VMWare	TCP	443	Used to check if the guest is powered
	Microsoft Azure	TCP	443	Used to check if the guest is powered
	AWS	TCP	443	Used to check if the guest is powered
	Scale	TCP	443	Used to check if the guest is powered
	Remote PC over VDI	TCP	135, 49152-65535	Used to check if the guest is powered

### **RAS Enrollment Server**

Source RAS Enrollment Server	Destination AD DS controllers	Protocols TCP	Ports 389, 3268	Description LDAP
Server		TCP	636, 3269	LDAPS
		TCP, UDP	88	Kerberos
	RAS Connection Broker	UDP TCP	53 20003	DNS Settings synchronization and perform
	Certificate Authority (CA)	UDP TCP	20003 135	Deny Connection Request DCOM/RPC ports
		TCP	dynamic range	

49152 - 65535

### **RAS RD Session Host Agent**

Source	Destination	Protocols	Ports	Description
RAS RD	<b>RAS Connection</b>	TCP, UDP	20003	Used for communications with RAS Connection
Session Hos	t Broker			Brokers.
Agent	Localhost	TCP	30005	For internal commands (memshell, printer redirector).
	FSlogix	TCP	443	Download FSlogix installer
	RAS Performance Monitor	TCP	8086	Agent (Telegraf service) sends collected performance data to InfluxDB.
	RAS Enrollment Server	TCP	30030	RAS RD Session Host Agent (PrlsSCDriver) connects to get login credentials.

# **RAS Guest Agent**

Source	Destination	Protocols	Ports	Description
RAS Guest Agent (used	Provider Agent	TCP, UDP	30006	Communication with Provider Agent
by Azure Virtual				Subnet broadcast is sent to find Provider Agent
Desktop)				Regular UDP heartbeats
	Localhost	TCP	30005	For internal commands - memshell, printer redirector)
	RAS Performance Monitor	TCP	8086	Agent (Telegraf service) sends collected performance data to InfluxDB
	RAS Enrollment Server	TCP	30030	RAS Guest Agent (PrlsSCDriver) connects to get logon credentials
	FSlogix	TCP	443	Download FSlogix installer

# **RAS Remote PC Agent**

Source RAS Remote PC Agent	Destination RAS Connection Broker	Protocols TCP, UDP	Ports 20003	Description Used for communications with RAS Connection Brokers
	Localhost	TCP	30005	For internal commands - memshell, printer redirector)
	RAS Performance Monitor	TCP	8086	Agent (Telegraf service) sends collected performance data to InfluxDB
	RAS Enrollment Server	TCP, UDP	30030	RAS Remote PC (PrlsSCDriver) connects to get logon credentials
	FSlogix	TCP	443	Download FSlogix installer

### **Tenant Broker**

Source	Destination	Protocols	Ports	Description
Tenant - RAS	Tenant Broker -	TCP	20003	Tenant's RAS Connection Broker communicates with
Connection	<b>RAS Connection</b>			Tenant Broker to join Tenant Broker, synchronize
Broker	Broker			configuration and statuses

# **Azure Virtual Desktop**

The Azure virtual machines you create for Azure Virtual Desktop must have access to the following URLs in the Azure commercial cloud:

Address		Purpose	Service tag
*.wvd.microsoft.com	443	Service traffic	WindowsVirtualDesktop
gcs.prod.monitoring.core.windows.net	443	Agent traffic	AzureCloud
production.diagnostics.monitoring.core.windows.net	443	Agent traffic	AzureCloud
*xt.blob.core.windows.net	443	Agent traffic	AzureCloud
*eh.servicebus.windows.net	443	Agent traffic	AzureCloud
*xt.table.core.windows.net	443	Agent traffic	AzureCloud
*xt.queue.core.windows.net	443	Agent traffic	AzureCloud
catalogartifact.azureedge.net	443	Azure Marketplace	AzureCloud
kms.core.windows.net	1688	Windows activation	Internet
mrsglobalsteus2prod.blob.core.windows.net	443	Agent and SXS stack updates	AzureCloud
wvdportalstorageblob.blob.core.windows.net	443	Azure portal support	AzureCloud
169.254.169.254	80	Azure Instance Metadata service endpoint	N/A
168.63.129.16	80	Session host health monitoring	N/A

The following table lists optional URLs that your Azure virtual machines can have access to:

Address	Outbound TCP port	Purpose	Azure Gov	
*.microsoftonline.com	443	Authentication to Microsoft Online Services	login.microsoftonline.us	
*.events.data.microsoft.com	443	Telemetry Service	None	
www.msftconnecttest.com	443	Detects if the OS is connected to the internet	None	
*.prod.do.dsp.mp.microsoft.com	443	Windows Update	None	
login.windows.net	443	Sign in to Microsoft Online Services, Microsoft 365	login.microsoftonline.us	

*. <u>sfx.ms</u>	443	Updates for OneDrive client software	oneclient.sfx.ms
*.digicert.com	443	Certificate revocation check	None
*.azure-dns.com	443	Azure DNS resolution	None
*.azure-dns.net	443	Azure DNS resolution	None

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