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# READYCLOUD<sup>®</sup> VIDEO NETWORK AND FIREWALL REQUIREMENTS

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# 1. RCV NETWORK REQUIREMENTS

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The ReadyCloud Video (RCV) service uses the following public network range: 122.56.65.112/28

**Connecting via Essentials** - When connecting to RCV via essentials this route will be injected and redistributed via the Spark WAN Routers. If your environment has internal routing eg, Layer 3 Switches, then it is important to ensure that the RCV network route points to the Spark WAN and not the Internet gateway.

Note – Environments with internal Firewalls will need to permit the RCV traffic

**Connecting via the Internet** – When connecting to RCV via the internet (RCV Basic Only) no additional routes will be required as the gateway of last resort for the network should route this traffic to the internet gateway.

Note – Internet firewall rule changes will be required.

## 1.1 VC Bandwidth Requirements

VC calling is typically setup preferred calling speed of 1920kbps (2Mbps). This calling speed will provide a VC call with 720p resolution at 30fps.

The per site network bandwidth requirements will need to be designed to support the maximum number of simultaneous VC calls.

NOTE: when video traffic co-exists in the same high priority queue as Unified Comms (PBX) voice traffic, care should be taken to ensure no contention of bandwidth between the voice and video traffic. Therefore – there should be sufficient realtime traffic to support peak video and peak voice traffic simultaneously. For customers using RCC, we recommended registering your VC endpoints to RCC also to take advantage of a single point of Call Admission control for optimal management of this.

## 1.2 Quality of Service

Though the RCV service does not mandate that video traffic be carried in an end to end QoS enabled environment it is highly recommended. The following default traffic marking is recommended for VC endpoints.



### 1.2.1 RCV Registered VC endpoints

NOTE: the markings below apply to Essentials connected clients.

From VC endpoint to RCV:

Traffic Type	Diffserv Value	Recommended Queue
Audio:	46 (EF)	Realtime Queue (Highest priority queue)
Signalling:	24	Interactive Queue (Medium/Intermediate queue)
Video:	34	Realtime Queue (Highest priority queue)

From RCV to VC endpoint (marked by RCV service):

Traffic Type	Diffserv Value	Recommended Queue
Video/Audio/Signalling	34	Realtime Queue (Highest priority queue)

### 1.2.2 RCV JabberGuest (Browser based client)

NOTE: the markings below apply to both Essentials connected and Internet connected clients.

From JabberGuest to RCV (standard marking by plugin):

Traffic Type	Diffserv Value	Recommended Queue
Video/Audio/Signalling (HTTPS)	0	Business (Best Efforts)

From RCV to VC endpoint (marked by RCV service):

Traffic Type	Diffserv Value	Recommended Queue
Video/Audio/Signalling (HTTPS)	0	Business (Best Efforts)

### 1.2.3 Skype for Business federated and any Internet Connected endpoints

NOTE: All Internet based traffic is best efforts due to the lack of queuing. Markings will vary based on client type but are ultimately not honoured.

From Endpoint to RCV:

<b>Traffic Type</b>	<b>Diffserv Value</b>	<b>Recommended Queue</b>
Video/Audio/Signalling	Any	n/a

From RCV to endpoint (marked by RCV service):

<b>Traffic Type</b>	<b>Diffserv Value</b>	<b>Recommended Queue</b>
Video/Audio/Signalling	0/34/46	n/a

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## 2. DISABLE SIP APPLICATION LAYER GATEWAY FUNCTION

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On some routers and firewalls the SIP ALG (Application Layer Gateway) Functions can cause issues with video traffic and will need to be disabled.

Cisco IOS routers (e.g. 877, 1900, 2900, etc.)

Note: SIP ALG is enabled by default and should be disabled particularly in older IOS versions. For example 12.4 and older. Issue the following command in global config mode:

```
Router(config)# no ip nat service sip tcp port 5060
```

Juniper ScreenOS firewall

More information on how to view the status of the Application Layer gateway function and how to disable it can be found here:

<http://kb.juniper.net/InfoCenter/index?page=content&id=KB13509>

or for J-Web interface:

<http://www.juniper.net/techpubs/software/junos-security/junos-security96/junos-security-swconfig-security/id-22893.html>

## 3. VIDEO CONFERENCING ENDPOINT FIREWALL RULES

The following rules apply to standards based SIP or H.323 VC endpoints connecting to RCV. The rules apply to SIP Registered or Unregistered endpoints, connecting via the Internet or Essentials.

The rules below assume the following:

- Ensure any NAT traversal fix up functionality is disabled on the firewall, as it can interfere with the media ports and cause media transmission issues
- Ensure that the firewalls Deep Packet Inspections or Application Level Gateway is turned off for this traffic as it could cause connections issues.
- Rules below assume firewall rules are reflexive (allow return traffic of established sessions) and general outbound TCP ports 80, 443 and DNS are allowed.

### 3.1 VC Endpoints Registering to RCV Standard via Essentials

This scenario could apply to RCV Standard endpoints. The traffic flow would not typically traverse any firewalls unless internal firewalls have been placed between the VC endpoints and the Spark WAN. RCV Standard supports registration via SIP Only

Client	Purpose	Description	Source	Source Protocol & Port(s)	Destination	Destination Protocols & Port(s)
<b>SIP Devices</b> VC Endpoint with SIP registration	RCV Management, Directory, Signalling and Media ports	Outbound to RCV	Internal (private) video endpoint addresses	Any	RCV Gateways 122.56.65.112/28	Management - TCP 80, 443 NTP – UDP 123 AD – TCP 389 SIP - TCP/UDP 5060, TCP 5061 Media - UDP 24,000-59,999

	RCV Management	RCV to VC endpoint	RCV Gateways 122.56.65.112/28	Any	VC endpoints internal IP addresses	Management - TCP 80, 443, ICMP
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### 3.2 VC Endpoints Registering to RCV Standard via Internet

RCV does not support VC endpoints registering to the service directly via the internet.

### 3.3 Unregistered VC Endpoints Calling to RCV via Essentials

This scenario could apply to RCV Basic environments. The traffic flow would not typically traverse any firewalls unless internal firewalls have been placed between the VC endpoints and the Spark WAN.

Client	Purpose	Description	Source	Source Port(s)	Destination	Destination Protocols & Port(s)
<b>SIP Devices</b> Direct SIP call to RCV – (no SIP registration)	RCV signalling and media ports	Outbound to RCV	Public VC endpoint IP addresses	Any	RCV Gateways 122.56.65.112/28	TCP/UDP 5060, TCP 5061 Media - UDP 24,000-59,999
<b>H.323 devices</b> Direct H.323 call to RCV – (no H.323 registration)	RCV signalling and media ports	Outbound to RCV	Public VC endpoint IP addresses	Any	RCV Gateways 122.56.65.112/28	TCP 1720 Signalling – TCP 15,000-19,999 Media - UDP 24,000-59,999

### 3.4 Unregistered VC Endpoints Calling to RCV via Internet

This scenario could apply to RCV Basic environments where the service is accessed via the internet. The VC endpoint would require the following permissions to be able to establish a call to RCV. The VC Endpoint could be positioned in a Public IP on a DMZ or on the internal LAN with Network Address Translation (NAT).

Client	Purpose	Description	Source	Source Port(s)	Destination	Destination Protocols & Port(s)
<b>SIP Devices</b> Direct SIP call to RCV – (no SIP registration)	RCV signalling and media ports	Outbound to RCV	Public VC endpoint IP addresses	Any	RCV Gateways 122.56.65.112/28	TCP/UDP 5060, TCP 5061 Media - UDP 24,000-59,999
<b>H.323 devices</b> Direct H.323 call to RCV – (no H.323 registration)	RCV signalling and media ports	Outbound to RCV	Public VC endpoint IP addresses	Any	RCV Gateways 122.56.65.112/28	TCP 1720, 15,000-19,999 Media - UDP 24,000-59,999



## 4. VIDEO CONFERENCING SOFTWARE CLIENT FIREWALL RULES

The following rules apply to Software video clients connecting to RCV. These clients do not register to the service and can connect to the service via the Internet or Essentials.

The rules below assume the following:

- Ensure any NAT traversal fix up functionality is disabled on the firewall as it can interfere with the media ports and cause media transmission issues
- Ensure that the firewalls Deep Packet Inspections or Application Level Gateway is turned off for this traffic as it could cause connection issues.
- Rules below assume firewall rules are reflexive (allow return traffic of established sessions) and general outbound TCP ports 80, 443 and DNS is allowed.

### 4.1 Polycom Real Presence Client or Cisco Jabber for TelePresence

**Connecting via a Spark Essentials Connection** – The Polycom RealPresence client allows direct SIP calling to the ReadyCloud Video service. This client does not need to register to ReadyCloud Video. Therefore the traffic can go directly to RCV via the essentials connection without traversing the customers' internet firewall.

**Connecting via the Internet** - Below are the internet firewall ports that must be opened to allow the Cisco Jabber Video client (not the Enterprise Jabber collaboration client) or the Polycom RealPresence client to access the ReadyCloud Video Internet gateway.

Client	Purpose	Description	Source	Source Port(s)	Destination	Destination Port(s)
<b>Polycom RealPresence clients *</b> Direct SIP call to RCV – no registration	RCV Media ports	Outbound to RCV	Internal (private) video endpoint addresses	Any	RCV Gateways 122.56.65.112/28	UDP 24,000-59,999
	RCV signalling ports	Outbound to RCV	Internal (private) video endpoint addresses	Any	RCV Gateways 122.56.65.112/28	TCP 443, 5060, 5061 UDP 3478 - 3483



Client	Purpose	Description	Source	Source Port(s)	Destination	Destination Port(s)
<b>Cisco Video clients</b> <a href="http://www.ciscopark.com">www.ciscopark.com</a> Cisco Jabber for Telepresence	Media ports	Outbound to Jabber.com	Internal (private) video endpoint addresses	Any	122.56.65.112/28 Or Cisco Spark IP's	UDP 16,384 to 59,999
	Signalling ports	Outbound to Jabber.com	Internal (private) video endpoint addresses	Any	122.56.65.112/28 Or Cisco Spark IP's	TCP 80,443,5060,5061 UDP 3478-3483, 5349

\* The Polycom RealPresence Client should be setup to call with SIP, using TCP and no registration.

## 4.2 ReadyCloud Video – Jabber Guest

The RCV Guest service uses Cisco's Jabber Guest software and allows users to join VMR's from their Windows/Apple browser or Android/IOS device. In a typical home environment firewall rule changes are typically not required. Corporate firewalls may have tighter controls on outbound connections and may require some of the following additions.

Client	Purpose	Description	Source	Source Port(s)	Destination	Destination Protocols & Port(s)
<b>RCV Guest</b> <a href="https://guest.rcvideo.net">https://guest.rcvideo.net</a>	Call Signalling and Media	Outbound to RCV Guest	Internal (private) Client video endpoint addresses	Any	RCV Gateways 122.56.65.112/28	TCP 80, 443 <b>UDP 3478</b>

Note - Internet Proxy exemptions may be required in some environments. Customers with a Spark Essentials connection can route RCV Guest traffic via the WAN rather than over the internet.

Test VMR Link - <https://guest.rcvideo.net/call/demo>

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## 5. SKYPE FOR BUSINESS FEDERATION FIREWALL RULES

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### 5.1 ReadyCloud Video – Federation to Skype for Business via the Internet

The RCV Skype for Business federation service allows external Skype for Business deployments to federate with ReadyCloud Video via the Internet and make video calls to RCV VMRs. The details below can be used to setup federation on the Skype deployment.

SIP Domains to allow federation with in Skype for Business configuration:

- rcvideo.net
- smartmeeting.co.nz

DNS A record for ReadyCloud video federation gateway:

- conf1.rcvideo.net

*NOTE – the rcvideo.net and smartmeeting.co.nz domains have SIP TLS federation SRV records configured so it should not be necessary to specify the gateway DNS name.*

Firewall ports to allow external video calling to the ReadyCloud Video VMRs:

Please see the Skype for Business configuration document relevant to your Skype deployment. For example, the Skype for Business configuration document as below:

<https://technet.microsoft.com/en-us/library/mt346415.aspx#PortFirewallPlan>