



Administrator Guide

Fuze Service Requirements

Last updated: 1/18/19

Introduction

This document describes network requirements for Fuze services, specifically relating to the necessary ports which are used to transport data to and from Fuze servers and data centers.

Important Note

This first section and its associated sub-sections detail crucial information that should be understood before attempting to configure your ports for use with Fuze services.

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Fuze UC Services – Production Traffic

Fuze Unified Communication (UC) services production traffic communicates via the networks described in the following table.

Please note: Customers with a global presence may need to allow subnets from regions beyond their home region for voice service connectivity. This allows users who travel beyond their home region to reach voice service data centers when required.

Location	Networks (IP Ranges)		
North America	<ul style="list-style-type: none"> 70.42.233.0/24 66.151.176.0/24 	<ul style="list-style-type: none"> 162.223.96.0/23 170.76.188.0/23 	<ul style="list-style-type: none"> 45.252.184.128/29 ** 45.252.184.136/29 **
EMEA	<ul style="list-style-type: none"> 162.223.96.0/22 170.76.188.0/23 	<ul style="list-style-type: none"> 185.155.144.0/22 66.151.176.0/24 	<ul style="list-style-type: none"> 45.252.184.144/29 **
Asia	<ul style="list-style-type: none"> 162.223.96.0/23 170.76.188.0/23 66.151.176.0/24 	<ul style="list-style-type: none"> 103.197.96.0/22 64.209.246.0/24 	<ul style="list-style-type: none"> 205.139.23.0/24 45.252.184.0/22
Australia	<ul style="list-style-type: none"> 170.76.188.0/23 66.151.176.0/24 	<ul style="list-style-type: none"> 103.197.96.0/22 	<ul style="list-style-type: none"> 162.223.96.0/23
South America	If hosting a customer in BRP (Sao Paulo, Brazil) speak to a Network Consultant for IP targets.		
	** Denotes IP ranges that are required for Fuze-MyTest tool.		

Subnets in Meeting by component type		
Location	Audio subnet	Video subnet
US (San Jose, CA and Ashburn, VA)	206.81.176.0/26 206.81.177.0/26	206.81.176.128/25 206.81.177.128/25
EU (Frankfurt)	206.81.181.0/26	206.81.181.128/25
Australia (Sydney)	206.81.185.0/26	206.81.185.128/25

Fuze Services and Ports

Please take adhere to the following

- The **source** for **ALL services below** should be a **Trusted LAN**.
- The **direction with stateful filter** for **ALL services below** should be **Outbound Only**.
- For all **Source** and **Destination** ports, if a stateless filter is used, reciprocating ports are required.
- When accessing Fuze services over a DIA or Broadband connection, HTTPS authentication is required.
- NTP and DNS services are obtained through external public hosts.
- Network routing and rules for NTP, DNS, and HTTPS may need to be adjusted to accommodate this traffic.

Priority	Source Ports	Destination Ports / Timeouts	Additional Comments
Service: Audio RTP - Media Transmission			
DSCP: 46(ef) IP Precedence: 5 Audio : CS7 on Windows OS without admin rights	UDP 11780-12780 (Yealink) 2000-3000 (Polycom) 4000-4999 (Mobile apps) 5000-5499 (Softphones) 6000-6230 (Analog/Fax) 9000-20000 (Aux devices)	UDP 9000-20000 (30 sec) UDP 4000-4599 (30 sec, T38 Fax services)	<u>Performance Guidelines:</u> Delay <150ms; Jitter <30ms; Packet Loss <1% NOTE: Ports may vary if NAT is in use. Reference for QOS Set Outgoing DSCP Value
Service: SIP Signaling			
DSCP 26(af31) IP Precedence 3 (applies to CoS set up on switches) SIP : CS5 on Windows OS without admin rights	UDP 5060 TCP 5060 TCP 5061: TLS	UDP 5060 (360 sec) TCP 5060 (600 sec) TCP 5061: TLS (600 sec)	<u>Performance Guidelines:</u> Delay <150ms; Jitter <30ms; Packet Loss <1% Reference for QOS Set Outgoing DSCP Value
Service: Domain Name System (DNS)			
N/A	N/A	UDP 53 <u>Destination IPs</u> 162.223.96.0/22 66.151.176.0/24 70.42.233.0/24 103.197.96.0/22 64.209.246.0/24 205.139.23.0/24 (or selected external / internal DNS service)	Fuze-provided DNS Services are only available via Private connectivity. If connecting DIA, use internet based or internal DNS services as defined during design. Performance Guideline: Delay <75ms

Priority	Source Ports	Destination Ports / Timeouts	Additional Comments
Service: Voice calls with added Video			
N/A	Dynamic (P2P connection)	Dynamic (P2P connection) TCP 443 for prodturn*.fuzemeeting.com domains (with dynamic IP range) (STUN and TURN)	ICE services allow voice calls with video, using P2P connections. The ICE framework detects which port/IP combination is available to establish the connection between peers (either using local network or Internet) (STUN protocol). If no possible connection is found, then all content is relayed to *.fuzemeeting.com (TURN protocol)
Service: NTP - Date / Time			
N/A	N/A	UDP 123 <u>Destination IPs</u> 66.151.176.0/24 162.223.96.0/22 (or Selected External / Internal NTP services)	Fuze provided NTP Services are only available via private connectivity. If connecting via direct internet access, use internet based or internal NTP services as defined during design.
Service: HTTP & HTTPS - Provisioning / Administration			
N/A	N/A	TCP 80	HTTP and HTTP-like transactions are using this port to allow egress from customer sites with strict outbound policies. If you have a deep inspection firewall, ensure that this traffic from your clients to the Fuze cloud is not rejected by over aggressive rules as this traffic doesn't always strictly look like HTTP.
N/A	N/A	TCP 443	HTTPS, tunneled RTMP, custom TCP, and other TLS encrypted traffic such video in the event that the high-range UDP ports are blocked. Again, packet inspection firewalls should be configured to not discard packets to these ports on addresses within our network block.
Service: Fuze Meeting - Audio / Video / Signaling / Authentication			
Audio : CS7 Video : CS5 Screenshare : CS5 SIP : CS5 If Windows users have admin access to their machines, Fuze automatically applies the correct DSCP tags.	N/A	TCP 80 TCP 443 SSL <u>Audio</u> UDP 50,000 – 54,999 <u>Video</u> UDP 55,000 – 65,000 <u>Destination IPs/Domain</u> 206.81.176.0/20 185.155.144.0/22 Fuzebox.com	Only ports 80 and 443 are strictly required. All other ports are for improved performance and reliability. If Fuze traffic is still blocked, please report the specifics using the "Submit Feedback" link while in a Fuze meeting which allows our support team to receive key details relating to your meeting and local Fuze application. Note: See QOS Policy Management , and Reference for QOS Set Outgoing DSCP values for details about how and why windows will override our settings when our application is not run as admin.

Priority	Source Ports	Destination Ports / Timeouts	Additional Comments
Fuze Contact Center (FCC)			
N/A	N/A	TCP 40000-40003 TCP 50000-50002	N/A
ICMP - Monitoring/Troubleshooting			
N/A	N/A	ICMP	Inbound ICMP to EDGE also recommended
Telepresence Connect			
N/A	N/A	TCP 1720 (for H.323 call setup) TCP 50,000-60,000 (for RTP traffic H.323 signaling) UDP 5060 (for SIP signaling) UDP 50,000-60,000 (for RTP traffic SIP/H.323)	Note that Fuze calls originate from 206.81.176.0/20. If your telepresence implementation requires a domain, you can use fuzemeeting.com TPGW Ports - 7777 h323 - 1720 SIP/TLS - 5060/5061 RTP/RTCP - 50000-60000

Fuze Apps and Services — Network Ports

The following networks must be accessible to allow Fuze applications and services function.

Location	Network Ports
All	<p>Ports 443 (https://) and 80 (http://)</p> <p>FuzeNode (audio): UDP 50000-54999, TCP 443</p> <p>MediaHub (next gen Video): UDP 55000-65000, TCP 443</p> <p>For optimal performance, Fuze Meeting video conferencing and VoIP will attempt to use UDP on 50,000 - 65,000, however, this traffic will failover to TCP 443 if Fuze determines that the ports are blocked.</p> <p>UDP reduces latency and is more ideal for real-time communication. TCP should only be used as a last resort as it introduces delay and can cause out-of-sync and/or delay issues between video and audio. In rare cases where the network is particularly lossy, using TCP can reduce packet loss and improve video/audio quality.</p> <p>Some IT admins prefer to block UDP, as most network traffic these days is over HTTP which is TCP underneath. In these cases, Fuze falls back to using TCP but it's recommended that UDP be opened up for Fuze traffic for the aforementioned reasons.</p>

DNS Recommendations

In Direct Internet Access (DIA) environments, Fuze uses and recommends the use of Open DNS services for primary and secondary DNS servers. Many of Fuze's Customers also use both Google and Level3 DNS services successfully, as well as the DNS services of many ISPs providing Internet services.

In MPLS environments with private connectivity to Fuze, all UC Services communication can be restricted to appropriate destinations listed in the [Ports table](#).

Customers using their own internal servers must discuss this with a Fuze Network Consultant, see note below.

Note: Fuze strongly recommends that, for private connectivity WAN/LAN solutions, Fuze DNS services be set as the primary DNS server in VOICE DHCP scope for the all VOICE LAN segments.

If the customer provided WAN/LAN solution is MPLS-only and has no internet-based failover option, Fuze recommends that Fuze DNS services be set as the secondary DNS server in VOICE DHCP scope for the all VOICE LAN segments as well.

If the customer-provided WAN/LAN solution has internet-based failover then non-Fuze DNS services should be set as the secondary DNS server in the VOICE DHCP scope for the all VOICE LAN segments.

Note: This non-Fuze DNS server can be a customer-provided local DNS server or an internet-based DNS server, as long as it support SRV and NAPTR record lookups.

Note: If using Fuze DNS services, the appropriate Fuze DNS server IP Address or Addresses will be supplied by the assigned Network Consultant during the design process.

Stateful Firewalls / Filters

All enterprise communication sessions from Fuze phones, Fuze desktop applications and Fuze mobile applications (over WLAN) are initiated from the respective phone or application to a Fuze data center, and are accounted for in the table below. Typically, when enterprise communication for these phones and applications are passing through a stateful firewall, only the ports noted below need be opened outbound.

NOTE: Some non-standard Fuze SIP Trunk and PRI/Analog conversion productions require inbound communication and management that is not listed below.

If using a stateful filter:

- Inbound traffic from Fuze will access the network via ports opened by outbound sessions initiated by Fuze phones and desktop applications.
- Any inbound troubleshooting protocols or access/visibility initiated from Fuze will need to be allowed inbound into the network (*For example, ICMP traffic*).
- The exact configuration of these protocols varies for device, vendor, package, and firmware revision. Fuze recommends that you request information or open a service ticket through the vendor specific to your exact gear and configuration.
- **UDP timeouts, SIP/RTP timeouts, and/or Application-Level Gateways (ALGs)** may need to be modified in order to support Fuze service timeouts noted below. Fuze recommends contacting the vendor for confirmation specific to the exact hardware, revision, and configuration.

NOTE: If using a device with one or more ALGs relevant to Fuze services, the ALG(s) may need to be disabled, enabled, or further adjusted for Fuze services to work properly. Fuze recommends contacting your vendor for support if ALGs are causing connectivity issues with Fuze devices on your network.

Additional Guidelines

- Fuze does not support nor recommend double-NATing of Fuze UC Services production traffic.
- Fuze UC Services production traffic route paths between Fuze UC endpoints and Fuze UC production facilities should be symmetric at all times.
- Fuze UC Services production traffic should be Full-Duplex at all times.
- Fuze UC Services production traffic should not be ACTIVE/ACTIVE load balanced.
- Fuze UC Services production traffic should not pass through WAN accelerator. If this traffic must pass through a WAN accelerator, it should be white-listed so as not to be acted on in any manner by the WAN accelerator.

Note: For troubleshooting Fuze UC Services production traffic through a WAN accelerator, it may be required to physically remove the WAN accelerator from the traffic path.

- Fuze strongly recommends enabling QoS enforcement for all VOICE or VIDEO related aspects of the environment communicating to or from Fuze.
- If QoS is enforced in the environment, performing packet captures is recommended to validate that both ingress and egress packets are appropriately marked as packets pass through the WAN, based on the services guidelines below.

URL filtering and HTTP proxy

Below is an explanation of URLs that are currently used by all Fuze products (including URLs for things like software clients and desk phones). This is important for URL filtering and HTTP proxy.

Please Note: When using a proxy-server with SSL inspections (like Zscaler or Symantec) we strongly recommend disabling SSL inspection for all domains and FQDNs listed in the table below.

Fuze Services			
Service	Domain / IPs	Domain IP Type	Used For
Core Fuze Meeting	206.81.176.0/20 206.81.181.0/26 185.155.144.0/22 185.155.147.192/26 170.76.188.0/22	N/A	Fuze Meeting backend
	*.fuzebox.com	Dynamic	Meetings backend
	*.fuzemeeting.com	Dynamic	Meetings, Recordings, Video, Voice Calls with Video, and Fuze Web Softphone features
Core Fuze Voice and Authentication Services	*.thinkingphones.com	Dynamic	Voice, Provisioning, Authentication, portal, Desktop Web UX
	warden.thinkingphones.com	Dynamic	Authentication and Login - Can be configured with static IP, see Network Consultant or Support for more info. <u>Please note when configuring authentication through our Warden service:</u> <ul style="list-style-type: none"> Some client and device authentication services require HTTPS access to warden.thinkingphones.com, which resolves variable IP Addresses - IP Addresses not noted in Fuze UC Services production traffic. If HTTPS (tcp_443) is allowed out to general internet, or to any destination from the client or device: no additional filter adjustments are required. If HTTPS is not allowed, then a dynamic filter rule that can resolve warden.thinkingphones.com is required.
	*.fuze.com	Dynamic	Authentication, Support, Help, Web, Desktop URL.
	*.thinkingphones.net	Static	NTP server, Deskphones Provisioning

Fuze Services (continued)			
Service	Domain / IPs	Domain IP Type	Used For
Core Fuze Voice and Authentication Services (continued)	Polycom: x.fuze.com, ztp.polycom.com Yealink: Y.fuze.com rps.yealink.com	Static	Deskphones, Provisioning Please Note: Beginning 11/20/18, the device provisioning server addresses x.fuze.com (Polycom), and y.fuze.com (Yealink) will replace x.adgjmp.net and y.adgjmp.net. After 11/20/18 voice functionality will be retained for devices that remain on a legacy domain, however the device(s) will not receive configuration or updates from Fuze. The device provisioning server will still support Cisco and Panasonic devices. ztp.polycom.com, and rps.yealink.com are manufacturer-specific addresses that facilitate Zero Touch Provisioning (ZTP), a process that greatly simplifies and improves efficiency of device provisioning. For more details, please contact your Fuze sales engineering representative.
	66.151.176.95 66.151.176.120 66.151.176.30 66.151.176.31	Static	Deskphones, Provisioning non-Polycom or Yealink brands Please Note: Beginning 11/20/18, these will be replaced with 170.76.189.0/25 170.76.189.128/25 These IP addresses are subject to change but will stay within this range. Customers that whitelist the current IPs must update their network and provisioning configurations accordingly on or after 11/20/18 in order to be supported. Voice functionality will be retained for devices that remain on a legacy configuration, however the device(s) will not receive configuration or updates from Fuze.
Fuze Contactive	*.contactive.com	Dynamic	Contacts and Insights (Contactive).

Required Third Party Service Domains

Cloud companies constantly update their IP ranges and therefore do not provide static IPs. The following table lists and describes domains for third party services that must be allowed for Fuze apps and services to function.

Required Third Party Services			
Service	Domains	Protocol	Used For
Amazon Cloudfront	d1j2or3azepuq.cloudfront.net	HTTPS	Avatar and roster pictures
	d1yyftelocodol.cloudfront.net		Application update servers
	dtjaodtk8r3ge.cloudfront.net		
Amazon AWS	fuze-floppy-live-us-east-1.s3.amazonaws.com	HTTPS	File storage, used for chat attachments, meeting content, etc. Amazon recommendations: AWS IP Blog post and JSON
	clientlogsprod.s3.amazonaws.com	HTTPS	Client logs
	callwave.s3.amazonaws.com	HTTPS	Avatars, content, etc
Google Auth	www.googleapis.com apis.google.com	HTTPS	Required to authenticate with Google Firebase, not used for any content storage
Google Maps	maps.google.com	HTTPS	Maps images on the contact profile section
Google Firebase	ngchat-tenant-1-live.firebaseio.com ngchat-tenant-2-live.firebaseio.com ngchat-tenant-3-live.firebaseio.com ngchat-tenant-4-live.firebaseio.com ngchat-tenant-5-live.firebaseio.com ngchat-tenant-6-live.firebaseio.com ngchat-tenant-7-live.firebaseio.com ngchat-tenant-8-live.firebaseio.com ngchat-tenant-9-live.firebaseio.com ngchat-tenant-10-live.firebaseio.com lmp.firebaseio.com	HTTPS	Chat (IM) signaling. These are not required for customers on v5.2 or later.
Google Firebase	*.firebaseio.com	WSS	Required for chat and meeting notes. We cannot determine in advance what the subdomain is, as it is assigned by Firebase before establishing the WebSocket connection.
Mixpanel	api.mixpanel.com	Dynamic	Our analytics for the apps for the R&D team to be data driven in our designs and improvements.
Segment	api.segment.io	Dynamic	Logs, crashes, analytics, etc. for the R&D Team.

Connected Account Network Requirements

The services and domains described in the following table allow you to take advantage of connected calendar and cloud accounts, as well as other add-ons for Fuze Desktop and Fuze for Salesforce.

Connected accounts - other services		
Service	Domains	Used For
O365	Follow Microsoft guidelines	Allows users to connect their O365 accounts to integrate with their address book and calendar.
Google Apps / G Suite	Follow Google guidelines	Allows users to connect their G Suite accounts to integrate with their address book and calendar.
Salesforce	Follow Salesforce guidelines	Allows users to connect their Salesforce accounts to integrate with their address book and calendar.
Dropbox	Follow Dropbox guidelines	Allows users to connect their Dropbox accounts to integrate and share in-meeting content. Access to these services can be deactivated by opening a support request.
Box	Follow Box guidelines	Allows users to connect their Box accounts to integrate and share in-meeting content. Access to these services can be deactivated by opening a support request.

Integrated Authentication and SSO

Integrated authentication and single-sign-on (SSO) are optional technologies that Fuze supports for organizations that use them for user provisioning and authentication.

Fuze Desktop 5.0 adds support for Integrated Authentication using your own authentication service. This is an optional feature for organizations who choose to use Integrated Authentication for Fuze Desktop. Integrated Authentication uses intranet server or proxy details to allow users to sign in to Fuze without being prompted for their the user for a username or password. This is accomplished by using cached credentials which are established when the user initially logs in to the machine on which Fuze Desktop is running. Integrated Authentication for both Windows and macOS users and is supported for *Negotiate* and *NTLM* challenges only.

Fuze also supports a variety of providers of single-sign-on (SSO) technology, which is a software technology that integrates with most applications that require user credentials. When implemented, SSO allows users manage their credentials and easily log in to Fuze applications from a single interface.

See the article [User Provisioning and SSO](#) in Fuze Community for more details about these features.

Customer Hosted Mail Service (Private Connections)

If hosting your own email server on a network that also shares a private connection to Fuze, the email server must be reachable from the internet to avoid a-synchronous routing. If the email server is not reachable, issues such as failure to receive emails may occur.

If there is a possibility that this may occur, please route the following destinations towards the Internet Gateway.

North America <ul style="list-style-type: none"> • cam-vm-u1 inet 66.151.176.245 • bos-u1 inet 162.223.96.245 • sfo-vm-u1 inet 70.42.233.245 	ASIA <ul style="list-style-type: none"> • sin-u1 inet 205.139.23.8 • hkg-u1 inet 64.209.246.245
EMEA <ul style="list-style-type: none"> • fra-u1 inet 162.223.98.25 • lon-u1 inet 162.223.99.25 	AUSTRALIA <ul style="list-style-type: none"> • syd-u1 inet 103.197.97.31 • eaa-u1 nat 52.62.52.78

Logging and Packet Drops

Fuze strongly recommends enabling logging on any filtering device during network validation and/or trouble-shooting.

- Any **TCP/UDP packet drops** with Fuze UC Services production networks as a **source or destination**, especially those passing through ports **5060** or **5061**, **strongly suggests there is a problem with the configuration of the device that is reporting the drops.**
- Packet drops can occur even when filters allow **ANY:ANY**, due to other services/rules that maybe running on the filtering devices.
- Ensure that all Fuze UC Services production traffic is white-listed and matches the appropriate rules, and that there are no drops associated with Fuze UC Services production traffic.
- If passing Fuze UC Services traffic through a non-Fuze-provided device, please be prepared to provide packet captures of Fuze UC Services traffic on the device.

Real time Network Monitoring Requirements

For details about TCP/UDP port requirements for real time network monitoring, please see the Delivery Monitoring table on [this site](#).

Appendix: Change History

2/1/19:

- Added an important note to precede the [URL filtering and HTTP proxy](#) table that recommends disabling SSL inspection for all domains and FQDNs listed in the table when using a proxy-server with SSL inspections (like Zscaler or Symantec).

1/15/19:

- Revised the [Integrated Authentication](#) section to combine with SSO and clarify that both are optional features rather than specific requirements for Fuze service. Relocated key configuration details to an Integrated Authentication and SSO-specific article in Fuze Community.
- Added ztp.polycom.com, and rps.yealink.com to the [Ports Table](#). ztp.polycom.com, and rps.yealink.com are manufacturer-specific addresses that facilitate Zero Touch Provisioning (ZTP), a process that greatly simplifies and improves efficiency of device provisioning. For more details, please contact your Fuze sales engineering representative.

11/16/18:

- Added a new section to the [Ports Table](#) (p.4) titled **Service: Voice calls with added Video** that addresses requirements for the Voice calls with Video feature introduced in Fuze Desktop 5.2.
- In the [URL filtering and HTTP proxy](#) table, Added Voice Calls with Video, and Fuze Web Softphone features to the list of features for which *fuzemeeting.com must be whitelisted.
- Moved [DNS Recommendations](#) section to a more prominent location on page 6.
- Updated Yealink UDP range to 11780-12780 in the Audio RTP section of the [Ports table](#) in accordance with a correction to Yealink's support documentation.
- Restored Polycom: x.adgjmp.net and Yealink: y.adgjmp.net to the [URL filtering and HTTP proxy](#) table (p.10) as they are technically still live, and instead added clarifying language to cover the forthcoming switch to Polycom: x.fuze.com and Yealink: y.fuze.com, as well as info about the new CIDR Blocks 170.76.189.0/25 170.76.189.128/25.
- Added the following note to the intro of the [Fuze UC Services – Production Traffic](#) section:
“**Please note:** Customers with a global presence may need to allow subnets from regions beyond their home region for voice service connectivity. This allows users who travel beyond their home region to reach voice service data centers when required.”
- Added the subnet 170.76.188.0/23 to all regions in the [Fuze UC Services – Production Traffic](#) table. 170.76.188.0/23 is the new config server subnet is intended to eventually replace 66.151.176.0/24 (but is not a full replacement at this time).

10/12/18:

- Removed the following IP addresses from the EAA (Australia) region of the [UC Services production traffic table](#): 52.62.2.56, 52.62.46.100, 52.62.82.19, 52.62.88.91, 52.62.19.160, 52.62.77.253, 52.62.57.82, 52.62.108.111
- Added Telepresence section to the [Ports table](#).
- Added updated desk phone/provisioning domains and IPs to [URL filtering and HTTP proxy](#) table.

- Consolidated Service column content in into each section header within the [Ports table](#) to free up more space and reduce redundancy.
- Consolidated “*Protocol Rules*” section into the intro paragraph of the [Ports Table](#)
- Added [Optional Connected Accounts](#) intro details to Connected Accounts table, and links to relevant third-party network guidelines within table.
- Consolidated the section “*Authentication through warden service*” into the warden.thinkingphones.com row (addtl notes section) of the [URL Filtering and HTTP Proxy](#) table.
- Remained “*IP Ranges from 3rd Party Services*” to Required Third Party Domains and added clarifying intro language to the intro paragraph. 3rd party services
- Removed “*QOS Tagging on Windows Machines*” section, as this information was redundant to the [Fuze Meetings row](#) of the [Ports table](#).
- The section “*Fuze Desktop and Fuze Addins (Browser, Outlook, etc.)*” is renamed “[Fuze Apps and Services Network Ports](#)”.
- Renamed Appneta section to [Realtime Network monitoring Regs.](#)
- Re-arranged multiple sections to bring ports-related ones to the top, under a broader ports section.

9/21/18:

- [Ports table](#):
 - Modified DSCP language to “on Windows OS without admin rights” in multiple rows.
 - SIP row - Added clarification to IP Precedence 3, and corrected “Video CS5” to “SIP CS5”.
 - Audio RTP row - removed “Realtime Audio”.
 - Removed Video RTP row as Fuze no longer supports video-enabled hard phones.
 - Meetings row:
 - Removed IP ranges 206.81.181.0/26, 170.76.188.0/22, and domain Fuzemeeting.com from the Destination column.
 - Destination port TCP/UDP 3478 in not required (443 is recommended) and has been removed.
 - Destination port TCP 7443, is no longer used and has been removed.
 - Destination port Video UDP values have been updated from 55,000-65,00 to 50,000-60,000.
 - Added relevant details from Video RTP row and QOS section.
- Renamed “Protocol” column to “Domain IP Type” in [URL filtering and HTTP proxy](#) table.
- Removed QOS section on Page 13 and consolidated with Fuze Meeting row of Ports table.
- Removed Removed VideoHub and Screensharing ports lists from [Fuze Desktop and Fuze Addins](#) table. These now roll up under MediaHub. Also added language to clarify why UDP is recommended in most scenarios.
- Revised and added configuration details to note in [QOS Tagging on Windows Machines](#) section.
- Revised phrasing of [Customer Hosted Mail Service](#) section.
- Removed all “DIA-only” 52.x.x.x IP addresses from the EMEA section of the [UC Services production traffic table](#).
- Added new Sydney region and IPs to the [Subnets in Meeting by component type](#) table.

9/4/18:

- All ports content condensed into a single [Ports table](#) at the beginning of the document.
- Updated class selector to CS5 for Video RTP and SIP services in the [Ports table](#), and for Video, SIP, and Screen Share in the [QOS Tagging](#) section.
- Added [AppNeta section](#).
- Removed "Port table Legacy Devices" section.
- Added [Subnets in Meeting by component type](#) table.

8/4/18: Content reformatted and updated branding applied.

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