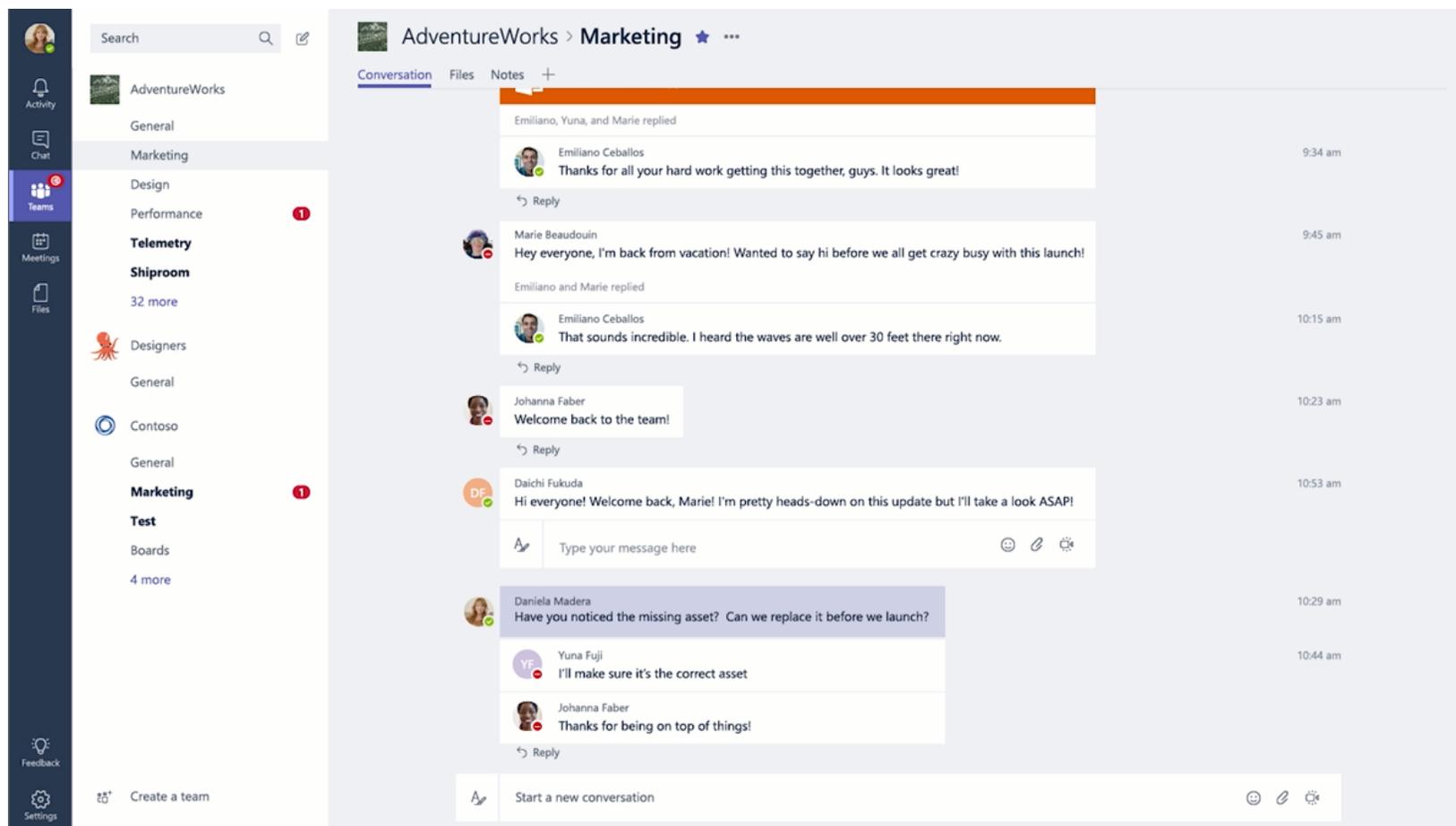


Deploy and manage Microsoft Teams

Get Microsoft Teams up and running.

Recap of Previous Presentations

Introduction to Teams at <https://aka.ms/microsoft-teams-readiness>



Agenda

- Foundation of Microsoft Teams
- Infrastructure Guidance
- Network Planning
- The Admin Portal
- Client Rollout
- Chat Services

Goals of this Training

- How Microsoft Teams leverages existing Office 365 products
- Ensure Microsoft Teams is able to communicate to the cloud services from within your organization
- Enable and manage the settings
- Rollout the client
- Understand the Meeting and Chat services

Foundation of Microsoft Teams

Foundation of Microsoft Teams

- Microsoft Teams is built on top of Existing Microsoft Technologies:
 - Office 365 Groups
 - Office 365 Azure Active Directory
 - Exchange
 - SharePoint
 - OneNote

Office 365 Groups

- Microsoft Teams uses group membership as the access control list to Files and Notes tabs
- Owners of existing Groups can move them over to Microsoft Teams
- Team creation settings are controlled through the admin portal where you control group creation settings.

Azure Active Directory (AAD)

- Microsoft Teams uses your existing O365 Azure Active Directory credentials to sign in
- Your Identities are stored in Azure Active Directory
- Can leverage Azure Active Directory Modern Authentication for enhanced security

Exchange

- A group mailbox and calendar gets created for the Team
- Meetings created within Microsoft Teams gets pushed to your Exchange calendar
- Meetings created in Exchange get synced to Microsoft Teams

SharePoint

- Microsoft Teams create a SharePoint site for each Team
- Each Channel within a Team will get a folder on this SharePoint site
- Files shared within the Team are stored on SharePoint

OneDrive for Business

- Files that are shared during private chats are hosted on the user's OneDrive for Business storage
- Navigating to the Files icon on the left side of the application gives you instant access to your OneDrive for Business files

OneNote

- Notebooks are created for each Team
- Shared Notebook is hosted on SharePoint site
- Sections are created for each Channel
- Accessible from OneNote applications

Infrastructure Guidance for Microsoft Teams

Service Endpoint Whitelisting

- Customers are required to whitelist specific URLs on their proxies/firewalls.
- For a current list of endpoints refer here:
[Office 365 URLs and IP address ranges](#)

Whitelisted Endpoints

Global URLs			
Purpose	Source Credentials	Destination	Destination Port
Microsoft Teams web access	Client computer Logged on user	<u>*.teams.microsoft.com</u>	TCP 443
Email notification service	Client computer Logged on user	emails.teams.skype.com	TCP 443
Calling Media Relay Services	Client computer Logged on user	13.107.8.0/24	TCP 443; UDP 3478-3481
Chat service	Client computer Logged on user	<u>*msg.skype.com</u>	TCP 443
1:1 Calling	Client computer Logged on user	<u>*cc.skype.com</u>	TCP 443
Azure media services	Client computer Logged on user	<u>*asm.skype.com</u>	TCP 443
Global traffic manager	Client computer Logged on user	<u>s-0001.s-msedge.net</u>	TCP 443
Global traffic manager	Client computer Logged on user	<u>s-0002.s-msedge.net</u>	TCP 443
Global configuration manager	Client computer Logged on user	<u>*.config.skype.com</u>	TCP 443

For the complete list visit: [URLs and IP address ranges](#)

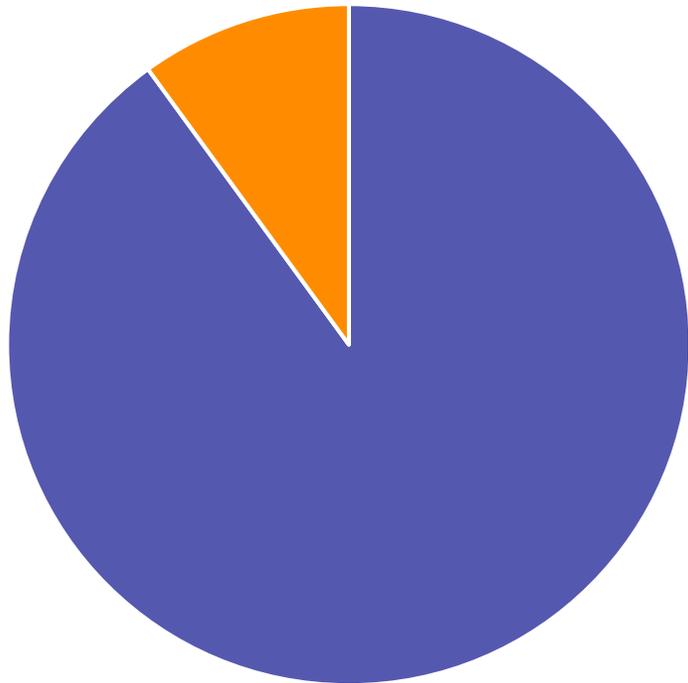
Network planning

Chat service versus real-time media

- Chat Service
 - Messaging (in Teams and Private Chat)
 - Chat
 - GIFs, memes, emojis
 - Files
- Real-time media
 - Audio
 - Video
 - Desktop sharing

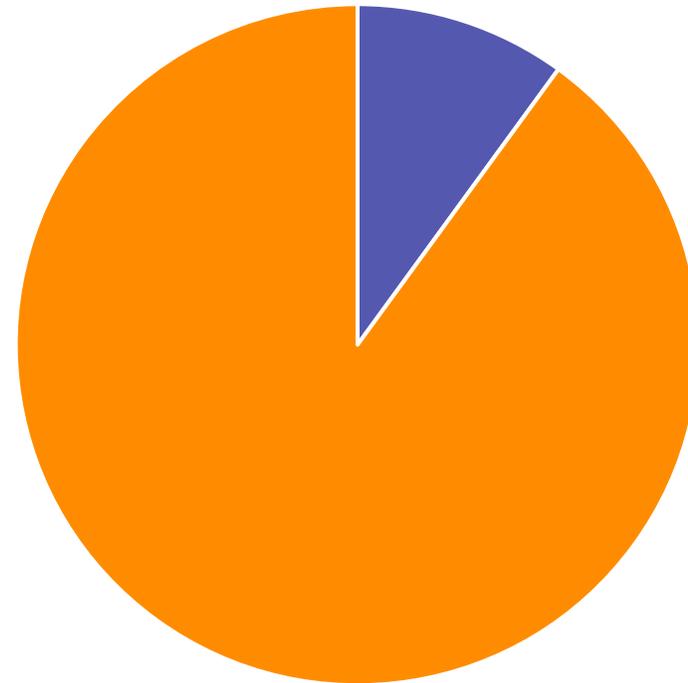
Disclaimer

What users do in Teams



■ Chat Service ■ Real-Time communication

How this presentation uses the time



■ Chat Service ■ Real-Time communication

Understanding client flows

- Chat Service content will always travel via O365
- In a 1:1 call, Audio, Video and/or Desktop Sharing will go direct
 - Peer-to-peer if network allows
 - Can be proxied via O365 if required
- Meetings will go via O365
 - For Meetings O365 receives all incoming media and sends it out to the all participants

Conferencing flows

- Audio
 - Each participant sends one audio stream
 - Conferencing Unit in O365 mixes audio streams
 - Sends exactly one audio stream to each participant

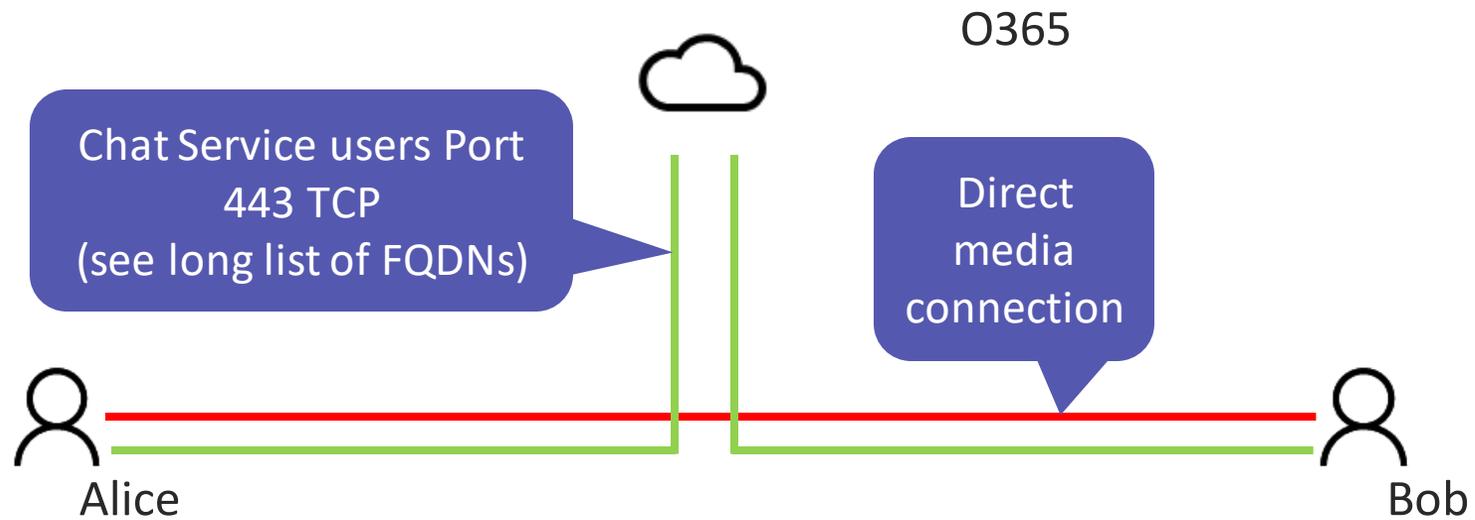
Conferencing flows (Continued)

- Video
 - Each participant sends video
 - Each participant can receive up to four video streams
 - When more than four participants, the most recent four speakers will be shown

Conferencing flows (Continued)

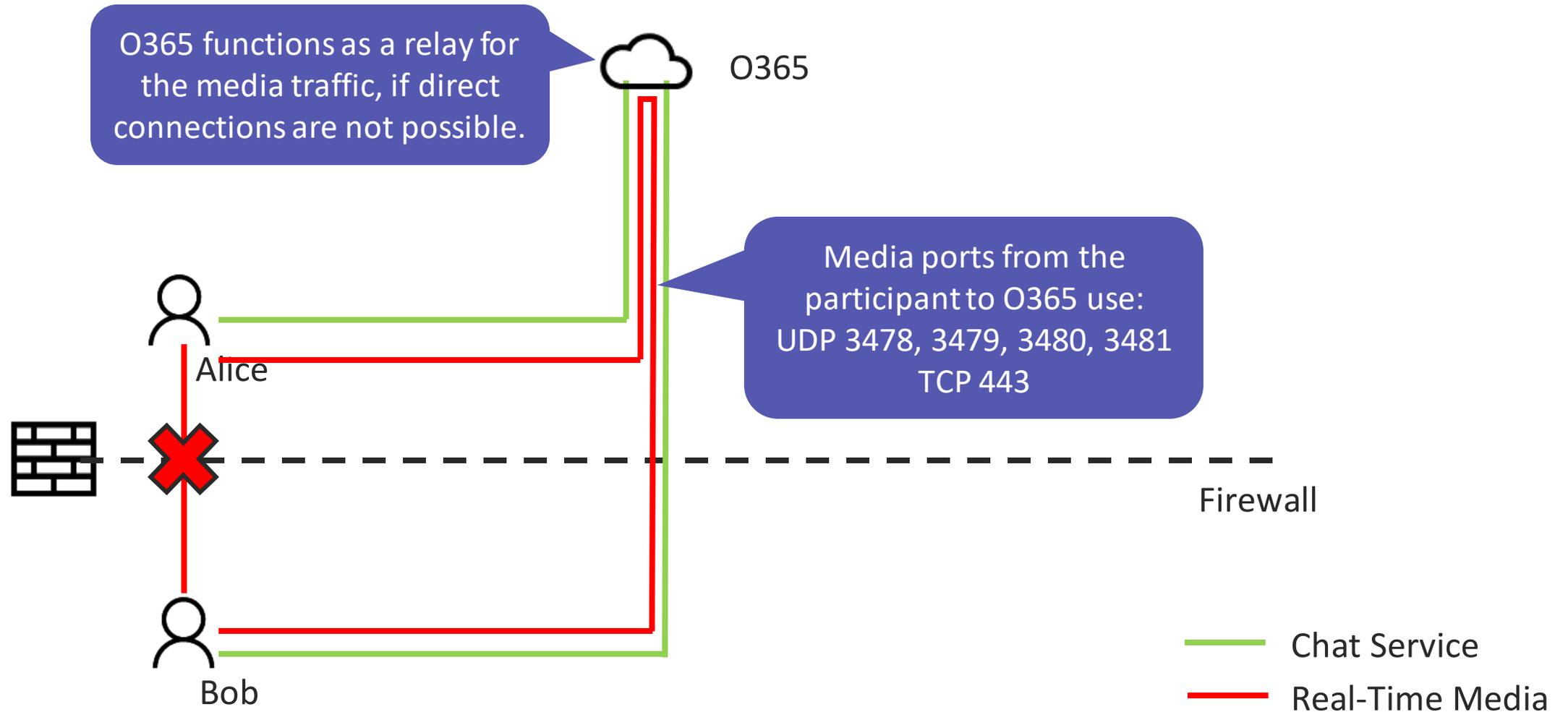
- Desktop Sharing
 - Leverages a video stream
 - One user sends, all other users receive
 - Stream based on receiver capability

Call Flows – 1:1 Call Direct

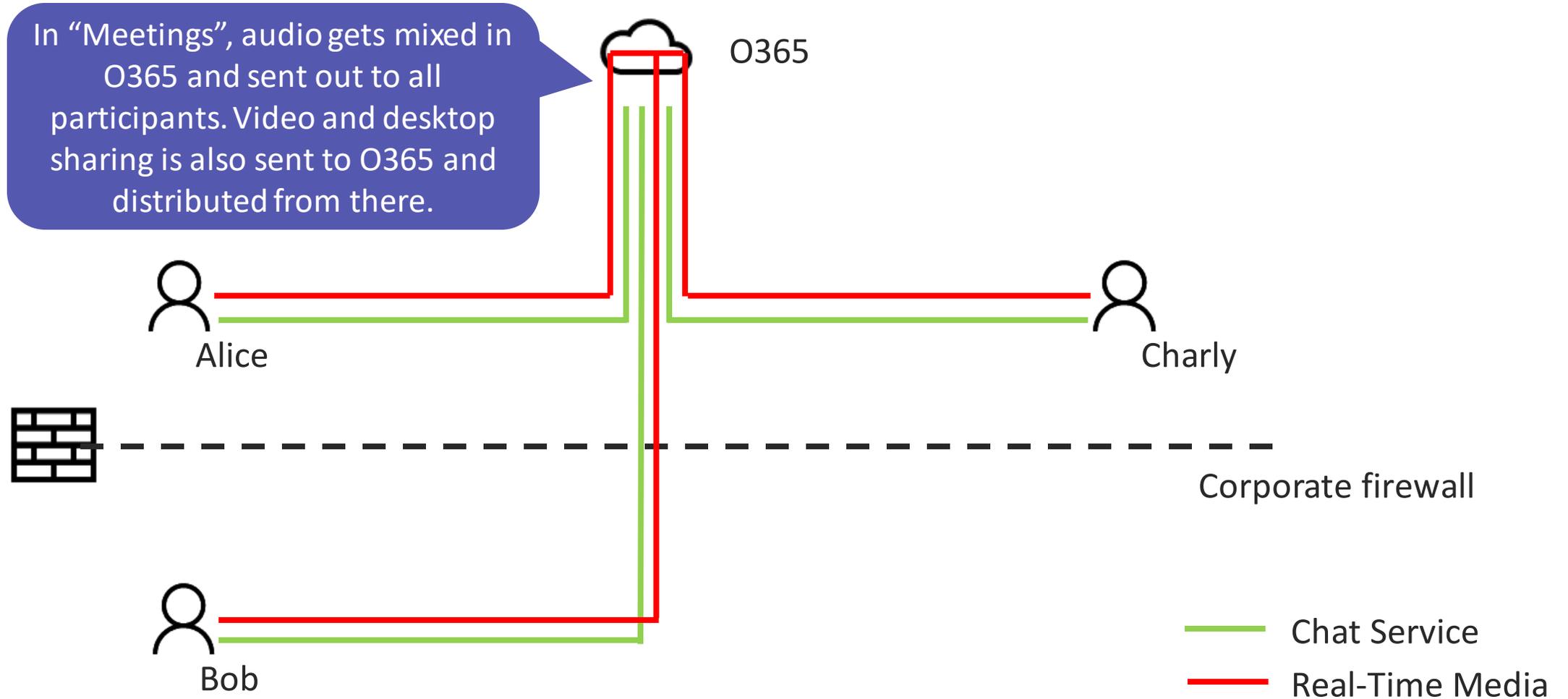


- Chat Service
- Real-Time Media

Call Flows – 1:1 Call Firewalled



Call Flows – Multi-Party



UDP vs. TCP

TCP

- Requires each packet to be acknowledged by the receiver
- Lost packets are resent, causing subsequent packets to be delayed

UDP

- “Fire and forget”, what is lost is lost

Real Time Communication

- Teams can use TCP or UDP
- For real time communication, we want packets quickly
- If we lose (some) packets, we do not really care: audio and video might experience glitches, but session continues

Networking best practices

- Allow UDP traffic for better quality
 - UDP 3478, 3479, 3480, 3481
- Make sure UDP traffic is not blocked by
 - Routers must be configured to allow Microsoft Teams traffic to travel directly to Office 365
 - Proxies should always be bypassed

Using Proxies will Impact Quality

- Media might be forced over TCP instead of UDP
- Connection issues to Office 365 might occur
- Quality will be impacted in all cases

Wireless

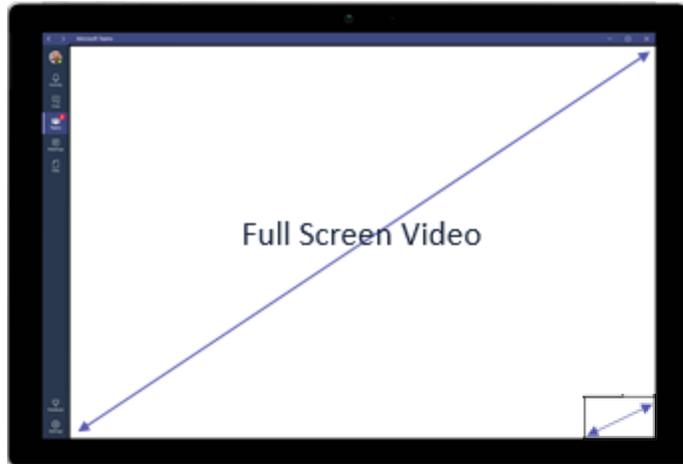
- Real-time communication is different (and difficult)
 - Packet loss, jitter and latency
 - Streaming HD Videos isn't the same as HD Video Calling
- Access Point coverage
 - Over vs Under provisioned
 - Work with your networking team

Bandwidth Considerations

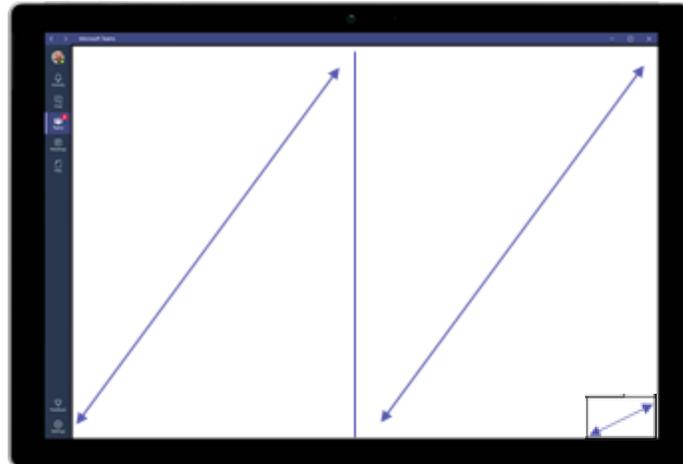
Bandwidth Planning – Audio

	Max number of Streams	Total Maximum upload or download bit rates (Kbps)
N Participants	1	100

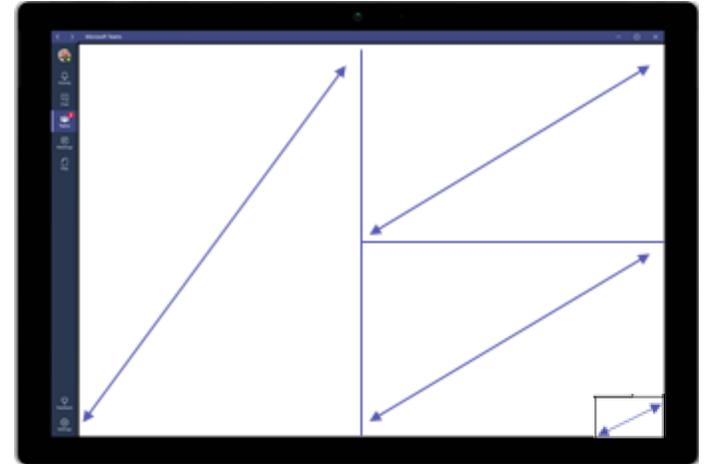
Meeting layouts



Single video

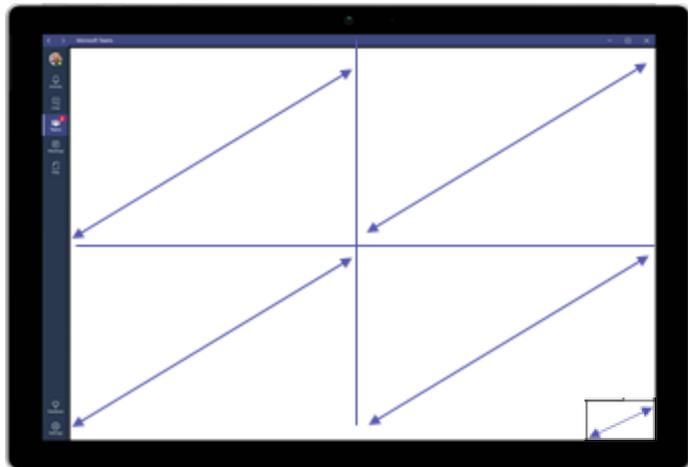


Two videos

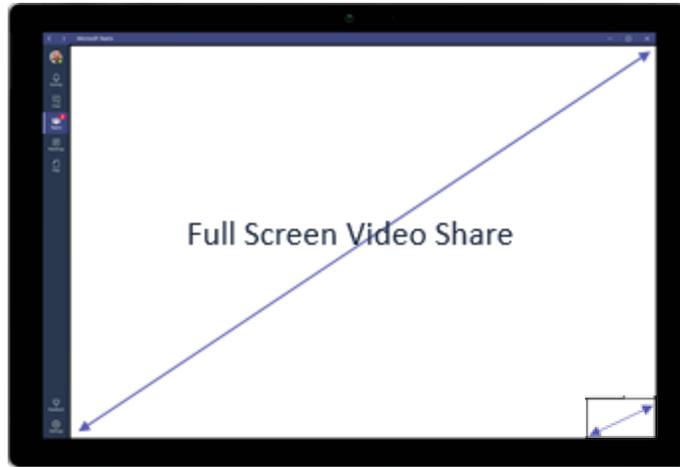


Three videos

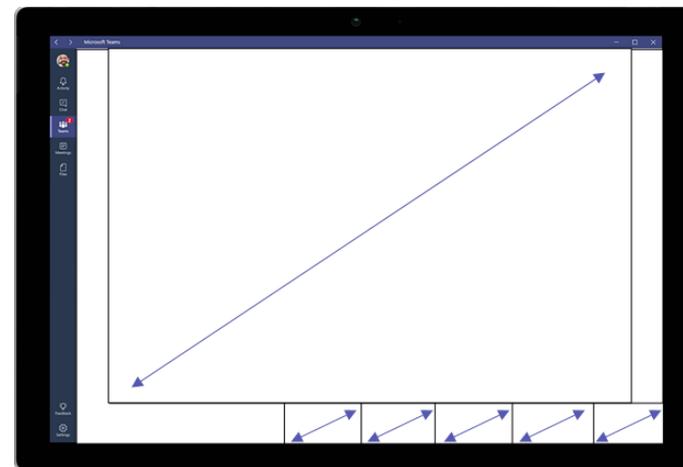
More meeting layouts



Four videos



Viewing
screen sharing



Viewing
screen sharing
plus videos

Bandwidth Planning – 1080p Screens: Download

	Max Resolutions	Total Maximum download bit rates (Mbps)
2 Participants	1 * 1920x1080	4
3 Participants	2 * 1920x1080 (Full Bleed)	8
4 Participants	1 * 1920x1080 + 2 * 960x540	7
5+ Participants	4 * 960x540	6
Screen Sharing (Only)	1 * 1920x1080	4
Screen Sharing + participant videos [N=0-4]	1 * 1920x1080 + N * 424x240	4 + (N*350 Kbps)

Bandwidth Planning – 1080p Screens: Upload

	Max Resolutions	Total Maximum upload bit rates (Mbps)
2 Participants	1 * 1920x1080	4
3 Participants	1 * 1920x1080 + 1 * 1280x720	6.5
4 Participants	1 * 1280x720 + 1 * 960x540	4
5+ Participants	1 * 960x540	1.5
Active screen sharing (Only)	1 * 1920x1080	4
Active screen sharing + participant videos	1 * 1920x1080 + 1 * 424x240	~4.34

Meetings Bandwidth Usage – Different Resolutions Screens or Viewing Layouts: Upload

	Max Resolutions	Total Maximum upload bit rates (Mbps)
2 Participants	1 * 1920x1080	4
3 Participants	1 * 1920x1080 + 1 * 1280x720	6.5
4 Participants	1 * 1920x1080 + 1 * 1280x720 + 1 * 960x540	8
5+ Participants	1 * 1920x1080 + 1 * 1280x720 + 1 * 960x540 + 1 * 640x360	8.8
Video Based Screen Sharing (Only)	1 * 1920x1080 (Screen)	4
N Participant + VBSS	1 * 1920x1080 (Screen) + 1 * 1920x1080 (Video) + 1 * 1280x720 + 1 * 960x540	12

Office 365 Admin Portal

IT Admin Portal

- All settings can be adjusted from O365 Admin Center. Find Settings then navigate to Services & Add-Ins.
- All experience settings are at the Tenant level.
- All users at launch will have access to Microsoft Teams once the Tenant has Microsoft Teams enabled.

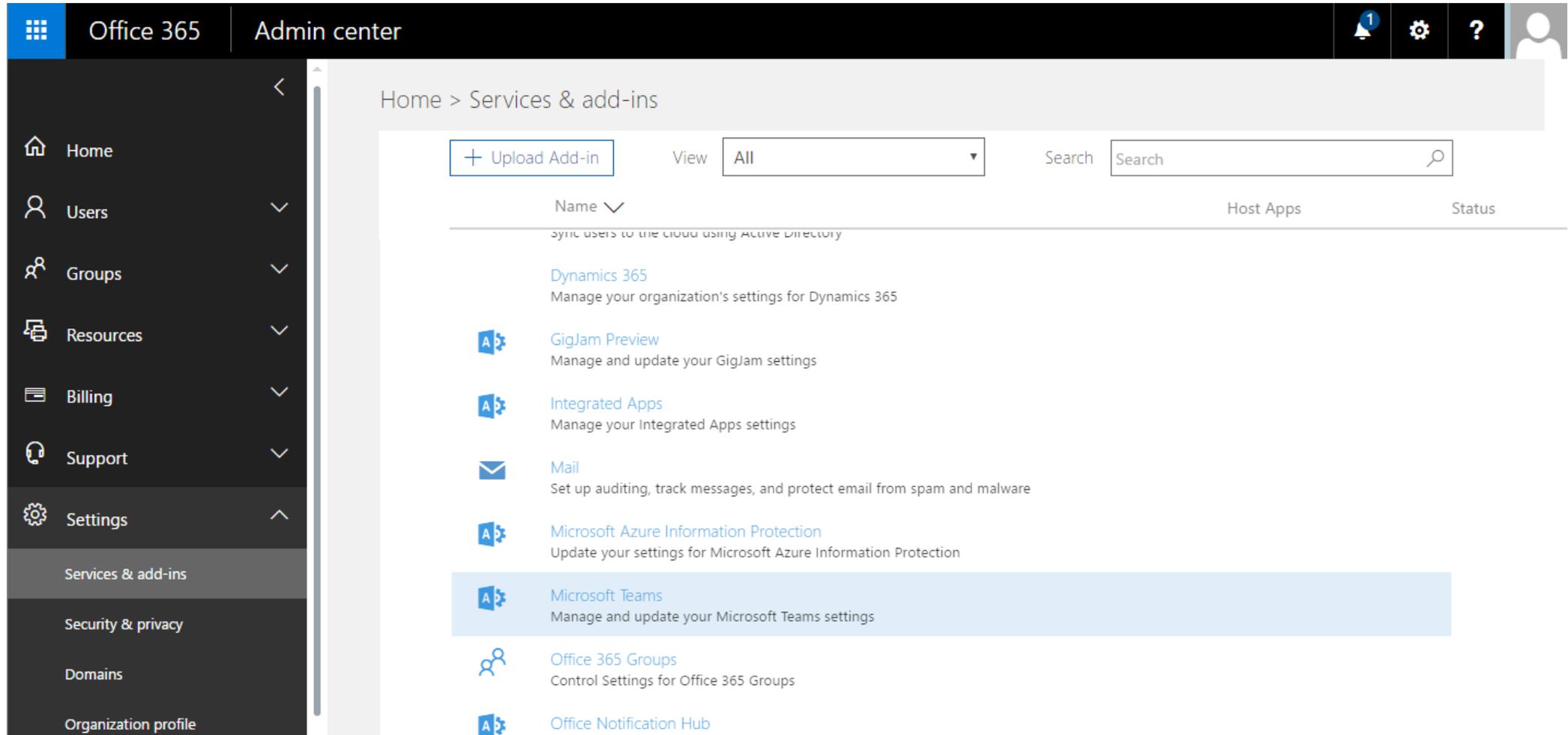
Office 365 Licensing Requirements

Microsoft Teams is currently available in preview to customers with

- Business Essentials
- Business Premium
- Enterprise E1, E3, and E5 subscriptions.
- Existing E4 subscriptions (Retired SKU)

IT Admin Portal

During this initial preview launch of Microsoft Teams, the product will be disabled by default for all organizations. IT Admins need to go into the Admin Portal and enable the product for your organization.



The screenshot shows the Office 365 Admin center interface. The top navigation bar includes 'Office 365' and 'Admin center'. The left sidebar contains navigation options: Home, Users, Groups, Resources, Billing, Support, Settings, Services & add-ins (selected), Security & privacy, Domains, and Organization profile. The main content area is titled 'Home > Services & add-ins' and features a '+ Upload Add-in' button, a 'View' dropdown set to 'All', and a search box. Below this is a table listing various services and add-ins:

Name	Host Apps	Status
sync users to the cloud using Active Directory		
Dynamics 365		
Manage your organization's settings for Dynamics 365		
 GigJam Preview		
Manage and update your GigJam settings		
 Integrated Apps		
Manage your Integrated Apps settings		
 Mail		
Set up auditing, track messages, and protect email from spam and malware		
 Microsoft Azure Information Protection		
Update your settings for Microsoft Azure Information Protection		
 Microsoft Teams		
Manage and update your Microsoft Teams settings		
 Office 365 Groups		
Control Settings for Office 365 Groups		
 Office Notification Hub		

Microsoft Teams

Enable Microsoft Teams

 Microsoft Teams ✕

Turn Microsoft Teams on or off for your entire organization

Off

Save Close

General Tenant Level Settings

Microsoft Teams ×

Turn Microsoft Teams on or off for your entire organization On

General

Show organization chart in personal profile On

Allow email notifications On

Send your diagnostic data to Microsoft and help improve Microsoft Teams Off

Teams & Channel

Calls & Meetings

Messaging

Tabs

Bots

Save Close

Teams management

Microsoft Teams

Turn Microsoft Teams on or off for your entire organization On

General

Teams & Channel

[Go to Groups control panel to manage Team creation, owner and member assignments](#)

Calls & Meetings

Messaging

Tabs

Bots

Save Close

Calls and Meetings

Microsoft Teams ✕

Turn Microsoft Teams on or off for your entire organization On

∨ **General**

∨ **Teams & Channel**

∧ **Calls & Meetings**

Allow video in meetings On

Allow screen sharing in meetings On

∨ **Messaging**

∨ **Tabs**

∨ **Bots**

Save

Messaging

Microsoft Teams

Turn Microsoft Teams on or off for your entire organization On

General

Teams & Channel

Calls & Meetings

Messaging

Add fun animated images to the conversations On

Content Rating
Strict

Add customizable images from the internet On

Add editable images to the conversations On

Tabs

Bots

Save Close



Tabs

Microsoft Teams

Turn Microsoft Teams on or off for your entire organization On

∨ **General**

∨ **Teams & Channel**

∨ **Calls & Meetings**

∨ **Messaging**

∧ **Tabs**

Enable extension tabs in Microsoft Teams On

∨ **Bots**

Save Close

Bots

 Microsoft Teams ✕

Turn Microsoft Teams on or off for your entire organization On

∨ **General**

∨ **Teams & Channel**

∨ **Calls & Meetings**

∨ **Messaging**

∨ **Tabs**

∧ **Bots**

Enable bots in Microsoft Teams to help users complete more tasks easily On

Enable side loading of external Bots On

Save Close

Client Rollout

Platform Requirements

Clients:

- Windows 7+ (7, 8, 8.1, 10)
- Mac OSX 10.10+
- Windows Phone 10.0.10586+
- Android 4.4+
- iOS (iPhone and iPad) 9+

Web:

- Chrome: 51.0+
- Firefox: 47.0+
- Edge: 12+
- Microsoft Internet Explorer: 11+
- Safari coming soon.

Desktop Client

- Desktop client required for Real Time Communication
- The latest version of Microsoft Teams is located at <https://teams.microsoft.com/downloads> for all available platforms
- Users can install directly from <https://teams.microsoft.com>
- Distribute Microsoft Teams using your existing SCCM, Casper, or other channels

Mobile Clients

- The Microsoft Teams client available in the respective app stores
 - Apple's App Store
 - Google Play Store
 - Microsoft's Store
- The client cannot be side-loaded or distributed through MDM

Client Updates

- Desktop clients will all auto-update
- Mobile clients update through the app store
- Web Client will also auto-update

Chat Services

Chat Message Storage

- Customer data is encrypted at rest and in transit
- All data store in regional clouds based on AAD Settings
- Microsoft Teams Chat Service runs within the O365 compliance boundary
- Microsoft Teams retains all messages
- Microsoft Teams retains deleted messages for at least 7 days and at most 30 days before messages are permanently deleted

Microsoft Teams Compliance

- Microsoft Teams was architected with compliance, authentication and privacy in mind.
- Microsoft Teams is Compliant in the following standards
 - Industry standards: ISO 27001, ISO 27018, EUMC, SSAE16 SOC1 Type I & II, SOC2 Type I and II, HIPPA, FERPA, GLBA
- Protects data securely using strong security measures including two factor authentication, hard passwords and access policies.

Resources

Download Links

- Desktop Clients
<https://teams.microsoft.com/downloads>
- Apple's App Store – iOS
<http://aka.ms/iosteams>
- Google Play Store – Android
<http://aka.ms/androidteams>
- Microsoft's Store – Windows Phone
<http://aka.ms/wpteams>

Reference Items

- Microsoft Teams Readiness
<https://aka.ms/microsoft-teams-readiness>
- Administrator settings for Microsoft Teams
<https://support.office.com/article/3966a3f5-7e0f-4ea9-a402-41888f455ba2>
- Frequently asked questions about Microsoft Teams – Admin Help
<https://support.office.com/article/05cbe533-2181-4e95-a4b0-52cd7695fafc>
- Office 365 URLs and IP address ranges
<https://support.office.com/en-us/article/Office-365-URLs-and-IP-address-ranges-8548a211-3fe7-47cb-abb1-355ea5aa88a2>
 - RSS Feed: <https://support.office.com/en-us/o365ip/rss>

Development Documentation

- Microsoft Teams Tabs Platform

<https://aka.ms/microsoftteamstabsplatform>

- Bots in Microsoft Teams

<https://aka.ms/microsoftteamsbotsplatform>

- Office Connectors in Microsoft Teams

<https://aka.ms/microsoftteamsconnectorsplatform>

Product Videos

For more product information, you can check out the videos below:

- Product Walkthrough:
<https://support.office.com/en-us/article/Microsoft-Teams-Quick-Start-422bf3aa-9ae8-46f1-83a2-e65720e1a34d?ui=en-US&rs=en-US&ad=US#ID0EAABAAA=Overview>
- Onboard your Teams
<https://support.office.com/article/702a2977-e662-4038-bef5-bdf8ee47b17b>
- Teams and Channels
<https://support.office.com/article/c3d63c10-77d5-4204-a566-53ddcf723b46>
- Use Tabs
<https://support.office.com/article/7350a03e-017a-4a00-a6ae-1c9fe8c497b3>

Product Videos (Continued)

For more product information, you can check out the videos below:

- Productive Conversations

<https://support.office.com/article/99d33aaa-0743-47c6-a476-eb0a24abcb7e>

- Private Conversations and Calling

<https://support.office.com/article/a864b052-5e4b-4ccf-b046-2e26f40e21b5>

- Meet now

<https://support.office.com/article/26e06837-853d-4df1-a729-06bf700d4ecf>

- Schedule a meeting

<https://support.office.com/article/ba44d0fd-da3c-4541-a3eb-a868f5e2b137>

Continue to Conversation

<https://aka.ms/msteamscommunity>

Thank you

Appendix Items

What is Tier C Compliance

Within the Microsoft compliance framework, Microsoft classifies Office 365 applications and services into four categories. Each category is defined by specific compliance commitments that must be met for an Office 365 service, or a related Microsoft service, to be listed in that category. Services in compliance categories C and D that have industry leading compliance commitments are enabled by default while services in categories A and B come with controls to enable or to disable these services for an entire organization. Details can be found in this [Compliance Framework for Industry Standards and Regulations](#).