

Study guide for Exam MS-720: Microsoft Teams Voice Engineer

Purpose of this document

This study guide should help you understand what to expect on the exam and includes a summary of the topics the exam might cover and links to additional resources. The information and materials in this document should help you focus your studies as you prepare for the exam.

Useful links	Description
Review the skills measured as of November 4, 2022	This list represents the skills measured AFTER the date provided. Study this list if you plan to take the exam AFTER that date.
Review the skills measured prior to November 4, 2022	Study this list of skills if you take your exam PRIOR to the date provided.
Change log	You can go directly to the change log if you want to see the changes that will be made on the date provided.
How to earn the certification	Some certifications only require passing one exam, while others require passing multiple exams.
Certification renewal	Microsoft associate, expert, and specialty certifications expire annually. You can renew by passing a free online assessment on Microsoft Learn.
Your Microsoft Learn profile	Connecting your certification profile to Learn allows you to schedule and renew exams and share and print certificates.
Passing score	A score of 700 or greater is required to pass.
Exam sandbox	You can explore the exam environment by visiting our exam sandbox.
Request accommodations	If you use assistive devices, require extra time, or need modification to any part of the exam experience, you can request an accommodation.

Useful links	Description
Take a practice test	Are you ready to take the exam or do you need to study a bit more?

Updates to the exam

Our exams are updated periodically to reflect skills that are required to perform a role. We have included two versions of the Skills Measured objectives depending on when you are taking the exam.

We always update the English language version of the exam first. Some exams are localized into other languages, and those are updated approximately eight weeks after the English version is updated. Other available languages are listed in the **Schedule Exam** section of the **Exam Details** webpage. If the exam isn't available in your preferred language, you can request an additional 30 minutes to complete the exam.

Note

The bullets that follow each of the skills measured are intended to illustrate how we are assessing that skill. Related topics may be covered in the exam.

Note

Most questions cover features that are general availability (GA). The exam may contain questions on Preview features if those features are commonly used.

Skills measured as of November 4, 2022

Audience Profile

The Microsoft Teams voice engineer plans, designs, configures, maintains, and troubleshoots an integrated communications solution at an organization. The Microsoft Teams voice engineer must be able to translate business requirements into technical architecture and designs for communication solutions.

The Microsoft Teams voice engineer is familiar with telecommunication technologies and has experience in Microsoft Teams, Microsoft 365, and PowerShell. They must be able to deploy and configure Microsoft Teams Phone with PSTN connectivity through Direct Routing, Operator Connect, and Microsoft Teams Calling Plans. The Microsoft Teams voice engineer manages devices certified for Microsoft Teams, audio/video conferencing, and voice migration.

The Microsoft Teams voice engineer collaborates with telephony providers and third-party vendors to enable advanced voice features in Microsoft Teams. The Microsoft Teams voice engineer also works with administrators for other workloads, including networking, identity, licensing, security, and compliance.

To earn the Microsoft 365 Certified: Teams Voice Engineer Expert certification, candidates must also earn the [Microsoft 365 Certified: Teams Administrator Associate](#) certification.

- Plan and configure Microsoft Teams Phone (25-30%)
- Optimize network performance (5-10%)
- Plan and configure Direct Routing (15-20%)
- Configure and manage Microsoft Teams Phone for voice users (15-20%)
- Plan and configure Microsoft Teams clients and devices (5-10%)
- Monitor and troubleshoot Microsoft Teams Phone (15-20%)

Plan and configure Microsoft Teams Phone (25-30%)

Plan and design a Microsoft Teams PSTN solution

- Choose an appropriate PSTN connectivity solution
- Identify requirements for Teams Calling Plans, Operator Connect, and Direct Routing
- Identify licensing requirements for Microsoft Teams Phone, including users, auto attendants, call queues, meeting room devices, and common area phones
- Plan network topology
- Plan for integration of Certified Contact Center solutions
- Plan for integration of analog and SIP devices and handsets

Manage phone numbers for Microsoft Teams Calling Plans and Operator Connect

- Choose between porting and acquiring numbers for Teams Calling Plans
- Acquire phone numbers for Teams Calling Plans from Microsoft
- Create a port order for Microsoft service and user numbers
- Create a request to convert between Microsoft service and user numbers
- Configure Operator Connect

Configure Phone policies

- Install Microsoft Teams PowerShell module
- Design and configure a tenant dial plan
- Configure calling policies
- Configure call park policies
- Configure caller ID policies
- Configure outbound call restrictions
- Configure inbound call blocking
- Configure IP phone policies
- Configure routing of unassigned numbers
- Configure custom music on hold
- Configure compliance recording

Configure auto attendants and call queues

- Design call flows for auto attendants and call queues
- Configure auto attendants and call queues
- Deploy channel-based call queues
- Configure resource accounts, including cloud and hybrid environments
- Assign licenses to the resource accounts
- Assign phone numbers to resource accounts
- Assign a resource account to an auto attendant or call queue
- Configure Microsoft 365 Groups for voicemail
- Configure holidays for auto attendants and call queues
- Configure custom Music-on-Hold

Configure audio conferencing

- Choose between per-user and per-minute licensing
- Set a default audio conferencing bridge
- Configure a conference bridge number
- Configure a toll-free conference bridge number
- Deploy toll-free audio conferencing
- Configure communication credits for audio conferencing
- Configure Operator conferencing from separate providers

Design and configure emergency calling

- Design dynamic emergency calling scenarios
- Define emergency locations
- Configure client discovery of emergency locations
- Configure emergency calling policies

Optimize network performance (5-10%)

Design network infrastructure for optimal Microsoft Teams Phone performance

- Determine network readiness for Microsoft Teams
- Design network requirements by using the Network Planner in Microsoft Teams
- Perform a network analysis
- Design and validate local internet breakout strategy for client media optimization
- Design and validate VPN split tunneling
- Design organization QoS requirements and policies
- Configure Microsoft Teams QoS policies

Implement network topology

- Configure a network topology

- Add WAN IPs to a network topology
- Add locations to a network topology
- Create and assign a Microsoft Teams network roaming policy

Plan and configure Direct Routing (15-20%)

Design Direct Routing call flows

- Plan and design PSTN connectivity by using Direct Routing
- Recommend a Session Border Controller (SBC) solution based on PSTN connectivity
- Recommend a multiple SBC solution based on requirements

Implement SIP trunking with Direct Routing

- Identify configuration requirements between the SBC and Microsoft
- Create and configure an online PSTN gateway
- Create PSTN usage records
- Create and configure voice routes
- Create and configure voice routing policies
- Validate Direct Routing SBC connectivity
- Test Direct Routing connections

Extend a Direct Routing infrastructure

- Design and configure Location Based Routing (LBR)
- Design and configure Local Media Optimization (LMO)
- Configure gateway translation rules
- Create a validated emergency address
- Configure on-network conferencing for Direct Routing

Deploy and maintain a Survivable Branch Appliance (SBA)

- Plan and configure an SBA
- Assign SBA policies to users
- Test SBA functionality
- Plan for SBA and SBC maintenance and updates

Configure and manage Microsoft Teams Phone for voice users (15-20%)

Enable users for Microsoft Teams Phone

- Assign Teams Phone license
- Assign a Microsoft Teams Calling Plan license
- Assign user dial plans
- Assign numbers to users

- Assigning verified emergency address location
- Assign a calling policy to a user
- Assign a usage location to a user

Enable users for Direct Routing

- Assign a voice routing policy to a user for Direct Routing
- Assign a number to a user by using PowerShell
- Enable voicemail and Enterprise Voice for a Direct Routing user in PowerShell

Enable per-user calling features

- Configure group call pickup
- Configure call delegation and call delegates
- Configure call forwarding
- Configure simultaneous ring
- Enable and configure audio conferencing
- Assign a dial-out policy

Migrate voice users

- Validate Skype for Business hybrid configuration and connectivity
- Migrate users between on-premises and cloud
- Migrate Skype for Business Common Area Phones to Microsoft Teams
- Migrate Skype for Business Meeting Rooms to Microsoft Teams

Plan and configure Microsoft Teams clients and devices (5-10%)

Plan and configure Microsoft Teams Phones and Teams displays

- Recommend a Microsoft Teams Phone based on business and security requirements
- Recommend a Microsoft Teams display based on business and security requirements
- Assign Common Area Phone licenses to common area phones
- Deploy Skype for Business phones (3PIP)
- Deploy Microsoft Teams phones
- Deploy Common Area Phones
- Deploy Microsoft Teams displays
- Configure Microsoft Teams SIP Gateway
- Configure remote provisioning and sign-in for Android devices
- Update Microsoft Teams devices remotely

Plan and configure Microsoft Teams Rooms on Windows and Teams Rooms on Android

- Recommend Microsoft Teams Rooms based on business and security requirements
- Manage Microsoft Teams Rooms devices

- Assign an audio-conferencing bridge service number to a Microsoft Teams Room
- Configure accounts for Microsoft Teams Rooms
- Define local Users & Groups on Microsoft Teams Rooms on Windows

Monitor and troubleshoot Microsoft Teams Phone (15-20%)

Monitor Microsoft Teams Phone

- Configure tenant data upload for Call Quality Dashboard (CQD) and reporting labels
- Configure Power BI reports for CQD
- Monitor SBC health

Monitor and troubleshoot Microsoft Teams clients and devices

- Troubleshoot Microsoft Teams client data flows by using debug logs, media logs, browser traces, and desktop logs
- Troubleshoot configuration profiles in Microsoft Teams
- Configure Notifications & alerts in Microsoft Teams admin center
- Monitor Microsoft Teams Rooms
- Troubleshoot sign-in issues for Microsoft Teams devices to Microsoft Azure Active Directory (Azure AD), part of Microsoft Entra
- Troubleshoot user provisioning by using MCOValidationError

Troubleshoot call failure and call quality

- Interpret Microsoft Teams media flows
- Troubleshoot call failures by using client logs
- Troubleshoot a missing dial pad
- Troubleshoot call failures by using the Self-help Diagnostics in Microsoft 365 Admin Center
- Troubleshoot tenant dial plans by using regular expressions and PowerShell
- Troubleshoot dynamic emergency address by using client debug logs
- Interpret E.164 Normalization Rules in a tenant dial plan
- Analyze reverse number lookup
- Troubleshoot Teams client media issues by using Microsoft 365 Connectivity Tool
- Troubleshoot calls by using Real-time Telemetry
- Troubleshoot calls by using Advanced Call Analytics
- Troubleshoot calls by using the CQD
- Inspect PSTN usage reports for SIP call failures
- Analyze QoS markers by using a network trace

Troubleshoot Direct Routing connectivity

- Troubleshoot firewall issues for Direct Routing
- Troubleshoot certificate Issues for Direct Routing
- Troubleshoot SIP options issues for Direct Routing

- Investigate and diagnose calling issues by using an SBC SIP trace

Study Resources

We recommend that you train and get hands-on experience before you take the exam. We offer self-study options and classroom training as well as links to documentation, community sites, and videos.

Study resources	Links to learning and documentation
Get trained	Choose from self-paced learning paths and modules or take an instructor-led course
Find documentation	Microsoft 365 documentation Microsoft Docs
Ask a question	Microsoft Q&A Microsoft Docs
Get community support	Microsoft 365 - Microsoft Tech Community
Follow Microsoft Learn	Microsoft Learn - Microsoft Tech Community
Find a video	Exam Readiness Zone

Change log

Skill area prior to November 4, 2022	Skill area as of November 4, 2022	Changes
Plan and configure Microsoft Teams Phone	Plan and configure Microsoft Teams Phone	No change
Plan and design a Microsoft Teams PSTN solution	Plan and design a Microsoft Teams PSTN solution	No change
Manage phone numbers for Microsoft Teams Calling Plans and Operator Connect	Manage phone numbers for Microsoft Teams Calling Plans and Operator Connect	No change
Configure Phone policies	Configure Phone policies	No change
Configure auto attendants and call queues	Configure auto attendants and call queues	No change
Configure audio conferencing	Configure audio conferencing	No change
Design and configure emergency calling	Design and configure emergency calling	No change

Skill area prior to November 4, 2022	Skill area as of November 4, 2022	Changes
Optimize network performance	Optimize network performance	No change
Design network infrastructure for optimal Microsoft Teams Phone performance	Design network infrastructure for optimal Microsoft Teams Phone performance	No change
Implement network topology	Implement network topology	No change
Plan and configure Direct Routing	Plan and configure Direct Routing	No change
Design Direct Routing call flows	Design Direct Routing call flows	No change
Implement SIP trunking with Direct Routing	Implement SIP trunking with Direct Routing	No change
Extend a Direct Routing infrastructure	Extend a Direct Routing infrastructure	No change
Deploy and maintain a Survivable Branch Appliance (SBA)	Deploy and maintain a Survivable Branch Appliance (SBA)	No change
Configure and manage Microsoft Teams Phone for voice users	Configure and manage Microsoft Teams Phone for voice users	No change
Enable users for Microsoft Teams Phone	Enable users for Microsoft Teams Phone	No change
Enable users for Direct Routing	Enable users for Direct Routing	No change
Enable per-user calling features	Enable per-user calling features	No change
Migrate voice users	Migrate voice users	No change
Plan and configure Microsoft Teams clients and devices	Plan and configure Microsoft Teams clients and devices	No change
Plan and configure Microsoft Teams Phones and Teams displays	Plan and configure Microsoft Teams Phones and Teams displays	No change
Plan and configure Microsoft Teams Rooms on Windows and Teams Rooms on Android	Plan and configure Microsoft Teams Rooms on Windows and Teams Rooms on Android	No change
Monitor and troubleshoot Microsoft Teams Phone	Monitor and troubleshoot Microsoft Teams Phone	No change
Monitor Microsoft Teams Phone	Monitor Microsoft Teams Phone	No change
Monitor and troubleshoot Microsoft Teams clients and devices	Monitor and troubleshoot Microsoft Teams clients and devices	Minor

Skill area prior to November 4, 2022	Skill area as of November 4, 2022	Changes
Troubleshoot call failure and call quality	Troubleshoot call failure and call quality	No change
Troubleshoot Direct Routing connectivity	Troubleshoot Direct Routing connectivity	No change

Skills measured prior to November 4, 2022

- Plan and configure Microsoft Teams Phone (25-30%)
- Optimize network performance (5-10%)
- Plan and configure Direct Routing (15-20%)
- Configure and manage Microsoft Teams Phone for voice users (15-20%)
- Plan and configure Microsoft Teams clients and devices (5-10%)
- Monitor and troubleshoot Microsoft Teams Phone (15-20%)

Plan and configure Microsoft Teams Phone (25-30%)

Plan and design a Microsoft Teams PSTN solution

- Choose an appropriate PSTN connectivity solution
- Identify requirements for Teams Calling Plans, Operator Connect, and Direct Routing
- Identify licensing requirements for Microsoft Teams Phone, including users, auto attendants, call queues, meeting room devices, and common area phones
- Plan network topology
- Plan for integration of Certified Contact Center solutions
- Plan for integration of analog and SIP devices and handsets

Manage phone numbers for Microsoft Teams Calling Plans and Operator Connect

- Choose between porting and acquiring numbers for Teams Calling Plans
- Acquire phone numbers for Teams Calling Plans from Microsoft
- Create a port order for Microsoft service and user numbers
- Create a request to convert between Microsoft service and user numbers
- Configure Operator Connect

Configure Phone policies

- Install Microsoft Teams PowerShell module
- Design and configure a tenant dial plan
- Configure calling policies
- Configure call park policies
- Configure caller ID policies

- Configure outbound call restrictions
- Configure inbound call blocking
- Configure IP phone policies
- Configure routing of unassigned numbers
- Configure custom music on hold
- Configure compliance recording

Configure auto attendants and call queues

- Design call flows for auto attendants and call queues
- Configure auto attendants and call queues
- Deploy channel-based call queues
- Configure resource accounts, including cloud and hybrid environments
- Assign licenses to the resource accounts
- Assign phone numbers to resource accounts
- Assign a resource account to an auto attendant or call queue
- Configure Microsoft 365 Groups for voicemail
- Configure holidays for auto attendants and call queues
- Configure custom Music-on-Hold

Configure audio conferencing

- Choose between per-user and per-minute licensing
- Set a default audio conferencing bridge
- Configure a conference bridge number
- Configure a toll-free conference bridge number
- Deploy toll-free audio conferencing
- Configure communication credits for audio conferencing
- Configure Operator conferencing from separate providers

Design and configure emergency calling

- Design dynamic emergency calling scenarios
- Define emergency locations
- Configure client discovery of emergency locations
- Configure emergency calling policies

Optimize network performance (5-10%)

Design network infrastructure for optimal Microsoft Teams Phone performance

- Determine network readiness for Microsoft Teams
- Design network requirements by using the Network Planner in Microsoft Teams
- Perform a network analysis
- Design and validate local internet breakout strategy for client media optimization

- Design and validate VPN split tunneling
- Design organization QoS requirements and policies
- Configure Microsoft Teams QoS policies

Implement network topology

- Configure a network topology
- Add WAN IPs to a network topology
- Add locations to a network topology
- Create and assign a Microsoft Teams network roaming policy

Plan and configure Direct Routing (15-20%)

Design Direct Routing call flows

- Plan and design PSTN connectivity by using Direct Routing
- Recommend a Session Border Controller (SBC) solution based on PSTN connectivity
- Recommend a multiple SBC solution based on requirements

Implement SIP trunking with Direct Routing

- Identify configuration requirements between the SBC and Microsoft
- Create and configure an online PSTN gateway
- Create PSTN usage records
- Create and configure voice routes
- Create and configure voice routing policies
- Validate Direct Routing SBC connectivity
- Test Direct Routing connections

Extend a Direct Routing infrastructure

- Design and configure Location Based Routing (LBR)
- Design and configure Local Media Optimization (LMO)
- Configure gateway translation rules
- Create a validated emergency address
- Configure on-network conferencing for Direct Routing

Deploy and maintain a Survivable Branch Appliance (SBA)

- Plan and configure an SBA
- Assign SBA policies to users
- Test SBA functionality
- Plan for SBA and SBC maintenance and updates

Configure and manage Microsoft Teams Phone for voice users (15-20%)

Enable users for Microsoft Teams Phone

- Assign Teams Phone license
- Assign a Microsoft Teams Calling Plan license
- Assign user dial plans
- Assign numbers to users
- Assigning verified emergency address location
- Assign a calling policy to a user
- Assign a usage location to a user

Enable users for Direct Routing

- Assign a voice routing policy to a user for Direct Routing
- Assign a number to a user by using PowerShell
- Enable voicemail and Enterprise Voice for a Direct Routing user in PowerShell

Enable per-user calling features

- Configure group call pickup
- Configure call delegation and call delegates
- Configure call forwarding
- Configure simultaneous ring
- Enable and configure audio conferencing
- Assign a dial-out policy

Migrate voice users

- Validate Skype for Business hybrid configuration and connectivity
- Migrate users between on-premises and cloud
- Migrate Skype for Business Common Area Phones to Microsoft Teams
- Migrate Skype for Business Meeting Rooms to Microsoft Teams

Plan and configure Microsoft Teams clients and devices (5-10%)

Plan and configure Microsoft Teams Phones and Teams displays

- Recommend a Microsoft Teams Phone based on business and security requirements
- Recommend a Microsoft Teams display based on business and security requirements
- Assign Common Area Phone licenses to common area phones
- Deploy Skype for Business phones (3PIP)
- Deploy Microsoft Teams phones
- Deploy Common Area Phones
- Deploy Microsoft Teams displays

- Configure Microsoft Teams SIP Gateway
- Configure remote provisioning and sign-in for Android devices
- Update Microsoft Teams devices remotely

Plan and configure Microsoft Teams Rooms on Windows and Teams Rooms on Android

- Recommend Microsoft Teams Rooms based on business and security requirements
- Manage Microsoft Teams Rooms
- Assign an audio-conferencing bridge service number to a Microsoft Teams Room
- Configure accounts for Microsoft Teams Rooms
- Define local Users & Groups on Microsoft Teams Rooms on Windows

Monitor and troubleshoot Microsoft Teams Phone (15-20%)

Monitor Microsoft Teams Phone

- Configure tenant data upload for Call Quality Dashboard (CQD) and reporting labels
- Configure Power BI reports for CQD
- Monitor SBC health

Monitor and troubleshoot Microsoft Teams clients and devices

- Troubleshoot Microsoft Teams client data flows by using debug logs, media logs, browser traces, and desktop logs
- Troubleshoot configuration profiles in Microsoft Teams
- Configure Notifications & alerts in Microsoft Teams admin center
- Monitor Microsoft Teams Rooms
- Troubleshoot Azure AD Sign-in issues for Microsoft Teams devices
- Troubleshoot user provisioning by using MCOValidationError

Troubleshoot call failure and call quality

- Interpret Microsoft Teams media flows
- Troubleshoot call failures by using client logs
- Troubleshoot a missing dial pad
- Troubleshoot call failures by using the Self-help Diagnostics in Microsoft 365 Admin Center
- Troubleshoot tenant dial plans by using regular expressions and PowerShell
- Troubleshoot dynamic emergency address by using client debug logs
- Interpret E.164 Normalization Rules in a tenant dial plan
- Analyze reverse number lookup
- Troubleshoot Teams client media issues by using Microsoft 365 Connectivity Tool
- Troubleshoot calls by using Real-time Telemetry
- Troubleshoot calls by using Advanced Call Analytics
- Troubleshoot calls by using the CQD

- Inspect PSTN usage reports for SIP call failures
- Analyze QoS markers by using a network trace

Troubleshoot Direct Routing connectivity

- Troubleshoot firewall issues for Direct Routing
- Troubleshoot certificate Issues for Direct Routing
- Troubleshoot SIP options issues for Direct Routing
- Investigate and diagnose calling issues by using an SBC SIP trace