



Module 4

# Deploying Microsoft Teams Rooms

# Objectives



Learn how you can standardize your deployments

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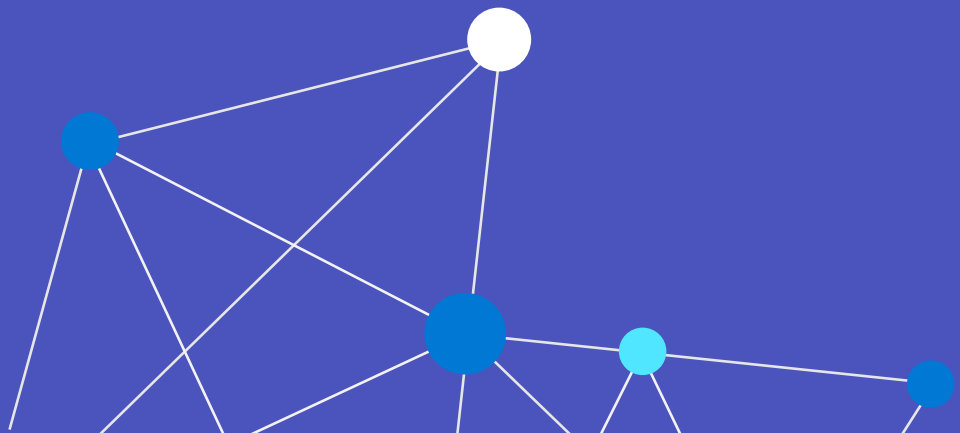
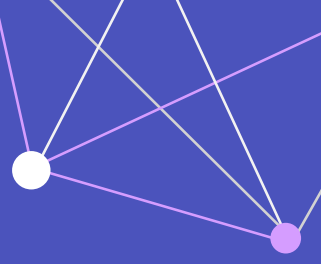
Understand the various connectivity options

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Know how to create the device accounts and configure account options

# Developing a standardized deployment



# Considerations and goals



**Procurement** – Account for and manage all individual components including regionalizing for power, etc.

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**Options** – Ensure all components are standardized per room and packaged down to the cables, extenders and documentation

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**Shipping** – Ensure all items are delivered prior to starting deployment, GC Items first

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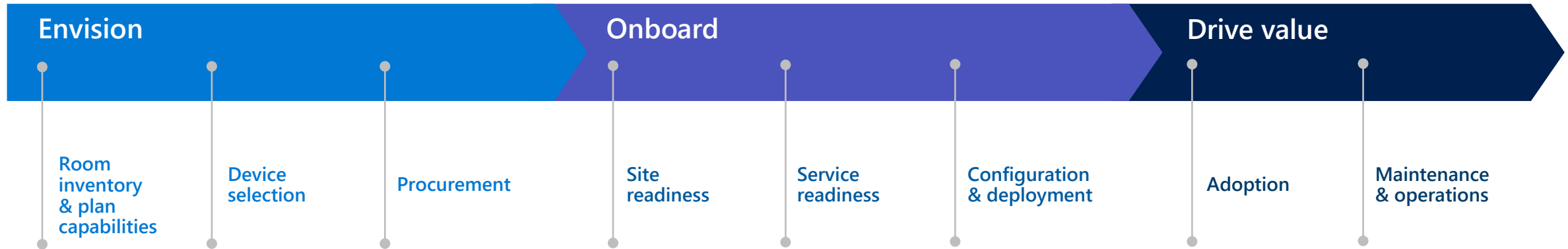
**Consistency** – Centralize the process so that every system across customers and even rooms use consistent components

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**Scalability** – All aspects are intentional, controlled, trackable and supportable

# The big picture



## Facilities

- Room inventory
- Hang/drill/power
- Room offline
- Signs



## AV team

- Plan
- Configure
- Install
- Support



## IT project team

- Network readiness
- Provision/configure
- Scale
- Monitor/maintain





# Developing a standardized deployment



## Standardize meeting room definitions

Size

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Layout

---

Number of people

---

Desired modalities



## Microsoft “meeting room archetype specifications”

Microsoft’s own definition  
of meeting spaces

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Teams certified devices  
tested per spec

# Equipment ordering and shipping

## How to use distributor logistics best practices

Avoid multiple sources, centralize where possible

Ship to central location, if needed

Plan for product delays

Deployment schedules are a life saver!





# Developing a standardized deployment

## Installation

Account provisioning hand-off

Create and communicate standards

- Step-by-step instructions
- Cable dressing
- Mounting locations and methods
- Device setup instructions and configuration files
- Basic troubleshooting
- Teams is great for ongoing cross-team coordination and Wiki!

Have clear escalation paths during this critical time





# Training and enablement



User training

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IT training

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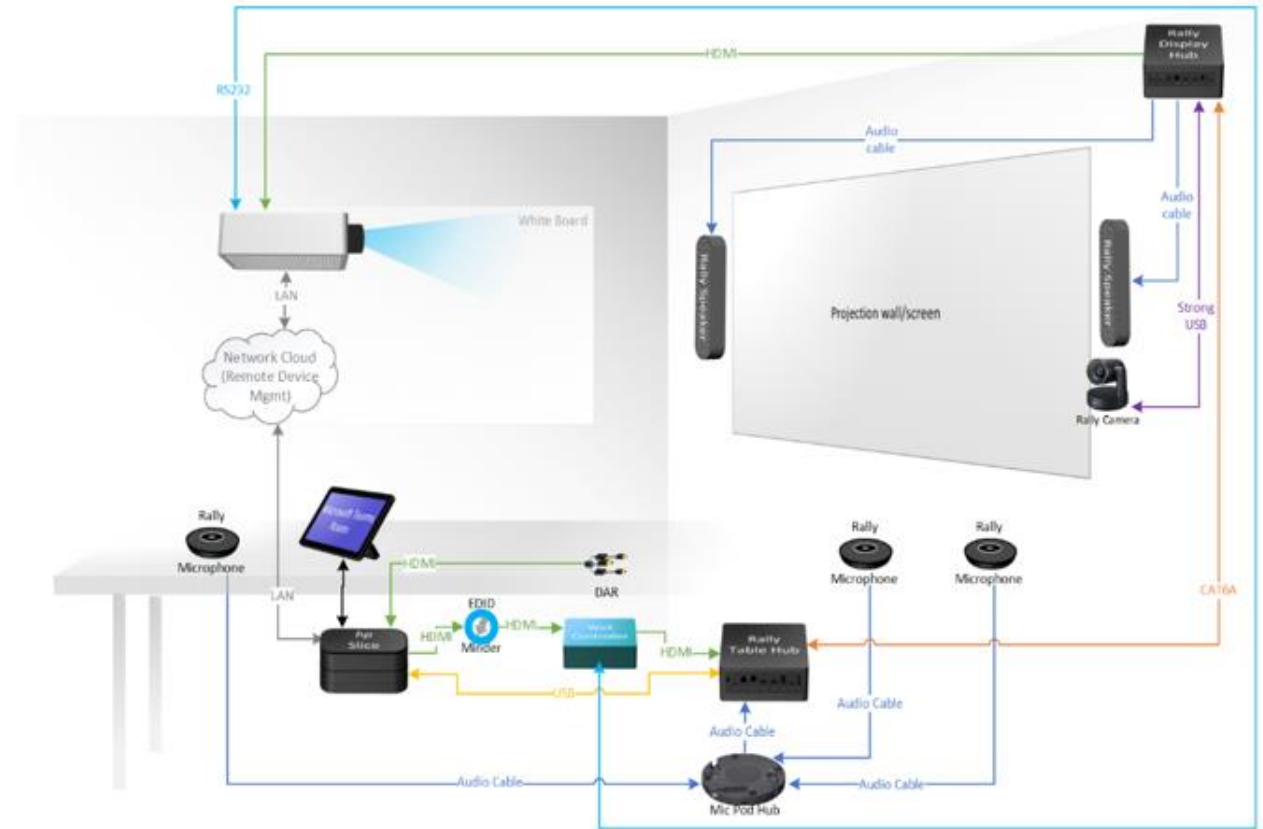
Add resources



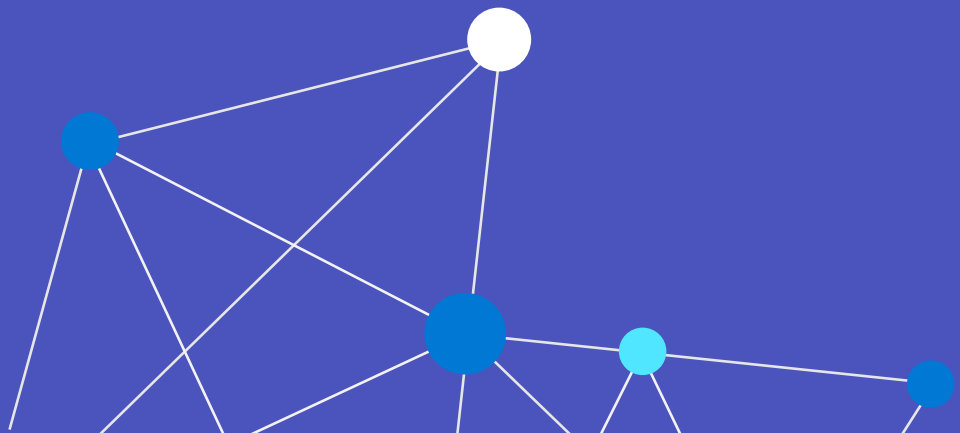
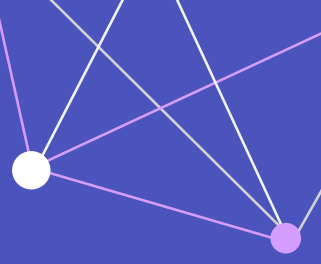
# Developing a standardized deployment

Standardized cabling

Diagram all aspects, etc.



# Teams Rooms connectivity

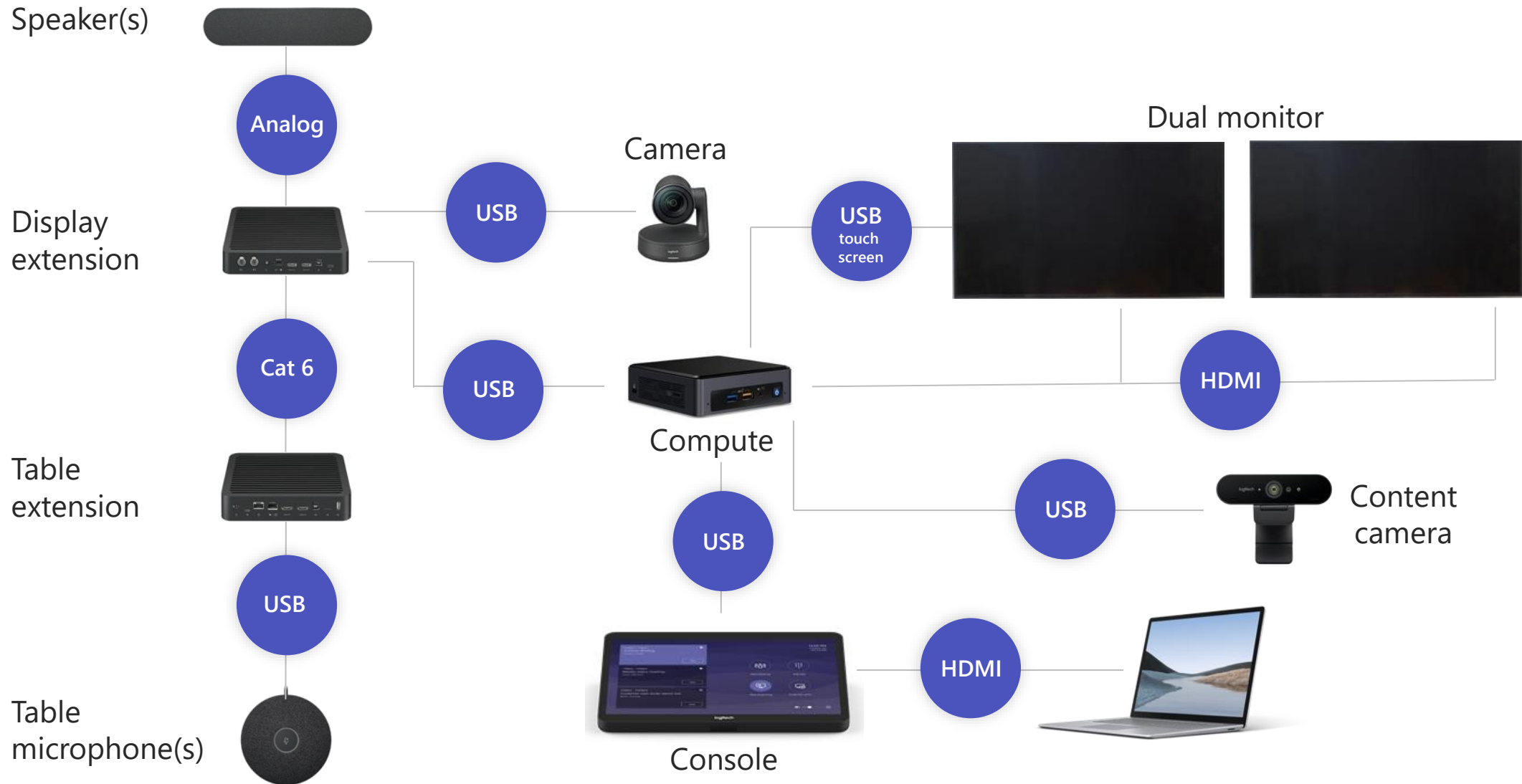


# Teams Rooms connectivity – small room





# Teams Rooms connectivity – large room



# Additional considerations

Many cables can be extended for long-haul runs.

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Displays should support HDMI CEC or PC Mode to automatically switch on the screen from standby.

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Front-of-room display resolution should be set to no greater than 1920x1080.

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Only wired network connectivity is supported.

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Only DHCP is supported for assigning initial IP addresses.



# Securing physical installations

Ensure cables are managed and inaccessible to users

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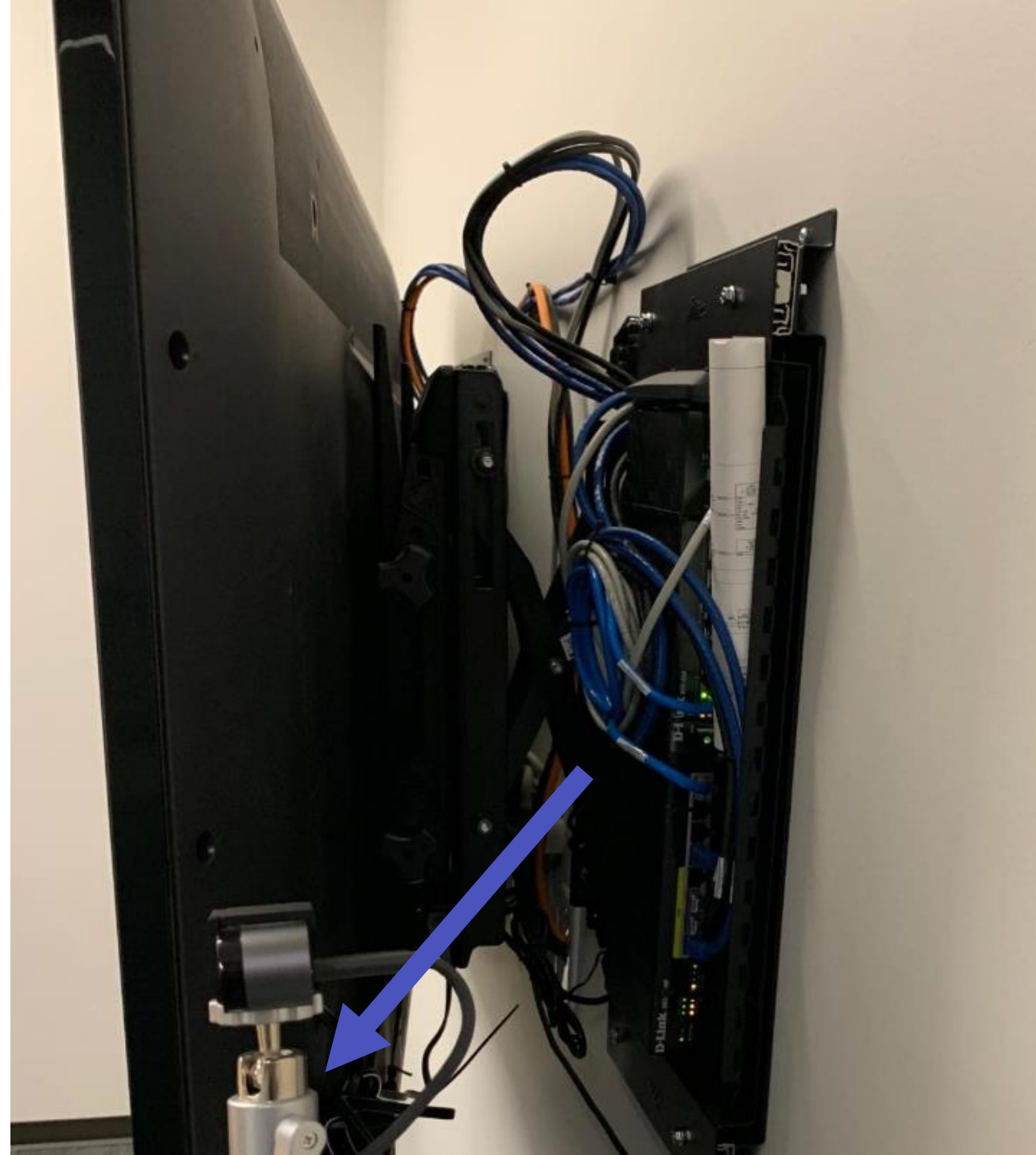
Consider using security lock slot (Kensington Locks) where appropriate

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Securely mount console when possible

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Ensure cables utilize physical securing mechanisms preventing unintentional or malicious removal



# ALWAYS



Use correct cables

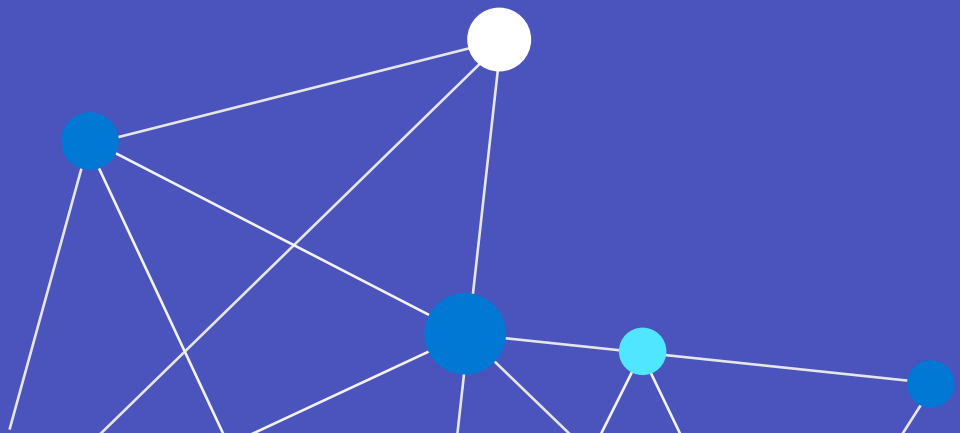
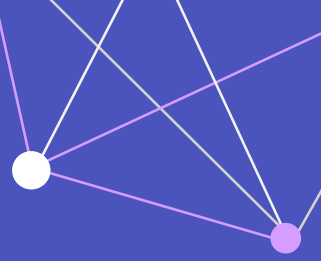
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Update firmware



# Teams Rooms Resource account



# Resource account




This is the account that signs into Teams Rooms

Can be an Active Directory or Azure Active Directory account




Must be Skype or Microsoft Teams enabled

This is the account that you invite to your meetings

Establish a naming convention



**Conference Room (STP-Avan...**



Sign in allowed

Account

Devices

Licenses and Apps

Mail

OneDrive

**Username**

MTR-STP-Avanti-1@teamsroomslab.com

Manage username

**Groups**

Microsoft Teams Rooms Users

Manage groups

**Roles**

No administrator access

Manage roles

**Contact information**

Display Name

Conference Room (STP-Avanti)

First Name

Phone number

+17274404581

Last Name

Manage contact information

# Resource account licensing

**Skype for Business:** Enterprise Client Access License and optionally, Plus Client Access License for PSTN calling

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**Skype for Business Online:** A Skype for Business Online Plan 2 or Office 365 E1 or E3 license is required to enable Skype Meetings

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**Microsoft Teams:** Acquire and assign the Teams Rooms Standard or Teams Rooms Premium license.

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Dial-in to a Microsoft Teams meeting and “call me at” features are included in the Audio Conferencing license

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Non-meeting PSTN calling requires Calling Plan license or Direct Routing configuration



## Microsoft Teams Rooms Standard

Skype for Business

Microsoft Teams

Phone System

Audio Conferencing

Microsoft Intune



## Microsoft Teams Rooms Premium

Teams Rooms Standard + managed service



Room planning and  
rollout

Monitoring and  
troubleshooting

Update Management

Customer Support

Inventory Management

Much more...

# Resource account



Every Teams Rooms device requires its own unique account

It is recommended to create the account well in advance of hardware installation

You can create them via:

- Microsoft 365 Admin Center
- PowerShell
- Active Directory Users and Computers

Skype for Business Control Panel  
(on-premise/hybrid user)

Consider naming standards for the account





# Resource account security



## Modern authentication

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## Conditional Access policies

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- Recommend using different CA policies for Device accounts than other User accounts
- Location based CA policy
- Microsoft Teams, Exchange, & SharePoint Online CA policies should match

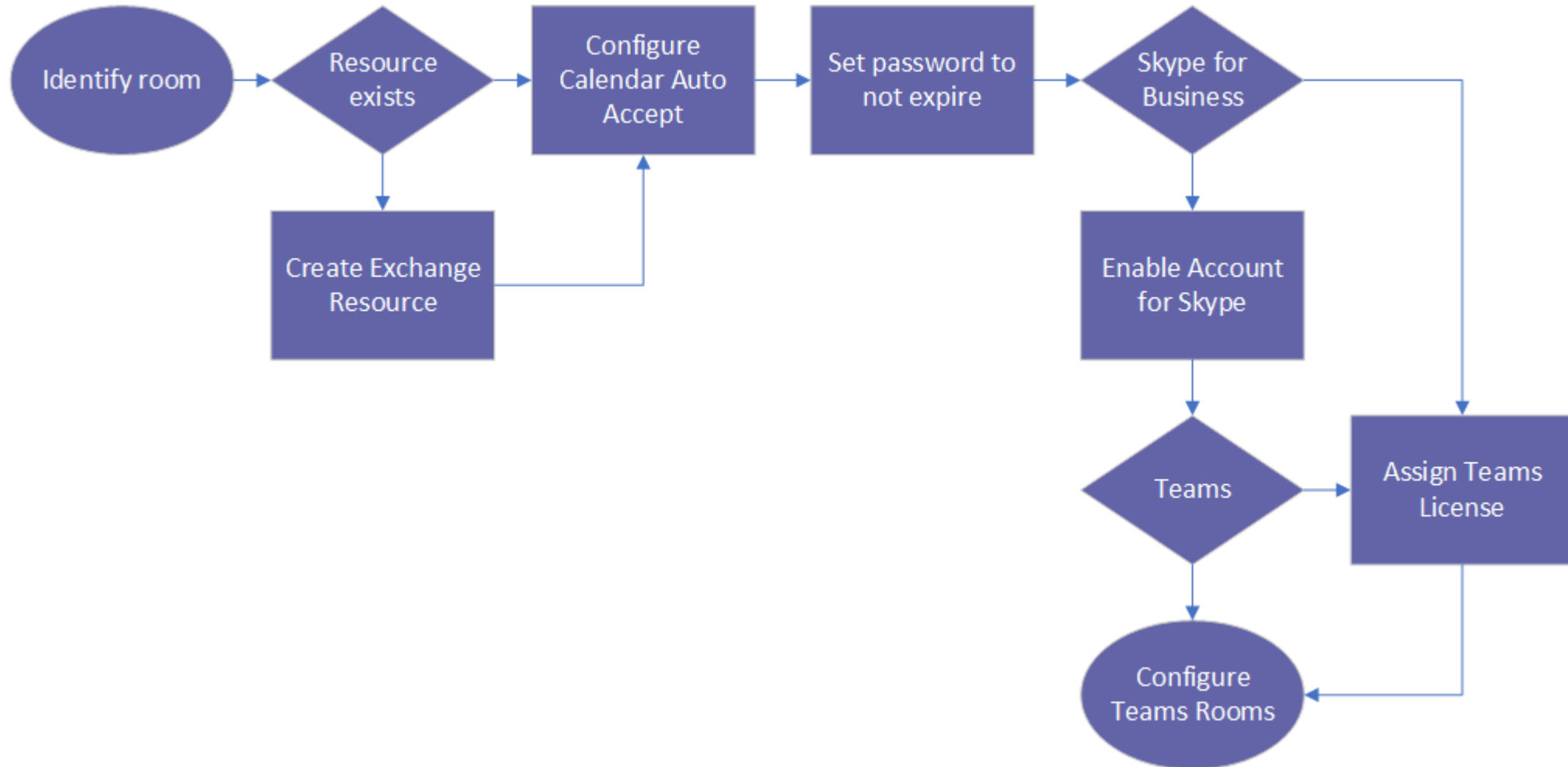
## Credentials secured on device through TPM & Windows Vault

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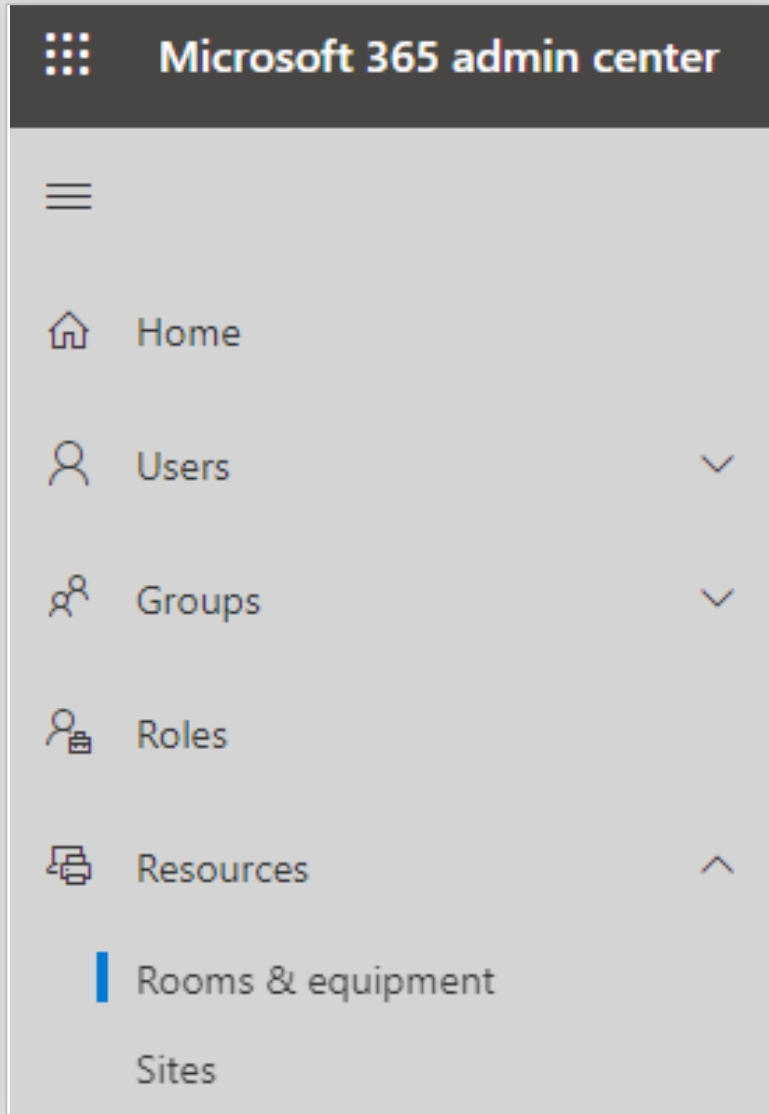
## Optional calendar processing

- Optional settings using the Set-CalendarProcessing Cmdlet
- ProcessExternalMeetingMessages, DeleteSubject, DeleteNonCalendarItems, DeleteAttachments, AddAdditionalResponse, AddOrganizerToSubject

# Resource Account Creation flow



# Microsoft 365 admin center



Sign in to: <https://admin.Microsoft.com>

---

Navigate to Resources → Rooms & equipment

# Microsoft 365 admin center



See and edit current room inventory

---

Click the +Add button to create a new room

Contoso			
Rooms & equipment			
<a href="#">+ Add</a> <a href="#">Refresh</a>			
Name		Email	Type
Conference Room (STP-Avanti)	⋮	MTR-STP-Avanti-1@teamsroomslab.com	Room
Focus Room 4 (IND-464)	⋮	mtr-ind-focusroom-4@teamsroomslab.com	Room
Huddle Room (STP-Avanti)	⋮	MTR-STP-Avanti-2@teamsroomslab.com	Room



I

Indianapolis Focus Room 4

Add

Type

Room

Name \*

Indianapolis Focus Room 4

Email \*

mtr-ind-focusroom-4

@

teamsroomslab.com

Capacity

4

Location

Indianapolis

Phone number

+13175551212

Meeting Room

21 of 25 licenses available

Skype for Business Online (Plan 2)

Microsoft 365 Phone System

Microsoft Teams

Microsoft Intune

Microsoft 365 Audio Conferencing

Add

Cancel

# Microsoft 365 admin center



Fill in the values, assign a license

# Microsoft 365 admin center



Indianapolis Focus Room 4

Add

The Room mailbox is ready to use.

Close

Next steps for this room

[Set scheduling options](#)

You can limit when users can schedule the room and add delegates who can accept meeting requests.

[Edit details](#)

[Get started using rooms in Outlook](#)

(You can share this link with users.)

Would you like to know more?

[Working with rooms and equipment](#)



Acknowledgement that the room has been created

---

# Microsoft 365 admin center



## Available scheduling options

---



Indianapolis Focus Room 4  
Room

### Edit booking options

Allow repeating meetings



On

Allow scheduling only during work hours



Off

Automatically decline meetings outside of limits below



On

Booking window (days)

180

Maximum duration (hours)

24

Auto accept meeting requests



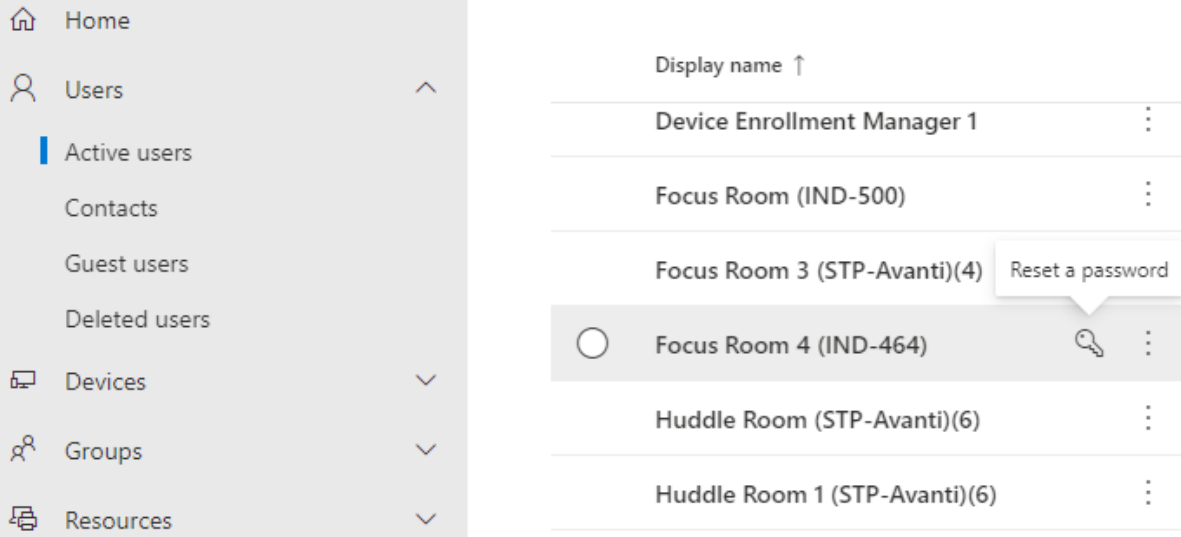
On

Set to "Off" if you want to specify users who want to accept meetings manually

Save

Cancel

# Microsoft 365 admin center



Navigate to Users -> Active Users

Click on Key icon and reset password

# Microsoft 365 admin center

## Reset password

mtr-ind-focusroom-4@teamsroomslab.com

### Password settings

- ☐ Auto-generate password
- ☒ Let me create the password

Password \*

..... Strong 

☐ Require this user to change their password when they first sign in

Reset



Type in new password

Do *not* tick the box to require a password change.



# Manually provisioning user

PowerShell can expedite resource account provisioning as well as add users in bulk.

## Prerequisites

- MSOnline PowerShell module

```
Install-Module -Name MSOnline -Force
```

- Exchange Online PowerShell Module

```
Install-Module -Name ExchangeOnlineManagement
```

- (Optional) Skype for Business Online PowerShell Module

Download: <https://www.microsoft.com/en-us/download/details.aspx?id=39366>

```
Import-Module SkypeOnlineConnector
```

# Determine license to assign

You need to assign at least 1 license to the provisioned user

Run the following PowerShell to list your available licenses

```
$UserCredential = Get-Credential  
Connect-MsolService -Credential $UserCredential  
Get-MsolAccountSku
```

AccountSkuId	ActiveUnits	WarningUnits	ConsumedUnits
teamsroomslab:EMSPREMIUM	10	0	6
teamsroomslab:ENTERPRISEPREMIUM	10	0	7
teamsroomslab:DESKLESSPACK	2	0	0
teamsroomslab:MCOPSTN1	5	0	5
teamsroomslab:Win10_VDA_E3	10	0	3
teamsroomslab:MEETING_ROOM	25	0	5
teamsroomslab:SPE_E5	25	0	0
teamsroomslab:AAD_PREMIUM	25	0	1

# PowerShell variables

Variables will make provisioning easier, especially if a script is used to provision resource accounts in bulk

Account name

```
$acctUpn=mtrfocusroom1@teamsdevicesdemo.onmicrosoft.com
```

The unique name of the mailbox

```
$MailBoxName 'focusroom'
```

Specify the Exchange alias (also known as the mail nickname) for the recipient

```
$MailBoxAlias='focusroom'
```

Password for the account

```
$Password='ThisIs1ReallyLongPassword!'
```

License to assign

```
$ADLicense='teamsdevicesdemo:MEETING_ROOM'
```

Two letter ISO code for the country where the tenant is registered

```
$UsageLocation='US'
```

# Provisioning a single user

## Connect to Office 365

```
$UserCredential = Get-Credential
```

```
Connect-MsolService -Credential $UserCredential
```

```
Connect-ExchangeOnline -Credential $UserCredential -ShowProgress $true
```

# Provisioning a single user

## Create Mailbox

```
New-Mailbox -MicrosoftOnlineServicesID $acctUpn -Name $DisplayName -Alias  
$MailBoxAlias -Room -EnableRoomMailboxAccount $true -RoomMailboxPassword  
(ConvertTo-SecureString -String $Password -AsPlainText -Force)
```

# Provisioning a single user

Set Outlook to auto-accept meeting invites and add additional response.

```
Set-CalendarProcessing -Identity $MailBoxAlias -AutomateProcessing AutoAccept  
-AddOrganizerToSubject $false -DeleteComments $false -DeleteSubject $false  
-RemovePrivateProperty $false
```



# Provisioning a single user

Set the password for the account to never expire and set Usage Location

```
Set-MsolUser -UserPrincipalName $acctUpn -PasswordNeverExpires $true  
-UsageLocation $UsageLocation
```

Assign License

```
Set-MsolUserLicense -UserPrincipalName $acctupn -AddLicenses $ADLicense
```

# Bulk user provisioning

You can create a script which can automate the provisioning

For example, create a CSV file with all the necessary information

	A	B	C	D	E	F	G	H	I	J	K	
1	acctUpn	MailBoxName	MailBoxAlias	DisplayName	Password	AdditionalResponse	PhoneNumber	UsageLocation	LocationID	ADLicense	VoiceLicense	
2	mtr-ind-keystone-1@mtrindkeystone1	mtrindkeystone1	mtrindkeystone1	Indianapolis Keyston	Change_This_Passw	Your meeting is now	13175551212	US	dc0c17f9-7060-4d77-i	teamsroomslab:MEE	teamsroomslab:MCOPSTN1	
3	mtr-ind-keystone-2@mtrindkeystone2	mtrindkeystone2	mtrindkeystone2	Indianapolis Keyston	Change_This_Passw	Your meeting is now	13175551213	US	dc0c17f9-7060-4d77-i	teamsroomslab:MEE	teamsroomslab:MCOPSTN1	
4	mtr-stp-avanti-5@te	mtr-stp-avanti-5	mtr-stp-avanti-5	St. Petersburg Avanti	Change_This_Passw	Your meeting is now	17275551212	US	14e3cbe3-c3ee-4fcb-	teamsroomslab:MEE	teamsroomslab:MCOPSTN1	
5	mtr-stp-avanti-6@te	mtr-stp-avanti-5	mtr-stp-avanti-5	St. Petersburg Avanti	Change_This_Passw	Your meeting is now	17275551213	US	14e3cbe3-c3ee-4fcb-	teamsroomslab:MEE	teamsroomslab:MCOPSTN1	

Then read the CSV file and iterate through the entries

```
$path="c:\temp\teamsrooms.csv"
$csv=Import-Csv -path $path
ForEach($Room in $csv)
{
    #Set variables
    $acctUpn=$Room.AccountUpn
    $MailBoxName=$Room.MailBoxName
    $MailBoxAlias=$Room.MailBoxAlias
    $DisplayName=$Room.DisplayName
    $Password=$Room.Password
    $AdditionalResponse=$Room.AdditionalResponse
    $PhoneNumber=$Room.PhoneNumber
    $UsageLocation=$Room.UsageLocation
    #Get Location ID via Get-CsOnlineLisLocation
    $LocationID=$Room.LocationID
```

# Skype for Business

If you are using Skype for Business (or anticipate joining Skype for Business meetings), there are two options

- Create a User
- Create a Meeting Room

A Skype Meeting Room account differs from a Skype User account in two ways

- Teams Rooms always joins via lobby
- Teams Rooms asks attendees if they are in the room and if they want to mute their devices

# Skype for Business user

- Create an Exchange Resource Mailbox
- Enable for Skype for Business

```
Enable-CsUser -Identity MTR-STP-Avanti-1@teamsroomslab.com -RegistrarPool  
"skypepool.teamsroomslab.com" -SipAddressType SamAccountName -SipDomain  
teamsroomslab.com
```

# Skype for Business meeting room (on-premise)

## Enable Meeting Room settings

- Create an Exchange Resource Mailbox
- Enable Meeting Room settings

```
Enable-CsMeetingRoom -Identity MTR-STP-Avanti-1@teamsroomslab.com -  
RegistrarPool "skypepool.teamsroomslab.com" -SipAddressType  
SamAccountName -SipDomain teamsroomslab.com
```

# Skype for Business meeting room (online)

## Enable Meeting Room settings

### On-premises

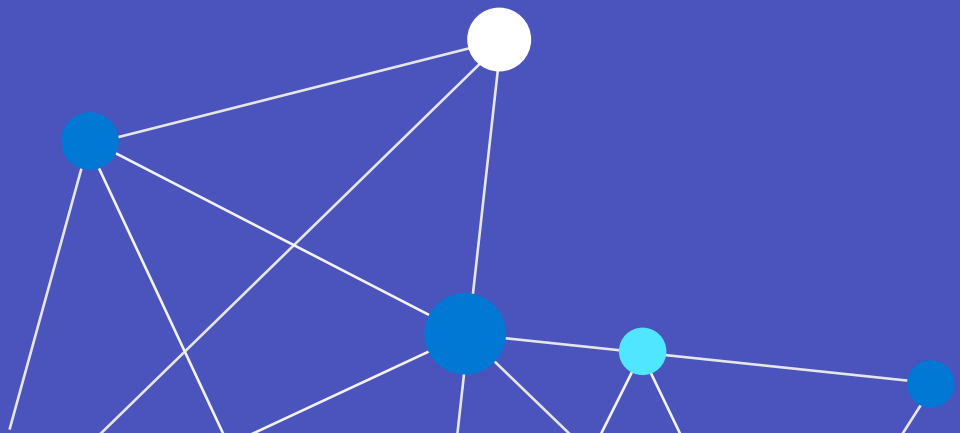
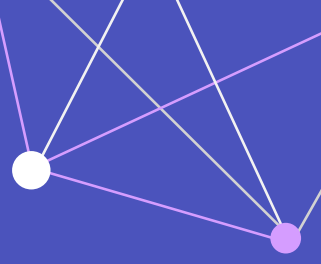
- Create an Exchange Resource Mailbox
- Skype-Enable User
- Enable Meeting Room settings

```
Get-CsOnlineUser -Identity [ExistingSkypeEnabledUser] | Select -  
Expand RegistrarPool
```

```
Enable-CsMeetingRoom -Identity $MailBoxAlias -RegistrarPool  
"skypepoolname.infra.lync.com" -SipAddressType EmailAddress
```



# Advanced resource account options



# Optional settings

## Edit Room

Open Exchange Admin Center

---

Click on recipients/resources

---

Select room to edit

Exchange admin center

dashboard

recipients

permissions


compliance management


organization


protection


mailboxes groups **resources** contacts shared migration


+ ▾











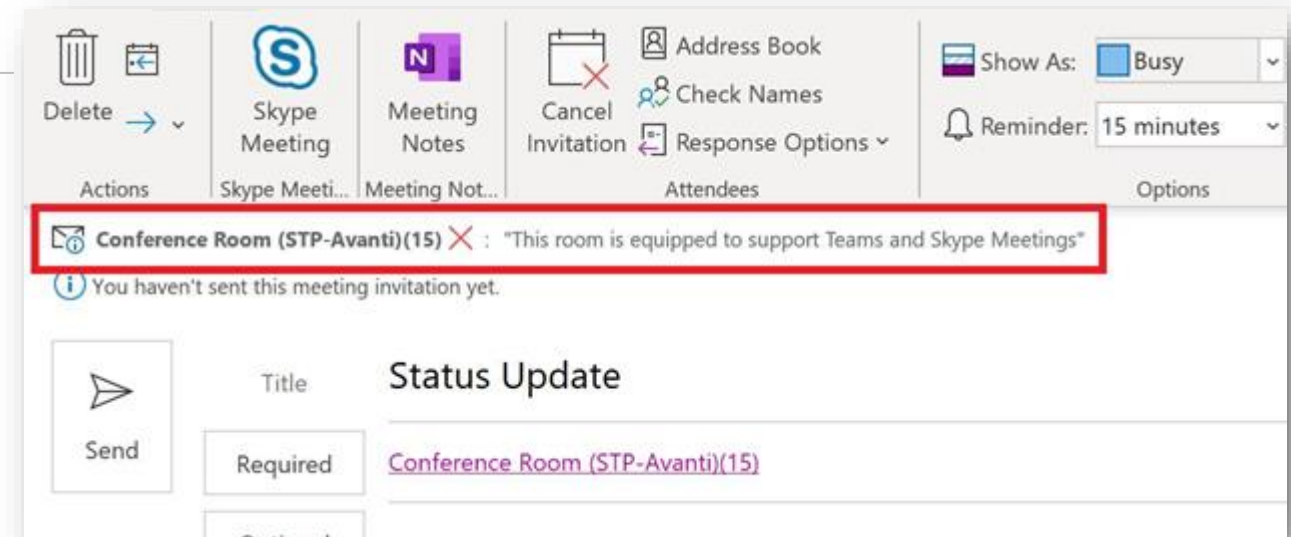
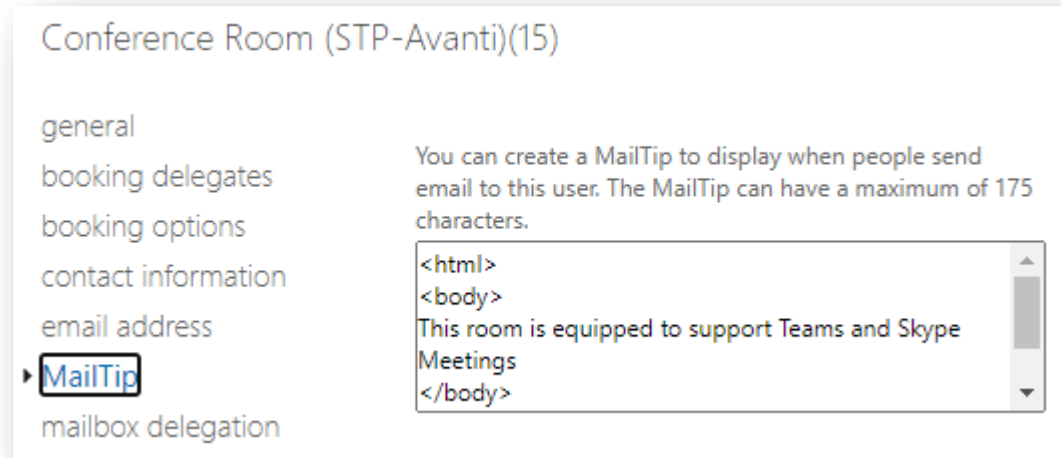
DISPLAY NAME	MAILBOX TYPE ▾	EMAIL ADDRESS
<b>Huddle Room (STP-Avanti)(6)</b>	<b>Room</b>	<b>MTR-STP-Avanti-2@teamsroomslab.com</b>
Huddle Room 1 (STP-Avanti)(6)	Room	MTR-STP-Avanti-3@teamsroomslab.com
Conference Room (STP-Avanti)(1...	Room	MTR-STP-Avanti-1@teamsroomslab.com
Focus Room 4 (IND-464)	Room	mtr-ind-focusroom-4@teamsroomslab.com

# Optional settings

## MailTips

Informative messages displayed to users in the InfoBar in Outlook

You can create custom MailTips for all types of recipients



# Optional settings

## Additional Responses

Additional information to be included  
in responses to meeting requests

Conference Room (STP-Avanti)(15)

general

booking delegates

► **booking options**

contact information

email address

MailTip

mailbox delegation

Specify when this room can be scheduled.

☒ Allow repeating meetings

☐ Allow scheduling only during working hours

☒ Always decline if the end date is beyond this limit

Maximum booking lead time (days):

180

Maximum duration (hours):

24.0

If you want the meeting organizer to receive a reply, enter the text below.

`src="https://flinchbotbeer.files.wordpress.com/2020/03/msc17_collaboration_002.png"> </p> <p align="center">This room is equipped with One Touch Join – Did you make this a Microsoft Teams or Skype for Business meeting? </p> <p align="center">Become a meeting ninja – </p>`

### Accepted: Gym

When Wednesday, March 11, 2020 10:30 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).

Location Microsoft Teams Meeting

Conference Room (STP-Avanti)(15) has accepted this meeting.

### Your request was accepted.



This room is equipped with One Touch Join – Did you make this a Microsoft Teams or Skype for Business meeting?

Become a meeting ninja – [watch this short video!](#)

# Optional settings

---

## External meetings, MailTips, and additional responses

```
Set-CalendarProcessing -identity $MailBoxAlias  
-ProcessExternalMeetingMessages $true
```

```
Set-Mailbox -Identity $MailBoxAlias -MailTip "This room is equipped  
to support Teams and Skype Meetings"
```

```
Set-CalendarProcessing -Identity $MailBoxAlias  
-AddAdditionalResponse $true -AdditionalResponse $AdditionalResponse
```

# Optional settings

---

## Security related

```
Set-CalendarProcessing -identity $MailBoxAlias  
-ProcessExternalMeetingMessages $false  
-AddOrganizerToSubject $false  
-DeleteSubject $true  
-DeleteComments $true  
-RemovePrivateProperty $false  
-DeleteNonCalendarItems $true  
-RemoveForwardedMeetingNotifications $true  
-RemoveOldMeetingMessages $true
```



# Optional settings

---

## Display name

By default, the mailbox name is shown as the name of the room

Add a Display Name

- Makes the room name more readable
- Add extra information, such as a room name, room number, or room size

---

Conference Room (STP-Avanti) (15)

MTR-STP-Avanti-1@teamsroomlab.com

# Optional settings

---

## Display name

Open Microsoft 365 Admin Center

---

Expand Users/Active Users

---

Find the Conference Room

---

Click on the room name and Manage contact information

---

Edit the Display name field

First name

Last name

Display name \*

# Optional settings

---

## Display name

Editing via PowerShell:

```
Set-MsolUser -UserPrincipalName MTR-STP-Avanti-3@teamsroomslab.com -Displayname 'Huddle Room (STP-Avanti)(6)'
```

# Optional settings

## Room lists

Room lists organize your rooms

You can organize based on location, city, campus, building, etc.

Underneath that location you list all available Teams Rooms systems

The diagram illustrates the process of selecting a room for a new meeting. It features two overlapping 'New meeting' dialog boxes. The background dialog shows the 'Location' dropdown menu open, with options: Amsterdam, Redmond, Tampa Bay, Tokyo, and (UTC-06:00) Central Standard Time. A blue arrow points from the 'Tampa Bay' option to the foreground dialog. The foreground dialog shows the 'Location' dropdown menu open, displaying a list of room options: Conference Room (STP-Avanti)(15) (Free), Huddle Room (STP-Avanti)(6) (Free), and Huddle Room (STP-Avanti)(6) (Free). Below the room list is a link labeled 'Choose new room list'.

New meeting ▾

Title \*

Weekly Status Update

Location

Amsterdam

Redmond

Tampa Bay

Tokyo

(UTC-06:00) Central Standard Time

New meeting ▾

Title \*

Weekly Status Update

Location

Conference Room (STP-Avanti)(15) (Free)

Huddle Room (STP-Avanti)(6) (Free)

Huddle Room (STP-Avanti)(6) (Free)

[Choose new room list](#)

(UTC-06:00) Central Standard Time

# Optional settings

---

## Room lists

Create a Distribution Group

```
New-DistributionGroup -Name "Tampa Bay"  
-Roomlist
```

Add Teams Rooms devices to group

```
Add-DistributionGroupMember -Identity  
"Tampa Bay" -Member "MTR-STP-Avanti-  
1"
```

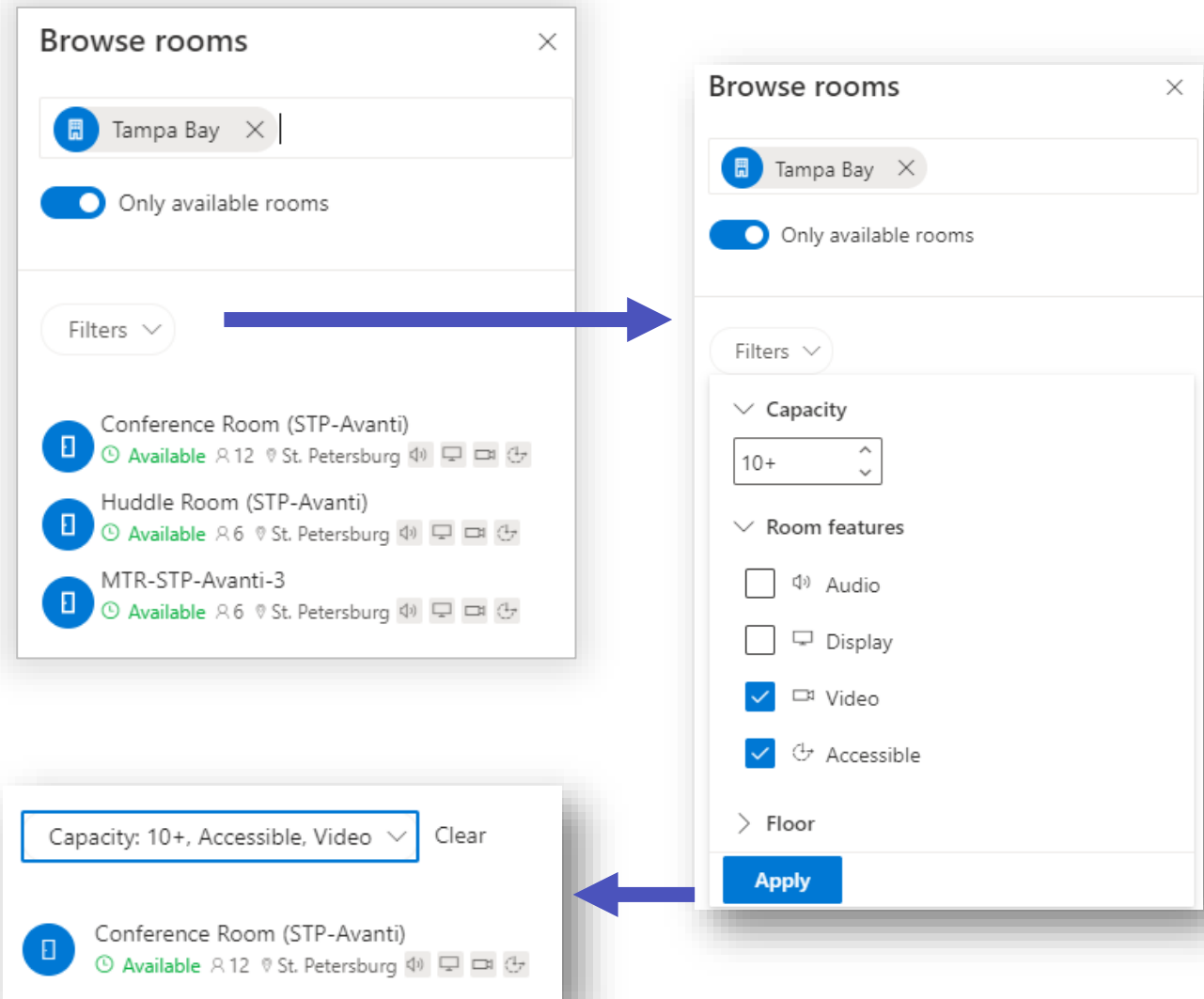
```
Add-DistributionGroupMember -Identity  
"Tampa Bay" -Member "MTR-STP-Avanti-2"
```

# Optional settings

## Places

You can add additional criteria to rooms

- Wheelchair accessibility
- In-room hardware
- Address
- Capacity
- Floor and floor label
- Building name
- Tags



# Optional settings

---

## Places

```
Set-Place MTR-STP-Avanti-1 -IsWheelChairAccessible  
$true -Capacity 12 -DisplayDeviceName $True
```


Use custom values in the fields. For example, set DisplayDeviceName to reflect single or dual monitor. Useful for ad-hoc inventorying:




```
Get-Mailbox -Filter {RecipientTypeDetails -eq "RoomMailbox"} |  
Get-Place | Where-Object {$_.displayDeviceName -eq "Dual  
Monitor"}
```

# Optional settings



## Book multiple rooms



Users can also book multiple rooms in an invite.



 Quarterly Meeting

  Megan Bowen 



Optional



 6/23/2020 



11:00 AM  to 11:30 AM 


 All day 


Free: Tue 6/23 **11:00 AM - 11:30 AM** | 11:30 AM - 12:00 PM | 12:00 PM - 12:30 PM

 Repeat: Never 

 Huddle Room (STP-Avanti) 

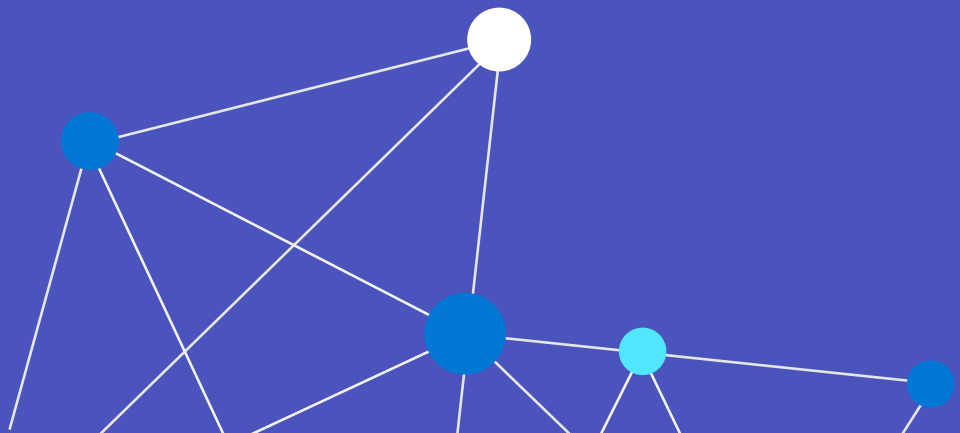
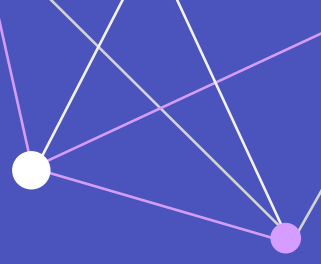
 MTR-STP-Avanti-3 



Teams meeting 



# Assigning phone number



# Assigning phone number – calling plans

Permit the Teams Rooms to call users and conference bridges

---

For USA and Canada, you must create an emergency location first

## Edit

+1 727 555 4582

Number status

**Unassigned**

Number type

**Users**

## Assigned to

Select a person that you want to assign this phone number to



Focus Room 3 (STP-A...



## Emergency location

Select a location within the country or region where emergency services must arrive when a call comes from this phone number.

[Add an emergency location](#) if you want to create a one.



**Avanti, St. Petersburg**

201 4th Street South, Saint  
Petersburg FL 33701, US



# Assigning phone number - PowerShell

```
$acctUpn=MTR-SEA-FocusRoom1@teamsroomslab.com
```

---

```
$PhoneNumber="+14255553223"
```

---

```
#Get Location ID via Get-CsOnlineLisLocation
```

---

```
$LocationID="c04255ef-0aac-4cc8-b5fe-510c4578f792"
```

---

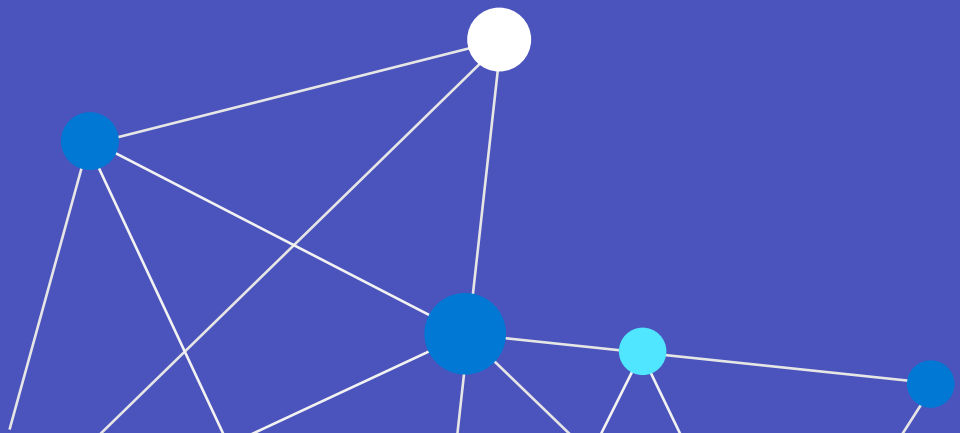
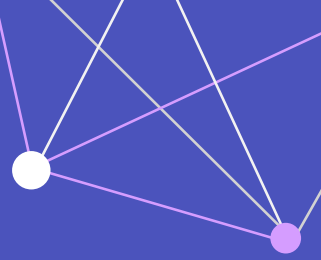
```
Set-CsOnlineVoiceUser -Identity $AcctUPN -TelephoneNumber $PhoneNumber  
-LocationID $LocationID
```

# Assigning phone number – Skype for Business

- If Teams Rooms is in “Skype for Business (Default) and Microsoft Teams” mode or “Skype for Business Only” mode, you can use on-premise or hybrid-connected voice
- This lets you pass a Skype EV phone number to the MTR

```
Set-CsUser -Identity " MTR-STP-Avanti-1@teamsroomslab.com"  
-LineUri "tel:+13175551212"
```

# Summary



# Objectives



Standardize devices, ordering, and installation to ease Teams Rooms connectivity

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We saw how to provision a device account and optional advanced settings

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Overview of deploying a custom Teams Rooms image

Questions?

