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Spectralink IP-DECT Server 200/400/6500
Spectralink Virtual IP-DECT Server One

Microsoft Teams

Interoperability Guide

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Warranty

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Chapter 1: About This Guide

This guide describes how to configure a Spectralink IP-DECT Server 200/400/6500 or a Virtual IP-DECT Server One for integrating the Microsoft Teams Gateway.

In the following, the servers will be referred to as "Spectralink IP-DECT Server".

This guide is intended for qualified technicians and the reader is assumed to have a basic knowledge about the Spectralink IP-DECT Server and Microsoft Teams. It is also assumed, that you have an installed and functioning Spectralink IP-DECT Server and an active Microsoft Teams account.

The guide is divided into two parts:

- Spectralink IP-DECT Server
- Handset onboarding and sign-in

Each part describes the general configuration and the user administration.

Environment Information

- Microsoft Teams - Navigate to the [Microsoft documentation](#) site for the latest Microsoft documentation.
- Spectralink IP-DECT Server 200/400/6500 (must have firmware version PCS22Aa or newer)
- Spectralink Virtual IP-DECT Server One (must have firmware version PCS22Aa or newer)
- Spectralink DECT Handsets 72x2, 75x2, 76x2, 77x2 (must have firmware PCS22Ab or newer)
- Spectralink network and security requirements - see description of communication ports for the relevant server in the Server Installation and Configuration Guide.

Spectralink prerequisites

Microsoft Teams integration is supported exclusively on PP7 handset models (72x2, 75x2, 76x2, 77x2), and the following serves: Spectralink IP-DECT Server 200/400/6500 and Spectralink Virtual IP-DECT Server One.

End of life KIRK base stations, 7xx0 and Butterfly DECT Handset models are not supported.

Microsoft prerequisites

There is no additional cost for organizations to use SIP Gateway, and any users meeting the following requirements can use SIP Gateway:

- Users must be licensed for Teams Phone (via any Office 365 E5, Microsoft 365 license that includes Teams Phone, or as a standalone license)

- PSTN enablement (i.e., phone number assigned) via a Microsoft Teams Calling Plan, Direct Routing, or Operator Connect

- Common area devices require a Common Area Phone license

Follow the steps below to enable and mange SIP Gateway:

- Turn on **SIP devices can be used for calls** calling policy in Teams admin center and go to **SIP devices** under **Teams devices** to manage your SIP phones connected to Teams

- Reset devices to factory settings and point them to SIP Gateway provisioning server

- Ensure that your firewall is open to traffic from Microsoft 365 and Teams

- Ensure that SIP devices are not behind a proxy

- Open UDP ports 49152 to 53247, and TCP port 5061 for IP range 52.112.0.0/14 to 52.120.0.0/14

- Onboarded SIP devices are visible in Teams admin center **SIP devices** tab after first sign-in

Related Documentation

All Spectralink documents are available at http://support.spectralink.com/.

Spectralink Documentation

Subject	Documentation
Spectralink DECT Handsets	For more information about the handset, refer to the user guide available online at http://support.spectralink.com/products.
Synchronization and Deployment Guide	For more information about synchronization and deployment, refer to the guide available online at http://support.spectralink.com/products.
Spectralink IP-DECT Server	For more information about the server, refer to the guide available online at http://support.spectralink.com/products.
Provisioning	For more information about provisioning, refer to the guide available online at http://support.spectralink.com/products.
Spectralink Technical Bulletins	Available online at http://support.spectralink.com/products.
Release Notes	Document that describes software changes, bug fixes, outstanding issues, and hardware compatibility considerations for new software releases. Available online at http://support.spectralink.com/products.
Spectralink DECT Training material	In order to gain access to the Spectralink training material, you must attend training and become Spectralink Certified Specialist. Please visit http://partneraccess.spectralink.com/training/classroom-training for more information and registration.

Chapter 2: Feature List

The following features are supported:

	Supported features
Telephony	- Make and receive basic calls - Message Waiting Indication (MWI) and voice mail access - Caller ID - Call Hold and Resume - Call Transfer (blind, semi-attended, attended) - Call Forwarding - Call Waiting - Local Do Not Disturb (DND) - DTMF tones - Music on Hold (MOH) - Shared Line
User experience	- Centralized Phonebook via LDAP - Local Phonebook generated from user data - Call Completed Elsewhere - Available Status / In-call presence indication
Management/Administration	- Remote sign-out and re-onboarding through ~~the~~ web interface - Auto check sync configuration
Security	Secure Voice - TLS 1.2
Value added Spectralink features	- AMIE integration - Centralized management and provisioning via DECT server management capability - Multi-language (on handsets) - Microsoft Teams logo expose

Chapter 3: Configuration and Feature Details

Supported features	Description/Setting
Make and receive basic calls	Allows user to make and answer calls.
Message Waiting Indication (MWI) and voice mail access	Notifies the user when a new voice message has been received. Access voice messages by dialing your own number or SIP address.
Caller ID	Display Caller ID information for incoming and outgoing calls.
Call Hold and Retrieve	Allows user to place active calls on hold.
Call Transfer (blind, semi-attended, attended)	Allows user to transfer the active call to some other number.

Call Forwarding	Allows the user to:
	• Reset/disable call forwarding
	  Disable call forwarding by dialing code ***32***.
	• Enable call forwarding
	  Enable **c**all forwarding by dialing code ***33***, followed by the desired extension. E.g.: ***33*123456** will forward all calls 123456
	• Custom timeout forwarding
	  Enable call forwarding after a set number of seconds by dialing code ***34***, followed by the desired number of seconds, and lastly the extension). E.g.: ***34*10*123456** will forward all calls to **123456** after 10 seconds
	  Default timeout is 20 seconds.
	• Simultaneous ring
	  Enable the calling of a secondary extension after 20 seconds by dialing code ***35***, followed by the desired extension. E.g.: ***35*123456** will ensure that both your extension and **123456** will ring simultaneously after 20 seconds.
	
	For more information, see "Enabling Feature Codes".

Call Waiting	Allows user to answer another incoming call when already in an active call. The user can then choose to: • Ignore the call waiting • Decline the call waiting • Accept the call waiting If the user accepts the call, then they can toggle between the two calls or disconnect one of the two or both.

Supported features	Description/Setting
Centralized Phonebook	Supports integration with LDAP and pulls contact names, numbers, titles and other information to form a phonebook. There is also an option to generate a local phonebook from the IP-DECT server, using only DECT handset numbers, if no LDAP server is available.
Do Not Disturb (DND)	Allows user to silence incoming calls. Note: The DND status is applied only on the handset. Other devices logged in with Teams will not be updated with the DND status.
DTMF	Supports touch-tone feature codes.
Music on Hold (MOH)	Play music to callers on hold.
Presence	Displays a locally handled presence status, such as: • A DND logo, signaling the DND state • An available state, which is shown on the handset's front screen, indicating a successful connection and registration to Microsoft Teams. • A yellow dot, signaling that the handset is currently in the on-boarding state
Secure Voice - TLS 1.2	Encrypted call security.
Shared line	Supports SIP forking together with additional Microsoft Teams devices and/or soft clients

Note:

It is possible to make and receive calls, to and from: Microsoft Teams PC clients, Web clients, Phones or any other devices connected to the Microsoft SIP Gateway, and lastly PSTN (mobile phones or fixed lines).

The capability to make and receive calls will be dependent on how Microsoft Teams is set up.

Chapter 4: Spectralink IP-DECT Server

Below is a description of how to configure the Spectralink IP-DECT Server and an overview of all the automatically configured fields changed in the Microsoft Teams provisioning process.

> **Note:**
>
> It is assumed that you have installed and configured the Spectralink IP-DECT Server solution including deployment and administration of base stations before continuing the configuration described below.
>
> You can access the web-based Administration Page of the Spectralink IP-DECT Server through a standard web browser by entering the IP address discovered by UPnP, along with the username and password.
>
> - Default username of the system is: **admin**
> - Default password of the system is: **admin**
>
> The IP address can also be obtained by dialing ***999*00 + Off-hook on handsets

Configuring the Spectralink IP-DECT Server

Infrastructure version requirements

To support the configuration described in this guide:

- Spectralink IP-DECT Server 200/400/6500 must have firmware version PCS22Aa or newer
- Spectralink Virtual IP-DECT Server One must have firmware version PCS22Aa or newer
- Spectralink DECT Handsets 72x2, 75x2, 76x2, 77x2 must have firmware PCS22Ab or newer

License installation

In order to set up Microsoft Teams, you must first install a Microsoft Teams Interoperability license on your Spectralink IP-DECT Server.

Each Spectralink IP-DECT server must be fitted with a feature license:

Licenses	Description
1 Year MS Teams Direct integration (includes Software Assurance) | IP-DECT Server 400 12 Users (14232882)	Allows: Up to 12 users. Access to MS Teams Integration Software Technical Support 8-5
1 Year MS Teams Direct integration (includes Software Assurance) | IP-DECT Server 400 +48 Users (14232883)	Allows: An additional 48 users. Access to MS Teams Integration Software, Technical Support 8-5
1 Year MS Teams Direct integration (includes Software Assurance) | IP-DECT Server 6500 30 Users (14232884)	Allows: Up to 30 users. Access to MS Teams Integration Software, Technical Support 8-5
1 Year MS Teams Direct integration (includes Software Assurance) | IP-DECT Server 6500 +150 Users (14232885)	Allows: An additional 150 users. Access to MS Teams Integration Software, Technical Support 8-5
1 Year MS Teams Direct integration (includes Software Assurance) | IP-DECT Server 6500 +500 Users (14232886)	Allows: An additional 500 users. Access to MS Teams Integration Software, Technical Support 8-5
1 Year MS Teams Direct integration (includes Software Assurance) | Virtual IP-DECT Server ONE 30 Users (14233237)	Allows: Up to 30 users. Access to MS Teams Integration Software, Technical Support 8-5
1 Year MS Teams Direct integration (includes Software Assurance) | Virtual IP-DECT Server ONE +150 Users (14233238)	Allows: An additional 150 users. Access to MS Teams Integration Software, Technical Support 8-5
1 Year MS Teams Direct integration (includes Software Assurance) | Virtual IP-DECT Server ONE +500 Users (14233239)	Allows: An additional 500 users. Access to MS Teams Integration Software, Technical Support 8-5
MS Teams perpetual Firmware Update License | IP-DECT Server 200 (14232887)	Allows: Access to MS Teams Integration Software, Technical Support 8-5

To order and install a Teams Interoperability license on your Spectralink IP-DECT Server, please consult the License Ordering and Loading section of the Install and Configuration Guide.

Microsoft Teams Settings

To setup Microsoft Teams from the web-based Administration Page

Go to **Configuration** -> **Teams** and input the following settings:

Field	Setting
Provisioning	
Method	DHCP (default value): automatically get the Microsoft Teams provisioning server URL using DHCP option 160. This option needs to be configured on your DHCP server first.
	Static: manually enter the Microsoft Teams provisioning server URL according to your region
	• EMEA: https://emea.ipp.sdg.teams.microsoft.com/
	• Americas: https://noam.ipp.sdg.teams.microsoft.com/
	• APAC: https://apac.ipp.sdg.teams.microsoft.com/
	For more information on how to configure your SIP gateway, please consult the Gateway Configuration Guide from Microsoft.
	Disabled: disable provisioning
URL	The URL used for Microsoft Teams provisioning.
Username	
Password	
General	
Configuration sync time (hh:mm)	Synchronize new configurations from the provisioning server at a specific time. Synchronizations are performed daily. If left empty, no synchronizations will be performed.
Handset limit per account	Allowed number of handsets to sign-in to the same Teams account. Set to 2 by default.
Domain whitelist	Allowed domains in a comma separated list. If left empty all domains are allowed.
Show display name as standby text	Your display name will be used as the standby text. Disabled by default.

> **Note:**
>
> At least one handset has to be subscribed to the server in order for the provisioning process to initiate.
>
> A connection status to the provisioning server can be seen under **Status** -> **General** -> **Quick status**

Microsoft Teams Configuration

Provisioning

Method *	DHCP
URL *	http://emea.ipp.sdg.teams.microsoft.com
Username	
Password	

General

Configuration sync time(hh:mm)	
Handset limit per account	1
Allowed domains	
Show display name as standbytext	☐

Save   Cancel

*) Required field **) Require restart

Remote sign-out and re-onboarding

For handsets that have previously completed the on-boarding process, remote sign-out and re-onboarding are available by accessing **Users** -> **List Users** from the Web interface.

Remote sign-out enables an admin to quickly sign out multiple users, by selecting them from the User List and pressing Sign Out.

Re-onboarding enables the admin to remotely initiate the onboarding process for multiple users, by selecting them from the User List and pressing Re-onboard. Starting this process will sign out the handset, and contact the Microsoft Teams provisioning server to get the latest onboarding configurations and certificates.

Automatically configured fields

The following IP-DECT Server fields will be automatically changed when the server is configured for Microsoft Teams

Field	Setting
SIP Configuration – **General**	
Local port	5060
Transport	TLS
DNS method	DNS SRV
Register each endpoint on separate port	Disabled
Send all messages to current registrar	Disabled
Registration expire (sec)	IP-DECT 200/400 – 600 sec IP-DECT 6500 – 1200 sec Virtual IP-DECT Server One – 2400 sec
Handset power off action	De-register
Blacklist timeout (sec)	3600
GRUU	Enabled
NAT keepalive	SIP OPTIONS (rfc3261)
NAT keepalive interval (sec)	30
Send BYE with REFER	Disabled
Lync	Disabled
SIP Configuration – Media	
Enable media encryption (SRTP)	Enabled
Require media encryption (SRTP)	Enabled
Include lifetime in SDES offers	Disabled
Include MKI in SDES offers	Disabled
SIP Configuration – Call status	
Call waiting	Enabled
Wireless Server Configuration – **DECT**	
Subscription allowed	Enabled
Automatically disable subscription allowed	Disabled
Access code (IP-DECT Server 200/400)	Default value: last 4 digits of the ARI code
Handset login (SfB)	Disabled
Handset sharing	Disabled

Field	Setting
Provisioning Configuration – Default server	
NOTIFY check_sync	Disabled
Provisioning Configuration – Firmware server	
NOTIFY check_sync	Disabled
Provisioning Configuration – License server	
NOTIFY check_sync	Disabled
Provisioning Configuration – Configuration and users server	
NOTIFY check_sync	Disabled
Phonebook Configuration – System user data	
Phonebook source	Auto
Sync time(hh:mm)	00:00
Security Configuration – Data protection	
Remove user passwords from exported data	Enabled

SIP Configuration

General	
Local port *	5060
Transport *	TLS
DNS method *	DNS SRV
Default domain *	example.com
Register each endpoint on separate port	☐
Send all messages to current registrar	☐
Allow internal routing fallback	☐
Registration expire(sec) *	2400
Max pending registrations *	1
Handset power off action	De-register
Max forwards *	70
Client transaction timeout(msec) *	16000
Blacklist timeout(sec) *	3600
SIP type of service (TOS/Diffserv) *	96
SIP 802.1p Class-of-Service *	3
GRUU	☑
Use SIPS URI	☐
TLS allow insecure	☐
TCP ephemeral port in contact address	☐
NAT keepalive	SIP OPTIONS (rfc3261)
NAT keepalive interval(sec)	30
Send Hold before REFER	☑
Send BYE with REFER	☐
Convert SIP URI to phone number	☑

Media	
Packet duration(msec) *	20 ∨
Media type of service (TOS/Diffserv) *	184
Media 802.1p Class-of-Service *	5
Port range start *	58000
Codec priority *	1: AAL2-G726-32/8000 ∨
	2: PCMU/8000 ∨
	3: PCMA/8000 ∨
	4: None ∨
	5: None ∨
	6: None ∨
Add G729A media type for G.729 codec	☐
SDP answer with preferred codec	☐
SDP answer with a single codec	☐
Ignore SDP version	☐
Enable media encryption (SRTP)	☑
Require media encryption (SRTP)	☑
Include lifetime in SDES offers	☐
Include MKI in SDES offers	☐
Enable ICE	☐
Enable TURN	☐
TURN server	
TURN username	
TURN password	

Note:

The feature codes used for call forwarding are also automatically configured by Microsoft and cannot be changed from the IP-DECT Server Web interface.

Note:

The IP-DECT Server backup function will be unable to backup user data when the server is configured for Microsoft Teams.

Chapter 5: Handset onboarding and Sign-in

Below is a description on how to setup a handset to connect to a Spectralink IP-DECT Server configured with Microsoft Teams. This section assumes that the DECT handsets have been upgraded to firmware version PCS22Ab or newer, prior to performing the following steps. This process consists of two parts:
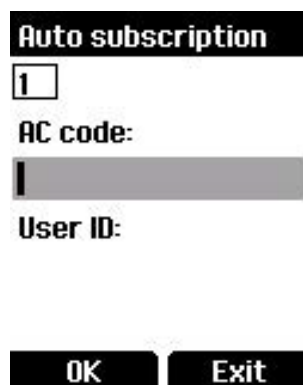
The onboarding phase, in which the handset subscribes to the Spectralink IP-DECT Server and is provisioned securely by the Microsoft Teams provisioning server. Once the handset has received the onboarding configuration, it will register on the onboarding server, and it will be ready for the next phase.

The sign-in phase, in which the user signs into Microsoft Teams, by pairing the handset with their Microsoft Teams account.

Handset onboarding

To connect the handset to the Microsoft on-boarding server

1   Turn on the DECT handset. The following screen should be displayed:

Auto subscription

1

AC code:

User ID:

OK   Exit

Note:

If the above screen is not displayed, the handset needs to be restored to the default factory settings. In order to perform a factory reset, type *99940* HOOK key and OK. The factory reset PIN code is 0000.

The Auto subscription screen will be displayed after the handset reboots.

2   Subscribe the handset:

- IP-DECT Server 200 or 400: Input the **AC code** into the field. The **AC code** consists of the last 4 digits of the ARI, and can be viewed either from the IP-DECT server Web interface (Status -> General), or from the label on the rear side of the server.

- IP-DECT Server One or IP-DECT Server 6500: enable subscription on the DECT server and you will be able to subscribe the handset without an AC code or you can set a code in the web UI.

3   The handset will now attempt to subscribe to the server (this process may take several minutes)

After a successful OTA connection is established, the following icon will be displayed:

4   The handset will automatically begin the on-boarding process. After a few seconds the handset screen should indicate a successful connection:

Handset Sign-in

To sign-in to Microsoft Teams

1   Press the Menu softkey on the handset, and select the "Teams" option

2   Select Sign in

3   The handset will request a pairing code from Microsoft

MSF

Requesting pairing code...

OK   Exit

If successful, the handset will display a pairing URL and code, similar to the ones below:

MSF

Web sign-in:
https://microsoft.com/devicelogin

Pair code:
PLCEQCTJ3

OK   Exit

4   Note down the URL and the pair code.

> **Note:**
>
> If the pairing URL and code are not displayed, make sure that your DHCP server provides NTP and DNS services to the DECT system, and that it has access to the internet.
>
> Your firewall might need to be configured according to Microsoft specifications.

5   The rest of the sign-in process is done on a PC or smartphone with an internet browser:

     a.   Go to the pairing URL: https://microsoft.com/devicelogin

     b.   Enter the pair code:

Note:

The pairing code is **not** case sensitive.

c. Log into your Microsoft Teams account in order to pair the device

d. The website will ask you if you're trying to log into the Teams SIP Gateway. Press Continue.

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cpop@spectralink.com

Are you trying to sign in to Teams SIP Gateway?

Only continue if you downloaded the app from a store or website that you trust.

| Cancel | Continue |

    e. After the following screen is displayed, the sign-in process will be complete and you can safely close the page

Microsoft

Teams SIP Gateway

You have signed in to the Teams SIP Gateway application on your device. You may now close this window.

It might take a few minutes for the DECT Server to pair the handset with your Teams account. After the pairing process is complete, your DDI number and the green status icon will be displayed on the screen, indicating that the handset is registered and ready to use:

+4576281135   15:39

Menu | Shortcut

Chapter 6: Migrating from other systems to Microsoft Teams

If your server is configured with other interfaces (Skype for Business, anynode SBC, Ring Central, etc.), there is a seamless migration process available that enables you to quickly reconfigure your server with Microsoft Teams, without requiring a factory reset.

To migrate from other systems to Microsoft Teams

1   Make a full system backup:

    a. Go to **Administration** -> **Backup**

    b. Press **Save** on the **Full system backup** option

2   Upgrade the IP-DECT Server firmware to version PCS22Aa or newer, and the Handset firmware to version PCS22Ab or newer.

3   Remove any licenses related to the previously installed interface:

    a. Go to **Administration** -> **License**

    b. Under **Loaded licenses**, find the relevant license (e.g., Skype for Business license) and click **Delete**

4   Add a valid Teams license. Please consult the License Installation section of this guide on how to add a license.

5   After applying the Teams license, the provisioning URL will be automatically set for the EMEA region. If the IP-DECT Server is located in a different region, the provisioning URL must be changed for your appropriate region in order for the provisioning process to commence. Alternatively, DHCP option 160 can be used to automatically get the provisioning URL. (See the provisioning settings in the Microsoft Teams Settings section)

Any handset already connected to the server will immediately begin the onboarding process as described in the Handset onboarding chapter, provided that it has the appropriate firmware version installed.

> **Note:**
>
> When a Microsoft Teams license is loaded on the IP-DECT server, all 3rd party handsets will be removed, with the exception of handsets configured as DECT to DECT.