Spectralink IP-DECT Server 200/400/6500, Virtual IP-DECT Server One and DECT Server 8000

Interoperability Guide

Ribbon Sonus SBC 1000/2000

14232907-IG, Edition 5.0
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About This Guide

This guide describes how to configure a Spectralink IP-DECT Server 200/400/6500, Spectralink DECT Server 8000 and Spectralink Virtual IP-DECT Server One for connecting to Skype for Business Online tenant using a Sonus SBC-1000/2000. In the following, the servers will be referred to as Spectralink IP-DECT/DECT/Virtual 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/DECT/Virtual IP-DECT Server , Skype for Business Online tenant and Sonus SBC-1000/2000. It is also assumed, that you have an installed and functioning Skype for Business Online tenant, Sonus SBC-1000/2000 and Spectralink IP-DECT/DECT/Virtual IP-DECT Server .

The guide is divided into two parts:

- Sonus SBC-1000/2000
- Spectralink IP-DECT/DECT/Virtual IP-DECT Server

Each part describes the general configuration and the user administration.

Note:

The configuration steps described are only for a basic configuration to illustrate the important points when performing the integration. More advanced setups with PSTN connectivity, Skype for Business hybrid environments etc. are possible, but not described here. For more information, see the Microsoft documentation site for the latest Microsoft documentation.

Setup of the Skype for Business Online tenant, basic setup of the Sonus SBC-1000/2000 and installation and configuration of the Application Solution Module (ASM) are also not covered. Fore more information about these tasks, see the relevant Microsoft and Sonus documentation.

Related Documentation

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

Subject	Documentation
Skype for Business Online tenant	Navigate to the Microsoft documentation site for the latest Microsoft documentation.
Sonus SBC-1000/2000	Navigate to the Sonus Documentation Portal for the latest Sonus SBC-1000/2000 documentation.
Spectralink DECT Handsets	For more information about the handset, refer to the user guide available online at http://support.spectralink.com/products.
Site Survey Function in Handset	For more information about the site survey function in handset, refer to the 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/DECT/Virtual IP-DECT Server	For more information about the server, 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.

Feature List

The following features are supported:

	Supported features
Telephony	• Basic Calling • Call Hold • Call Transfer • Call Waiting • Call Forward (all endpoints) • Music on Hold (MOH) • Call Completed Elsewhere
User experience	• Centralized phone book via Active Directory and LDAP • SIP URI Support Phone Book (75x2, 76x2, 77x2 only)
Security	• TLS • SSRTP/ SRTP/RTP • STUN/TURN/ICE
Voice Quality	• Codecs: G.726 (default), G.711, G.729
Value added Spectralink features	• Rich APIs for third-party solutions integration • Multi-language (on handsets) • Centralized management and provisioning via DECT server management capability • Plug and play DECT is easy to use and fast to deploy • Real Time Location Services (RTLS) (requires third party solution)

Prerequisites and Limitations

Prerequisites

The following must be configured/installed:

- Microsoft Office 365 Enterprise subscription with Phone System enabled.

  For more information, see SfB Online Tenant documentation.
- Sonus SBC-1000/2000 with an Application Solution Module (ASM) running Office 365 Cloud Connector Edition (CCE) software.

  For more information, see Sonus SBC-1000/2000 documentation.

  Note:

  The Application Solution Module (ASM) module is a separate, fully-functional server installed inside the Sonus SBC 1000/2000 chassis that can host the Office 365 Cloud Connector Edition (CCE) software.
- Office 365 Cloud Connector Edition (CCE) setup on the Application Solution Module (ASM) has been completed.
- LDAP access to an Active Directory hosting the users and credentials for a user with read access.

Limitations

Note:

This setup requires that all users present in the AD have logged in using the Skype for Business Client and configured simultaneous ringing to their DECT phone in order to do proper call routing.

Users not in the AD will have calls routed correctly without any configuration.

Introduction

The basic Spectralink IP-DECT/DECT/Virtual IP-DECT Server and Sonus SBC-1000/2000 integration consists of the following steps:

1. General configuration

   For more information, see "General Setup" on page 10.
2. Create Transformation Tables

   For more information, see "Creating Transformation Tables" on page 11.
3. Create Call Routing Tables for calls originating from CCE and DECT

   For more information, see "Creating Call Routing Tables" on page 13
4. Create Signaling Groups for CCE and DECT

   For more information, see "Creating Signaling Goups" on page 13.
5. Populate Call Routing Tables

   For more information, see "Populating Call Routing Tables" on page 14.

Note:

As Skype for Business Online requires all phone numbers to be in E.164 format, it is required to transform any other phone number format into E.164.

This guide will keep phone numbers in E.164 format where possible and convert user dialed numbers before processing.

For more information about creating phone numbers in E.164 format, see https://en.wikipedia.org/wiki/E.164

In order to facilitate, that users with both a DECT phone and a Skype for Business Client can receive calls on both endpoints, all Skype for Business Clients must be configured for **Simultaneous Ringing** on the users DECT phone. For more information about **Simultaneous Ringing**, see Microsoft Skype for Business Client documentation.

Note:

Unfortunately, setting the users own phone number as the destination of the **Simultaneous Ringing** will cause Skype for Business Online to not route the call to the DECT phone. A possible solution is to enter the local number with a fake E.164 prefix and then transform to the correct prefix in the Sonus SBC-1000/2000.

It is recommended to use an unused E.164 prefix, e.g. +999.

When a call originates from a DECT phone, the Sonus SBC-1000/2000 will need to know if the call should be routed either:

- To a Skype for Business Client (and possibly also a DECT phone via Simultaneous Ringing).
- Directly to a DECT phone.

Therefore, the Sonus SBC-1000/2000 will be configured to do a LDAP look-up in the Active Directory of the user of the destination number to be able to decide where to route the call.

Example Environment

The detailed configuration steps in the next sections assume the following example environment:

- All users are homed in the Skype for Business Online environment
- Azure AD Domain Services is configured and has Secure LDAP enabled
- Local extensions are in the 1xxx range
- E.164 numbers are in the +4576281xxx range
- Fake E.164 routing prefix is +999

Sonus SBC-1000/2000

Below is a description of how to perform a general setup of the Sonus SBC-1000/2000, create the transformation tables, call routing tables and signaling groups and populate the call routing tables to be able to make calls.

General Setup

Open the Sonus SBC-1000/2000 user interface, and then configure the following on the Sonus SBC-1000/2000:

- Add a Local Registar named "DECT Endpoints" (see **SIP** > **LocalRegistrars** menu)
- Add an entry to the SIP Server Table named "CCE Server" with this entry:
  - Host: Hostname of the mediation server (see **Application Solution Module** > **Virtual Machines** menu)
  - Port: 5068
  - Transport: TCP
- Add an entry to the SIP Server Table named "CCE Server" with this entry:
  - Host: Hostname of the mediation server (see **Application Solution Module** > **Virtual Machines** menu)
  - Port: 5068
  - Transport: TCP
- Add an entry to the DNS Protocol Split DNS table:
  - DNS Server IP: IP address of CCE AD VM (see **Application Solution Module** > **Virtual Machines** menu)
  - Domain Name: CCE domain name (sfb-ccedomain.local by default)
- Enable Active Directory:
  - AD Enabled: True
  - Operating Mode: Updates
  - Cache Attributes: telephoneNumber
- Add Domain Controller:
  - Domain Controller Address: Hostname / IP address of Domain Controller with LDAP access
  - DC Type: Call Route
  - Search Scope: DN of group containing users
  - LDAP Query: (objectClass=person)
  - User Name: Name of LDAP user with read credentials

For more information, see Sonus Documentation Portal for the latest Sonus SBC-1000/2000 documentation.

Creating Transformation Tables

The following 3 types of transformation tables must be created:

- Transformation Table "CCE to DECT"
- Transformation Table "DECT to CCE"
- Transformation Table "DECT to DECT"

To Create a Transformation Table "CCE to DECT"

Add a transformation table "CCE to DECT" with these rules:

1. A rule to transform the local numbers with fake prefix to E.164 format:
   - Description: Transform fake prefix
   - Match type: Optional
   - Input Field Type: Called Address/Number
   - Input Field Value: ^\+999(1\d{3})$
   - Output Field Type: Called Address/Number
   - Output Field Value: +457628\1
2. A rule to match local numbers in E.164 format:
   - Description: Match local numbers
   - Match type: Optional
   - Input Field Type: Called Address/Number
   - Input Field Value: ^(\+4576281\d{3})$
   - Output Field Type: Called Address/Number
   - Output Field Value: \1
3. A rule to find the calling parting in the AD:
   - Description: AD Lookup
   - Match type: Mandatory
   - Input Field Type: Calling Address/Number
   - Input Field Value: =telephoneNumber=
   - Output Field Type: Calling Address/Number
   - Output Field Value: =telephoneNumber=

4. A rule to insert calling party name:
   - Description: Insert displayName
   - Match type: Optional
   - Input Field Type: Calling Name
   - Input Field Value: .*
   - Output Field Type: Calling Name
   - Output Field Value: =displayName=

To Create a Transformation Table "DECT to CCE"

Add a transformation table "DECT to CCE" with these rules:

1. A rule to convert to E.164 format:
   - Description: Convert to E.164
   - Match type: Mandatory
   - Input Field Type: Called Address/Number
   - Input Field Value: ^(1\d{3}.*)$
   - Output Field Type: Called Address/Number
   - Output Field Value: +457628\1
2. A rule to check is destination is CCE:
   - Description: Convert to E.164
   - Match type: Mandatory
   - Input Field Type: Called Address/Number
   - Input Field Value: =telephoneNumber=
   - Output Field Type: Called Address/Number
   - Output Field Value: =telephoneNumber=

To Create a Transformation Table "DECT to DECT"

Add a transformation table "DECT to DECT" with this rule:

1. A rule to convert to E.164 format:
   - Description: Convert to E.164
   - Match type: Mandatory
   - Input Field Type: Called Address/Number
   - Input Field Value: ^(1\d{3})$
   - Output Field Type: Called Address/Number
   - Output Field Value: +457628\1

Creating Call Routing Tables

The following 2 types of call routing tables must be added:

- Call Routing Table entry named "From DECT"
- Call Routing Table entry named "From CCE"

Creating Signaling Goups

The following 2 types of signaling groups must be added:

- SIP Signaling Group named "DECT"
- SIP Signaling Group named "CCE"

To Add IP Signaling Group named "DECT"

- Description: "DECT"
- Call Routing Table: "From DECT"
- SIP Mode: Local Registrar
- Registrar: "DECT Endpoints"
- Federated IP: Hostname / IP address of DECT server

To Add SIP Signaling Group named "CCE"

- Description: "CCE"
- Call Routing Table: "From CCE"
- SIP Server Table: "CCE Server"

Populating Call Routing Tables

Call Routing Table entry named "From DECT"

Add these entries to the Call Routing Table entry named "From DECT":

1. A route from DECT to CCE:
   - Description: "To CCE"
   - Transformation Table: "DECT to CCE"
   - Destination Signaling Groups: CCE
2. A route from DECT to DECT:
   - Description: "To DECT"
   - Transformation Table: "DECT to DECT"
   - Destination Signaling Groups: DECT

Call Routing Table entry named "From CCE"

Add these entries to the Call Routing Table entry named "From CCE" with this entry:

1. A route from CCE to DECT:
   - Description: "To DECT"
   - Transformation Table: "CCE to DECT"
   - Destination Signaling Groups: DECT

Spectralink IP-DECT/DECT/Virtual IP-DECT Server

Below is a description of how to configure the Spectralink IP-DECT/DECT/Virtual IP-DECT Server and how to add users to the system.

Configuring the Spectralink IP-DECT/DECT/Virtual IP-DECT Server

SIP settings

The Spectralink IP-DECT/DECT/Virtual IP-DECT Server requires a few SIP settings to be adjusted in order to connect properly to the Sonus SBC-1000/2000.

Note:

SIP settings not mentioned below should be left at their default values.

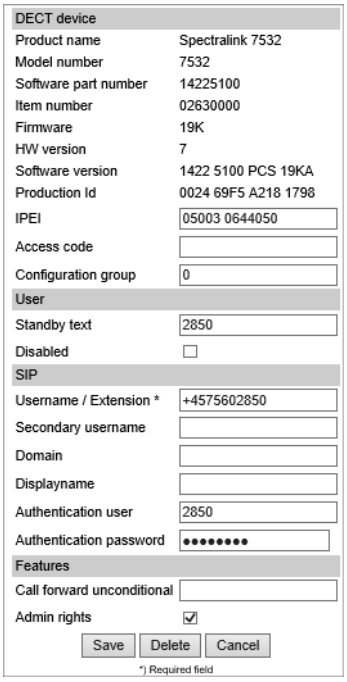
To modify the SIP settings from the web based Administration Page:

1. Click **Configuration**, and then click **SIP**.
2. Modify the settings below.

Field	Setting
SIP Configuration - General	
Transport	Select **UDP**.
Default domain	Enter the IP address/hostname of the Sonus SBC-1000/2000. E.g.: hor-rd-sonus.spectralink.com

Adding Users

It is necessary to add users to the Spectralink IP-DECT/DECT/Virtual IP-DECT Server using E.164 numbers as the user name. E.g. +4575602850 or +441344206591.



For more information about adding users, see either the IP-DECT Server 200/400/6500 and Virtual IP-DECT Server One Installation and Configuration Guide and/or Provisioning Guide.