Spectralink 84-Series Feature Phones

Interoperability Guide

Ribbon Sonus SBC 1000/2000

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Chapter 1: About This Guide

This guide describes how to configure a Spectralink 84-Series feature phone for connecting to Microsoft Teams using a Ribbon Sonus SBC-1000/2000.

This guide is intended for qualified technicians and the reader is assumed to have a basic knowledge about the Spectralink 84-Series feature phones, Microsoft Teams and Ribbon Sonus SBC-1000/2000. It is also assumed, that you have an installed and functioning Microsoft Teams, Ribbon Sonus SBC-1000/2000 and Spectralink 84-Series feature phone.

The guide is divided into two parts:

- Ribbon Sonus SBC-1000/2000
- Spectralink 84-Series

Each part describes the general configuration and the user administration.

Admin Tip

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, Microsoft Teams 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 MS Team and basic setup of the Sonus SBC-1000/2000 are also not covered. For more information about these tasks, see the relevant Microsoft and Sonus documentation.

Related Documentation

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

Microsoft Teams	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 84-Series Feature phones	For more information about the feature phone, refer to the 84-Series User 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, bugfixes, outstanding issues, and hardware compatibility considerations for new software releases. Available online at http://support.spectralink.com/products.
Spectralink Training material	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: Introduction

Feature List

The following features are supported:

	Supported features
Telephony	Basic calling Call hold from 8400 Call transfer Blind Call waiting Call forward on No Answer and Always
User experience	Centralized phone book via Active Directory and LDAP
Voice Quality	Codecs: G.711, G.722, G.729
Value added Spectralink features	Rich APIs for third-party solutions integration Instant Messaging / Personal Alarm Real Time Location Services (RTLS) (required third party solution)

Prerequisites

The following must be configured/installed:

- Microsoft Office 365 Enterprise subscription with Phone System enabled.
  For more information, see MS Teams documentation.
- LDAP access to an Active Directory hosting the users and credentials for a user with read access.

Limitations

Admin Tip

This setup requires that all users present in the AD have logged in using the MS Team Client and configured simultaneous ringing to their 84-Series feature phone to do proper call routing.

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

Integration Sequence

The basic 84-Series feature phone and Sonus SBC-1000/2000 integration consists of the following steps:

1 General configuration
  For more information, see General Setup.

2 Create Transformation Tables
For more information, see Creating Transformation Tables.

3 Create Call Routing Tables for calls originating from MS Teams and 84-Series feature phones.
For more information, see Create Call Routing Tables

4 Create Signaling Groups for MS Teams and 84-Series feature phones
For more information, see Create Signaling Groups.

5 Populate Call Routing Tables
For more information, see Populate Call Routing Tables.

Admin Tip

As MS Teams 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 an 84-Series feature phone and a MS Teams Client can receive calls on both endpoints, all MS Teams Clients must be configured for **Simultaneous Ringing** on the 84-Series feature phone. For more information about **Simultaneous Ringing**, see MS Teams Client documentation.

Admin Tip

Unfortunately, setting the user's own phone number as the destination of the Simultaneous Ringing will cause MS Teams to not route the call to the 84-Series feature 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.164prefix, e.g. +999.

When a call originates from an 84-Series feature phone, the Sonus SBC-1000/2000 will need to know if the call should be routed either:

- To a MS Team Client (and possibly also a 84-Series feature phone via Simultaneous Ringing)
- Directly to an 84-Series feature 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 the MS Teams environment
- Azure AD Domain Services is configured and has Secure LDAP enabled
- Local extensions are in the1xxx range
- E.164 numbers are in the +14251001xxx range
- Fake E.164 routing prefix is +999

Chapter 3: 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 a Local Registrar named "8400 Endpoints" (see **SIP**> **LocalRegistrars** menu)

Creating Transformation Tables

The following 3 types of transformation tables must be created:

- TransformationTable "MS Teams to 8400"
- TransformationTable "8400 to MS Teams"
- TransformationTable "8400 to 8400"

Create a Transformation Table "MS Teams to 8400"

Add a transformation table "MS Teams to 8400" with rules to match local numbers in E.164 format:

- Description: Match local numbers
- Match type: Optional
- Input Field Type: Called Address/Number
- Input Field Value: ^(\+14251001\d{3})$
- Output Field Type: called address/Number
- Output Field Value: \1

Create a Transformation Table "8400 to MS Teams"

1. Add a transformation table "8400 to MS Teams" with rules convert to E.164 format:
   - Description: Convert to E.164
   - Match type: Optional
   - Input Field Type: Called Address/Number
   - Input Field Value: ^(1.[7-9]\d{1})
   - Output Field Type: Called address/Number
   - Output Field Value: +1425100\1

Create a Transformation Table "8400 to 8400"

2 Add a transformation table "8400 to 8400" with rules to convert to E.164 format:
   - Description: Convert to E.164
   - Match type: Optional
   - Input Field Type: Called Address/Number
   - Input Field Value: ^(1.[0-6]\d{1})
   - Output Field Type: Called Address/Number
   - Output Field Value: +1425100\1

Create Call Routing Tables

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

- Call Routing Table entry named "From 8400"
- Call Routing Table entry named "From MS Teams"

Create Signaling Groups

The following signaling group must be added:

- SIP Signaling Group named "8400"

Add SIP Signaling Group named "8400"

- Description: "8400"
- Call Routing Table: "From 8400"
- SIP Mode: Local Registrar
- Registrar: "8400 Endpoints"

Populate Call Routing Tables

Call Routing Table entry named "From 8400"

Add these entries to the Call Routing Table entry named "Spectralink: From 8400":

1 A route from 8400 to MS Teams:
   - Description: "To MS Teams"
   - Transformation Table: "8400 to MS Teams"
   - Destination Signaling Groups: MS Teams

2. A route from 8400 to 8400:
    - Description: "8400 to 8400"
    - Transformation Table: "8400 to 8400"
      Destination Signaling Groups: 8400

Call Routing Table entry named "From MS Teams"

Add these entries to the Call Routing Table entry named "From MS Teams" with his entry:

1. A route from MS Teams to 8400:
    - Description: "To 8400"
    - Transformation Table: "MS Teams to 8400"
    - Destination Signaling Groups: “8400”

Chapter 4: Spectralink 84-Series Config Files

Enable the interop features on the 84-Series provisioning server by updating each phone's configuration file(s).

Note

Settings not mentioned below should be left at their default values.

Below is a description of how to perform a setup of the 84-Series config files:

site.cfg

```
reg.1.server.1.address="172.29.198.30"
reg.1.server.1.port="5060"
dialplan.removeEndOfDial="1"
dialplan.digitmap="x.T"
```

[MAC]-ext.cfg

```
reg.1.address="+14251001020"
```

*These settings refer to SIP register without digest authentication. For other Spectralink 84-Series features, please refer to the *Spectralink 84-Series Wireless Telephone Administration Guide* available on the Spectralink support site at http://support.spectralink.com/products/wi-fi/spectralink-84-series-wireless-telephone.

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