broadsoft

COMMUNICATOR

UC-One Add-in for Microsoft S4B

Product Guide

Release 22.0.0

Document Version 1

BroadSoft ® Guide

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Document Revision History

Release	Version	Reason for Change	Date	Author
21.1.0	1	Created document.	January 29, 2015	Veli-Pekka Heinonen
21.1.0	1	Edited and published document.	March 31, 2015	Joan Renaud
21.2.0	1	Changed Lync product name to S4B throughout the document. Corrected menu item texts. Added new registry value for S4B. Updated known issues and test list. Made editorial updates. Corrected registry path for Lync 2013.	May 19, 2015	Veli-Pekka Heinonen
21.2.0	1	Edited changes and published document.	June 25, 2015	Joan Renaud
21.3.0	1	Changed application name and added text about Internet Explorer.	October 29, 2015	Veli-Pekka Heinonen
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21.5.0	1	Updated text for S4B version 2016. Added note about default call type. Updated IOT test results.	April 29, 2016	Veli-Pekka Heinonen
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22.0.0	1	Added notes and revised IOP section.	February 3, 2017	Veli-Pekka Heinonen
22.0.0	1	Edited changes and published document.	March 31, 2017	Joan Renaud

Table of Contents

1 Summary of Changes

This section describes the changes to this document for each release and document version.

1.1 Changes for Release 22.0.0, Document Version 1

This version of the document includes the following changes:

- Revised IOP and known issues list.
- Added auto-showing of dial pad.
- Added note about standard HID.

1.2 Changes for Release 21.6.0, Document Version 1

This version of the document includes the following changes:

- Added table about supported branding parameters with S4B integration.
- Updated test results and known issues.

1.3 Changes for Release 21.5.0, Document Version 1

This version of the document includes the following changes:

- Updated text for S4B versions: S4B 2016.
- Added note about default call type.
- Updated IOT test results.

1.4 Changes for Release 21.4.0, Document Version 1

This version of the document includes the following changes:

- Updated IOT test results.
- Added a note about new configuration parameters.

1.5 Changes for Release 21.3.0, Document Version 1

This version of the document includes the following changes:

- Updated application name and document template.
- Modified text about Internet Explorer usage.

1.6 Changes for Release 21.2.0, Document Version 1

This version of the document includes the following changes:

- Updated with S4B references.
- Added Windows 10.
- Added a new Windows registry value for S4B.
- Modified known issues list.
- Corrected menu text error.
- Updated tests.

- Updated registry path for Lync 2013.

- Made editorial updates.

1.7 Changes for Release 21.1.0, Document Version 1

This version of the document includes the following change:

- Created document for this release.

2   Overview

The UC-One Add-in for Microsoft Skype for Business (S4B) is a client-side add-in that enables calling a phone number using "Call from Phone" or "VoIP from S4B" through Communicator.

Communicator listens to all calls made in S4B and intercepts those that are made to a phone number. In addition, it can be configured to also intercept failing S4B-to-S4B calls.

There is a separate S4B-enabled reference client available on Xchange for download as well as a reference client without S4B enabled. The S4B version of the reference client has slightly different branding.

Instant messaging, presence, desktop sharing, and S4B-to-S4B calling typically stay in S4B. Non-S4B calls use BroadWorks with Communicator as the add-in front end.

Configuration of the add-in is done through the branding process and through the main configuration file. The standard Communicator installation is used with the addition of a single registry setting.

The add-in integrates directly with Microsoft S4B and relies on the built-in integration between S4B and other Microsoft products. If S4B displays a calling option in a Microsoft product and that call goes through S4B, then the add-in is able to send the call through Communicator.

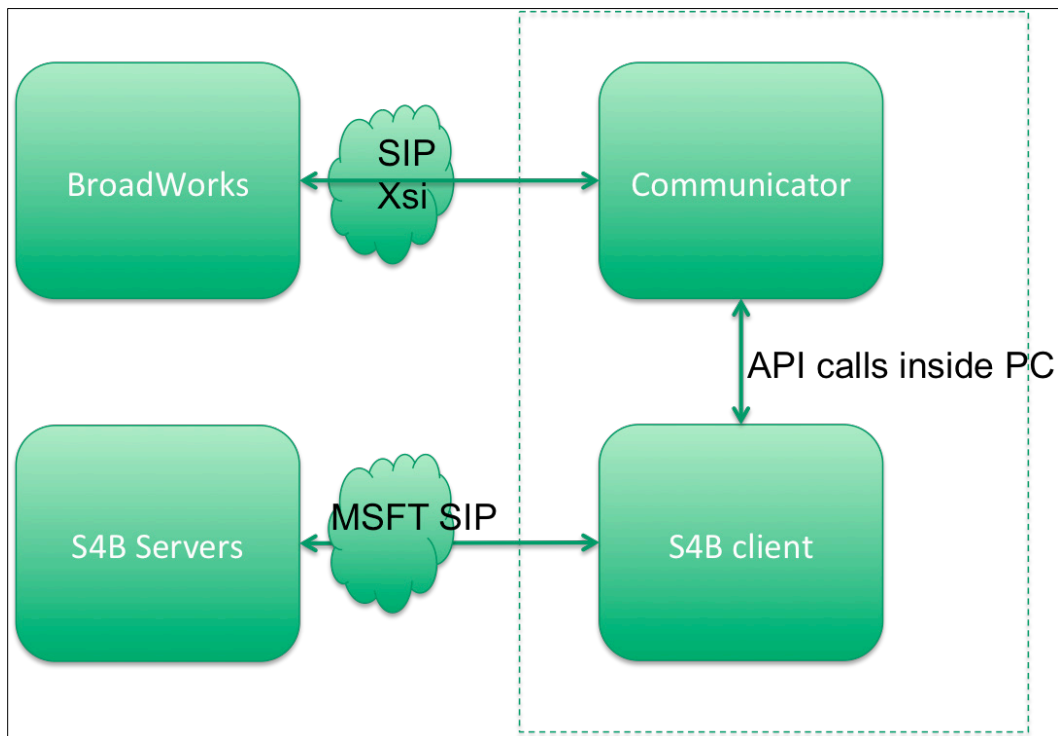The following figure depicts the high-level network architecture.

Figure 1 High-level Network Architecture

Communicator communicates with S4B over a C/C++ API. The following figure provides the technical architecture overview.
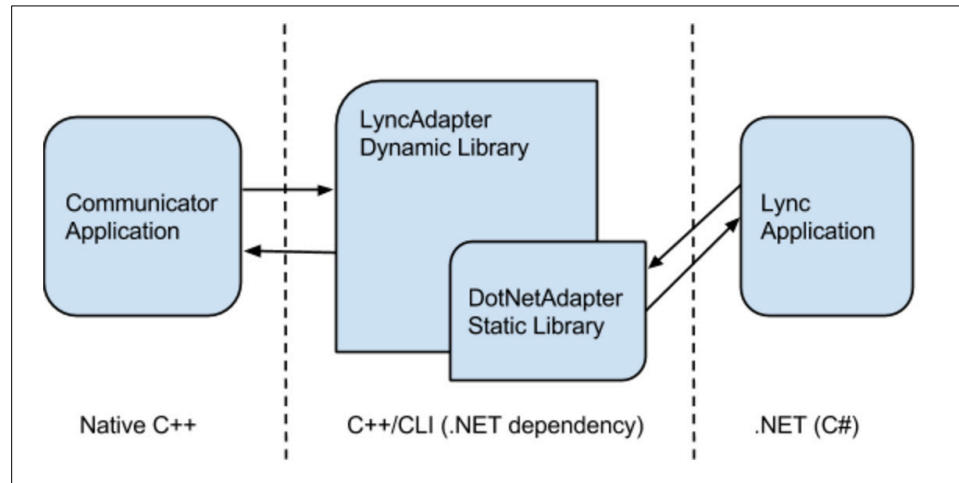

Figure 2 Technical Architecture Overview

2.1 Supported Features

The following features are supported by the UC-One Add-in for Microsoft S4B:

- Installing Add-in with Communicator installer.
- Updating Add-in using Communicator installer.
- Authenticating towards BroadWorks in standard Communicator login window.
- Calling S4B contacts using a phone number.
- Auto-showing Communicator dial pad when calling from S4B.
- Calling a new number in S4B.
- Built-in S4B integration with other Microsoft products such as Outlook, SharePoint, Office, and Internet Explorer.
- Calling any tel: link using S4B add-in (based on built-in S4B functionality, only tel: format is supported).
- Calling from any application (requires Lync Select Dial add-in).
- Calling from phone (over Xtended Services Interface [Xsi]).
- Calling with VoIP (over Session Initiation Protocol [SIP]).
- Escalating audio calls to video.
- Communicator call status reported to S4B so *Busy In Call* presence can be shown (does not require Extensible Messaging and Presence Protocol [XMPP] to be enabled on the Communicator side).
- Placing a Video call (when the default is set to "video" by the end user in the Windows task bar Communicator icon).
- Default call type selection.

Xtended Services Interface, VoIP, and video calling are available through the UC-One license and can be disabled through configuration.

Call settings and usual call management features of Communicator-initiated calls such as call transfer are available independently of S4B integration. This functionality must be enabled via configuration. For more information, see the *Communicator for Desktop Configuration Guide*.

2.2 System and Software Version Requirements

Communicator system requirements are the same with or without the S4B add-in. For more information, see the *Communicator (Desktop, Mobile, and iOS and Android Tablet) Product Guide* or the *Communicator for Desktop User Guide*.

The following are additional requirements for the UC-One Add-in for S4B.

- Windows

  – Windows 7

  – Windows 8

  – Windows 8.1

  – Windows 10

- Lync/S4B

  – Lync 2010 32-bit

  – Lync 2013 Basic 32 and 64-bit

  – Lync 2013 Standard 32 and 64-bit

  – S4B 2015 32 and 64-bit

  – S4B 2016 32 and 64-bit

- Communicator 21.2.0 or later (21.4.0 is recommended)

- Windows administration rights (due to required registry entry)

Previously it was recommended to start S4B first and UC-One after so to avoid rare issues with standard HID audio devices when making calls; however, in this release these situations should be automatically handled by Communicator, disabling standard HID connector when S4B integration is used. Both UC-One and S4B must be started with the same Windows account to have functional communication between the two.

Furthermore, in PSTN calling scenarios, S4B may add a country code to numbers where it is not needed, making calls fail. In these situations, the S4B dialing plan can be reverted to the default plan using a PowerShell script. This will prevent the country code being added. For more information, see *Appendix A: S4B Dialing Plan Provisioning*.

3   BroadWorks Requirements

With the UC-One Add-in for S4B, there are no additional BroadWorks requirements on top of usual Communicator configuration. The *UC-One Solution Guide* provides information on solution-level BroadWorks configuration as well as instance licenses and version control. For more information on Device Management (DM) tags related to Communicator, see the *Communicator for Desktop Configuration Guide*.

Correct BroadWorks licenses must be installed to use respective Communicator features.

The following BroadWorks releases are supported with Communicator Desktop:

- 20/20.sp1
- 21/21.sp1
- 22/22.sp1

4 S4B Configuration

S4B configuration is outside of the scope of this document as it is expected that companies have configured and deployed, and now support S4B on their own. Called numbers that are not in SIP URI format in S4B use Communicator for calling.

However, the following items are to be considered if applicable:

■ S4B Click to Dial add-in must be activated to place calls from Internet Explorer:

Go to Internet Explorer, open *Tools → Manage Add-ons → Toolbars and Extensions,* and then enable the Skype for Business Click to Call.

In the Internet Explorer *Tools* menu, select Skype for Business Click to Call and check "Enable number detection" in the resulting dialog.

■ Call from any application with using F8: Support for this functionality is dependent on users installing S4B Select Dial (https://gallery.technet.microsoft.com/Lync-Copy-Dial-Just-Select-3c426244), which provides F8 functionality with S4B.

S4B call forwarding options are for S4B calls and cannot currently be removed.

5 Communicator Configuration and Branding

Due to the special deployment model where S4B still manages presence and chat as well as S4B-to-S4B calls, S4B integration is recommended to be used with the following general settings:

- XMPP: Disabled (Communicator as soft phone only) with one of the following calling options enabled in the Windows system tray menu:
  - Audio
  - Video call
  - Call from Phone
- Video: Enabled (can be disabled through configuration, if preferred)
- Contacts: Full directory disabled
- Call History using Xsi: Enabled
- Live Search: Disabled
- Communicator Outlook add-in MUST be disabled
- Auto show communications window: Enabled.

For more information on Communicator configuration, see the *Communicator for Desktop Configuration Guide*. The S4B add-in must be specifically enabled in the main configuration file. Additionally, when making a build of the Communicator installer, the S4B integration must be specified at the branding level for the installer.

Note that Communicator Release 21.3.3 and later have additional configuration parameters for intercepting failing S4B-to-S4B calls that must be used to avoid failing S4B call situations.

Also note that with S4B integration, some branding parameters are not possible. The following table depicts the dependencies. For more information on branding, see the *Communicator for Desktop Branding Guide*.

Branding Parameter	Dependency
outlook_plugin	Must be disabled with S4B integration.
add_std_hid_connector	Standard (std) HID cannot be used at the same time with S4B integration; however, Communicator should be able to automatically disable std HID when S4B is running.

6 Migration for Existing Lync/S4B Users

When existing S4B users start using the UC-One Add-in for S4B, the S4B user interface remains the same as before. The only exception is the dial pad that appears after installation (if it was not there before).

The calling experience is different in that when calling non-S4B numbers, the Communicator communication window appears.

If there are users with both S4B and UC-One running with full feature sets (not the intended setup), both should work. In this case, UC-One tries to have the same presence on both sides with a predefined mapping between S4B and UC-One presence states.

7 Interoperability Status

This section provides the known interoperability status of the UC-One Add-in for Microsoft S4B with BroadWorks. This includes the version(s) tested, capabilities supported, and known issues.

7.1 Verified Versions

The following table identifies the verified UC-One Add-in for Lync/S4B and BroadWorks versions. Testing was done in December 2016.

The following table lists specific UC-One Add-in for Lync/S4B versions that BroadSoft identified as compatible and should interface properly with BroadWorks. Contact BroadSoft Technical Assistance Center (TAC) for any questions concerning maintenance and compatible releases.

S4B	BroadWorks Release		
	20/20.sp1	21/21.sp1	22/22.sp1
Lync 2013	i	i	OK
Skype for Business 2015 32/64-bit	i	i	OK
Skype for Business 2016 32/64-bit	i	i	OK

i = Release lineup not tested..

7.2 Known Issues

The following known issues have been identified. In particular, in some environments, especially with S4B 2016, fast busy is intermittently heard from S4B client when making a PSTN call via Communicator due to Lync 2010 API timing issues.

Key	Summary
BTUC-14819	[TAC] Intermittent call failures with S4B client.
BTUC-13555	[TAC] Skype Integration problem with UC-One.
BTUC-8051	Communicator cannot add items to Lync call history (Lync limitation).
BTUC-7780	Lync presence occasionally does not revert to *Available* after terminating call (only applies if Communicator presence is enabled, cannot be fixed in Communicator).
BTUC-7859	[LYNC] Not able to start N-way call from Lync (out of scope).
BTUC-8001	UC-One GUI brought to foreground when placing a call from Lync (working as designed).
BTUC-7763	[LYNC] Calling bridge from Lync via Communicator is not working (not supported by Lync).
BTUC-7756	Handle conference calls/calling with more than one contact selected (out of scope).
BTUC-9973	Check if S4B is running before calls or at login when integration enabled.
BTUC-11379	Call-time-duration in active communication is not updated.
BTUC-11119	Adding phone numbers from Communicator to Lync (own) contact card.
BTUC-11118	UI indication for Lync-to-Communicator connection failure/success.

Key	Summary
BTUC-11076	Communication window is not automatically opened/raised up with UC-One Add-in for S4B if the UC-One main window has been minimized manually. This is an S4B limitation.
BTUC-11403	Changing presence from busy to offline is not allowed if Lync is running.
BTUC-13687	Lync Integration exit has race condition possibly causing crash on exit.
BTUC-13597	LyncController crashes when BTBC is logging in.

8   Installation

The Desktop client installation is performed by an installation wizard. The client is installed using either Nullsoft Scriptable Install System (NSIS) or Windows MSI installer. The installation procedure is simple and does not require the user to select many options.

For more information on Communicator installation, see the *Communicator for Desktop Configuration Guide*. Note that the S4B Add-in installation requires administration rights due to the need to add a registry entry. The following table describes the required Windows registry modifications.

Registry Key	Registry Entry	Type	Value
S4B 2015: HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Office\16.0\Lync	"TelephonyMode"	32-bit DWORD	1
Lync 2013: HKEY_LOCAL_MACHINE\SOFTWARE\Policies \Microsoft\Office\15.0\Lync	"TelephonyMode"	32-bit DWORD	1
Lync 2010: HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Communicator	"TelephonyMode"	32-bit DWORD	1
S4B 2015/2016 or Lync 2013 in 64 bit environment: SOFTWARE\Wow6432Node\Policies\Microsoft\Office\<16.0|15.0>\Lync\TelephonyMode	"TelephonyMode"	32-bit DWORD	1

The required Communicator library for the UC-One Add-in for Microsoft S4B is always part of the installer but can be disabled via configuration.

When S4B is enabled in branding or through the installer command line, the following operations are done at installation time:

- Check that the system has a valid version of the .NET framework installed.
- Attempt to write the necessary registry key values to enable the dial pad in S4B.

9 Branding

S4B integration can be supported via branding when making branded builds. For branding details, see the *Communicator for Desktop Branding Guide*. The branding parameter only affects the installer. For details on installation, see section *8 Installation*.

Note that in addition to the build time parameter to support the S4B Add-in in the Communicator installer, the S4B Add-in configuration parameter must also be enabled to use the feature.

10 Security

There are no additional security requirements for the UC-One Add-in for S4B.

11 Appendix A: S4B Dialing Plan Provisioning

In cases where S4B unnecessarily adds a country code in front of dialed numbers, this behavior can be prevented by using a PowerShell script to use the default dial plan instead.

This approach requires a S4B administrator with enough access rights to make these changes.

The administrator must install *SkypeOnlineConnector.exe*, which is a PowerShell tool for managing S4B settings on an Office365 environment. Similar settings should be usable in a non-cloud environment. Therefore, the local IT administrator should be able to do the same.

The following commands are for changing one account (your own with administrator rights):

```
Import-Module "C:\Program Files\Common Files\Skype for Business
Online\Modules\SkypeOnlineConnector\SkypeOnlineConnector.psd1"
$SecurePassword = "<password>" | ConvertTo-SecureString -AsPlainText -
Force
$credential = New-Object System.Management.Automation.PSCredential -
ArgumentList "<username>", $SecurePassword
$lyncsession = New-CsOnlineSession -Credential $credential
Import-PSSession $lyncsession
Get-CsOnlineUser | FL
Grant-CsDialPlan -Identity "sip:<username>" -PolicyName
"<dialplanpolicyname>"
Remove-PSSession $lyncsession
This script  has been successfully usedto change a test account from
"DefaultProfile" to "US", this made the account also add "+1" in front of
the dialled PSTN number.
Changing from "US" to "" brought the original behaviour back to the test
account (no +1 added in front of the dialled PSTN number).
Removing these location based rules (e.g. from "US" to "") can be done
using:
Grant-CsDialPlan -Identity "<sip-uri> -PolicyName ""
Notice: Exit of PowerShell is needed for changes to take effect.
```

All dialplans can be listed with comlet Get-CsDialPlan. New-CsDialPlan can be used to create a new plan. Then New-CsVoiceNormalizationRule can be used to generate a new rule as to what to append or not.

> **NOTE 1**: Change does take affect even with warnings and requires that you sign out from the session and sign back in to see the changes.
>
> **NOTE 2**: You must install the *SkypeOnlineConnector.exe,* which adds the module above script imports.