



Gateway for Skype for Business Server Enterprise Edition

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Introduction

This document explains the gateway for Skype for Business Server Enterprise Edition.

Intended audience

This document is intended for everyone that needs to use the telephony gateway for Skype for Business Server Enterprise Edition.

What you should know

The readers of this document should be familiar with the configuration of Skype for Business, Altitude vBox, and Management Portal.


Document structure


Section	Description
Skype for Business integration components (page 4)	Contains information about Skype for Business components.
Campaign scenarios (page 9)	Contains scenarios of campaigns with Skype for Business.
How to configure campaigns for Skype for Business (page 12)	Use Management Portal to configure campaign attributes depending on the campaign scenario.


Skype for Business integration components

Required components to integrate Altitude Xperience with Skype for Business.


An integration of Altitude Xperience with Altitude vBox and Skype for Business Enterprise Edition has the following components:


 **Telephony Gateway for Altitude vBox and Skype for Business Server**
Windows process included with Altitude uCI Server or Remote Gateway Server. The telephony gateway uses proprietary protocols to connect to Altitude vBox and to Altitude Skype for Business Agent Monitor.


 **Altitude Skype for Business Agent Monitor**
Windows process configured as a trusted Skype for Business application. Uses the Skype for Business Unified Communications Managed API (UCMA) to monitor and change the presence state of Skype for Business clients.


 **Altitude Skype for Business Manager**
Windows PowerShell script that must run under the Skype for Business Server Management Shell. Installs and configures the Altitude Skype for Business Agent Monitor.


Skype for Business Enterprise Edition includes the following components, among others:

 **Skype for Business (client)**
Microsoft Windows application, installed at each agent desktop. The Altitude Xperience telephony gateway uses the Skype for Business client as a phone.

 **Attention:** The Altitude Xperience telephony gateway only uses the Skype for Business client for voice, not for email or instant messaging.

 **Skype for Business Server Topology Builder**
Windows application used to configure the deployment of several Skype for Business server components, including Front End Pool, Mediation Pool, Trusted Application servers, and PSTN gateways.

 **Skype for Business Server Control Panel**
Web application used to associate Active Directory users to Skype for Business, set extension numbers, and define voice routing rules. Automatically installed on Front End Servers.

 **Skype for Business Server Management Shell**
Windows PowerShell command line interface with additional commands for Skype for Business administration. Part of the Administrative Tools package.


Guidelines to integrate Altitude vBox with Skype for Business

Altitude vBox requires at least two computers:

- One Altitude vBox core server
- One Altitude vBox media gateway.

For fault tolerance, Altitude vBox requires at least four computers:

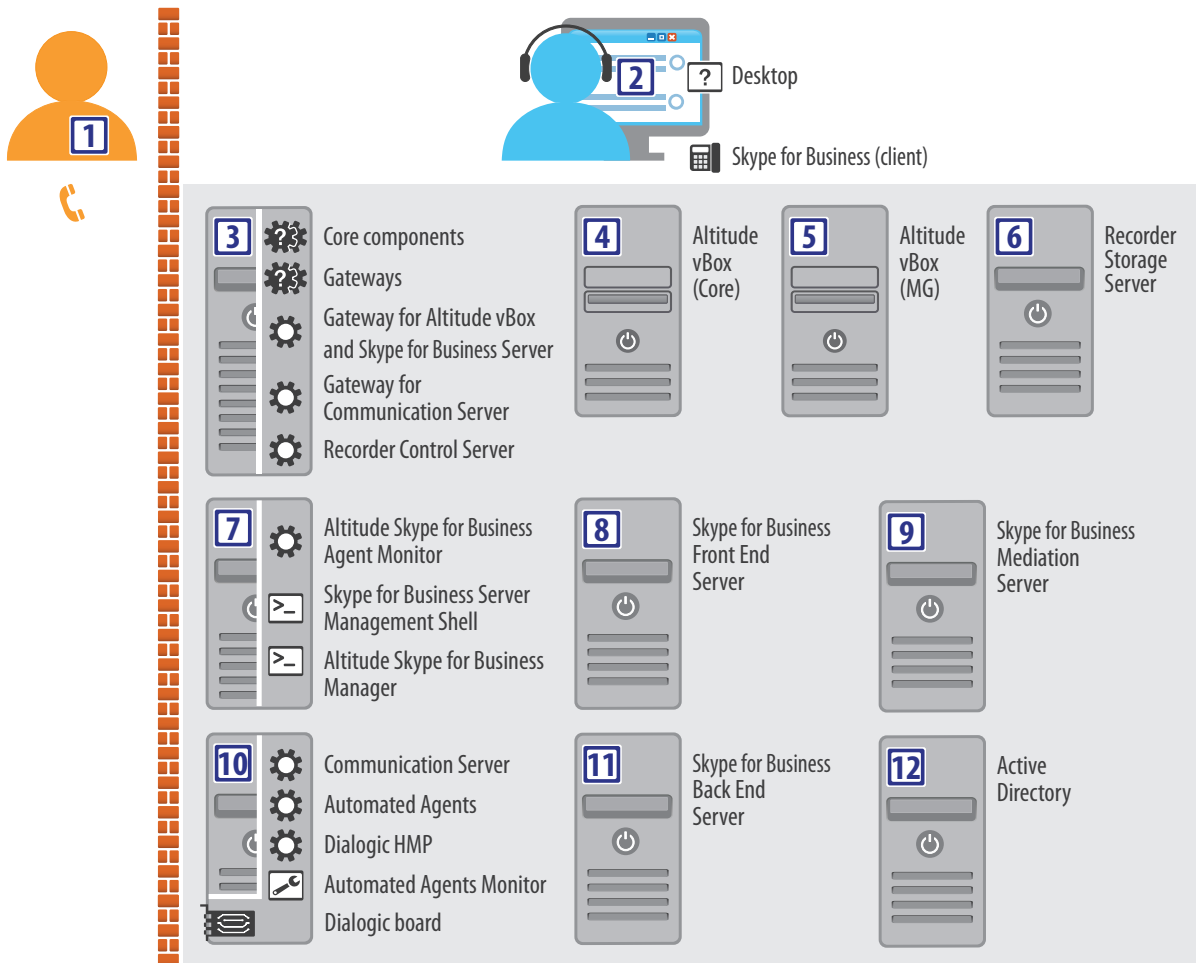
- Two Altitude vBox core servers
- Two Altitude vBox media gateways.

 **Note:** Altitude Xperience only supports Skype for Business on-premises, and not the online version.

Media scenario with Skype for Business components

The media scenario with Altitude vBox and Skype for Business has the following components:

1. Customers interact with the contact center through phone calls, using a phone or a computer.
2. Agent computers run a supported desktop application and run the Skype for Business client, configured as an extension in Altitude vBox.
3. Core servers run the core components and the Altitude Xperience gateways.
4. The Altitude vBox core servers provide inbound routing, outbound dialing, and recording functionality for agent extensions on Skype for Business.
5. The Altitude vBox media gateways connect to Skype for Business Mediation Servers.
6. The optional Altitude Recorder Storage Server stores audio recordings.
7. The Altitude Skype for Business Agent Monitor computer monitors the presence state of agents in Skype for Business. The computer is configured as a Skype for Business trusted application server.
8. The Skype for Business Front End Server computers provide service for Skype for Business clients, including authentication, registration, and presence. Front End Server computers are aggregated into a logical Front End Pool.
9. The Skype for Business Mediation Server computers transport voice calls between Skype for Business servers and clients and other systems, including Altitude vBox. Mediation Server computers are aggregated into a logical Mediation Pool.
10. The optional Communication Server uses a SIP trunk to connect to Altitude vBox. The Communication Server provides IVR extensions and improved machine detection for outbound calls placed using Dialogic HMP. Automated Agents run the following scripts:
 - IVR scripts for IVR extensions on Communication Server.
 - Routing scripts for intelligent routing of calls, emails, instant messages, and automated workflow tasks.
11. The Skype for Business Back End Servers store data for Skype for Business Front End Servers. Back End Servers can use replication for reliability.
12. Active Directory computers provide directory services.



Skype for Business trunks

Skype for Business connects to an Altitude vBox infrastructure as follows:

SIP (PSTN)

Skype for Business Mediation Server computers connect to the public network through SIP trunks.

SIP (MG)

Each Altitude vBox media gateway computer is paired with a Skype for Business Mediation Server computer through a SIP trunk over TCP. Only the G.711 codec is supported.

- For inbound calls, Skype for Business randomly selects one of the Altitude vBox media gateways (Skype for Business PSTN gateways).
- For outbound calls, Altitude vBox selects one of the trunks through least cost routing.

SIP (Core)

Altitude vBox core servers connect to Skype for Business clients through Skype for Business Mediation Servers. You must manually distribute Altitude vBox extensions (corresponding to Skype for Business clients) through the Skype for Business Mediation Servers.

SIP+SSH

Altitude vBox computers connect among themselves through SIP trunks and auxiliary SSH connections.

REC

Altitude vBox computers send recorded call segments to the Altitude Recorder Storage Server. To play recordings, the Altitude uCI Server connects to the Recorder Storage Server.

SIP (CC)

Altitude vBox media gateways use SIP trunks to Communication Server to transfer predictive calls placed by the Communication Server. Use the G.711 codec to avoid transcoding at Altitude vBox.

SIP (IVR)

Altitude vBox core servers use SIP trunks to Communication Server to receive transferred IVR calls. Use the G.711 codec to avoid transcoding at Altitude vBox.

SIP/ISDN

For improved call classification of outbound calls, the Communication Server can connect directly to the public network, through a SIP or ISDN trunk.

MRCPv2

The Communication Server connects to a third-party provider of automatic speech recognition (ASR) or text-to-speech (TTS) services using the Media Resource Control Protocol version 2 (MRCPv2).

UCMA

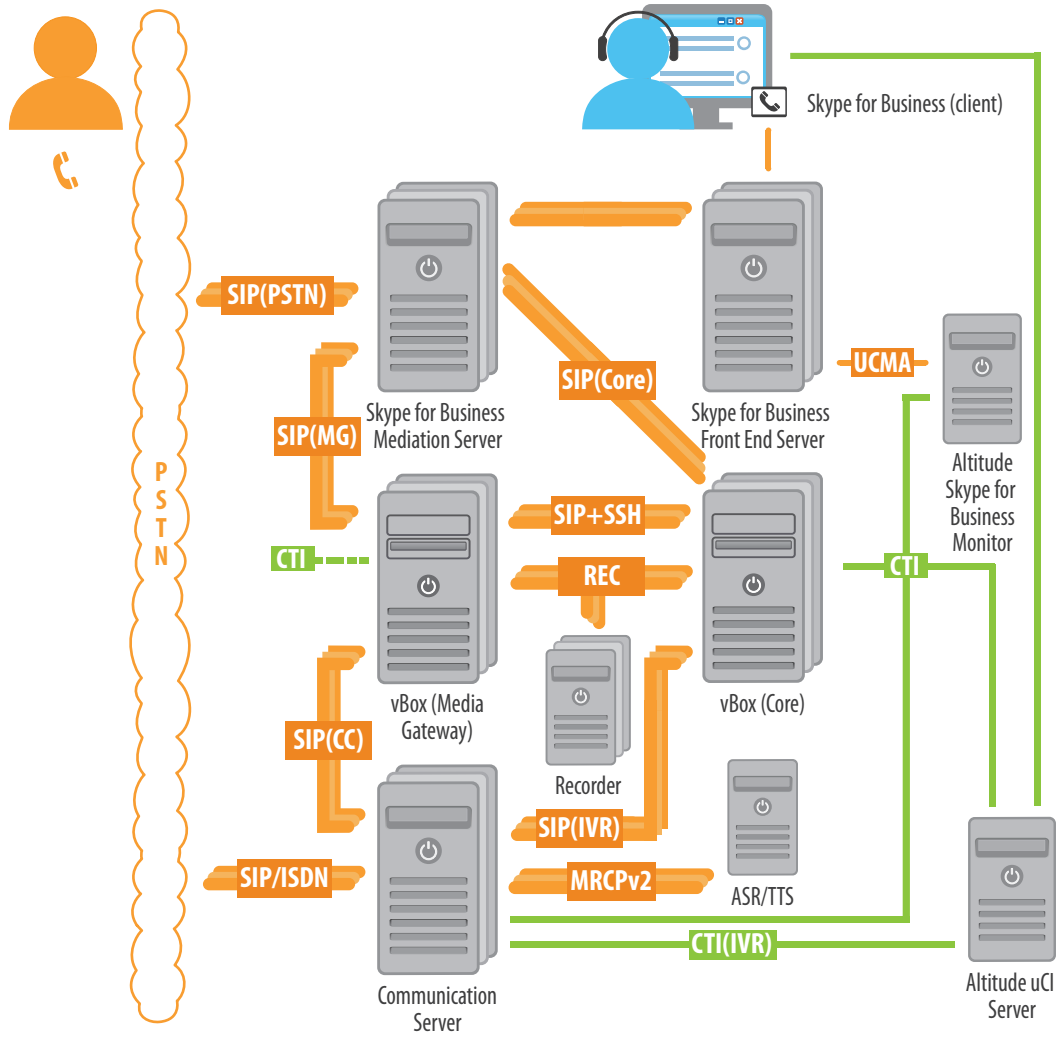
The Altitude Skype for Business Agent Monitor monitors the presence state of Skype for Business clients through the Unified Communications Managed API (UCMA).

CTI

The Altitude Xperience telephony gateway for Altitude vBox and Skype for Business Server connects to Altitude Skype for Business Agent Monitor, to all Altitude vBox computers, and to Communication Server (to place predictive calls).

CTI (IVR)

The Altitude Xperience telephony gateway for Communication Server connects to Communication Server for IVR functionality.



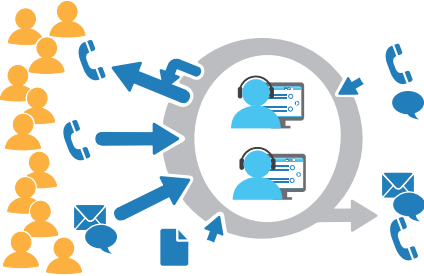









Campaign scenarios

Sample scenarios of campaigns for the different types of interactions.

Agent campaigns with Skype for Business client

The scenario has agents with Skype for Business client (used only for voice).

The scenario supports agent campaigns handling the following combination of interactions:

- 
-  Outbound calls placed from agent extensions, including power dial.
 -  Predictive calls placed from the predictive dialing device of Altitude vBox.
 -  Predictive calls placed from call classifier devices in Communication Server.
 -  Inbound calls queued at a routing point and distributed to agent extensions by default routing. The Altitude Xperience telephony gateway uses the number of the queued routing point to determine the campaign of inbound calls.
 -  Inbound emails and inbound instant messages. Email and instant messages are handled through Altitude Xperience gateways, and not through Skype for Business.
 -  Preview interactions and agent workflow tasks.
 -  Calls enqueued by IVR and routing campaigns. Instant messages enqueued by routing campaigns.
 -  Transfer emails and instant messages to other campaigns.
 -  Transfer calls to internal devices or to external numbers.

Requirements

The scenario requires the following media components:

- Skype for Business Front End server pool
- Skype for Business Mediation server pool
- Skype for Business Back End server
- Active Directory
- Altitude vBox core servers
- Altitude vBox media gateways
- Skype for Business clients for agent desktops
- Altitude Skype for Business Agent Monitor
- Altitude Xperience telephony gateway for Altitude vBox and Skype for Business Server.

Predictive dial with Communication Server requires the following additional components and trunks:

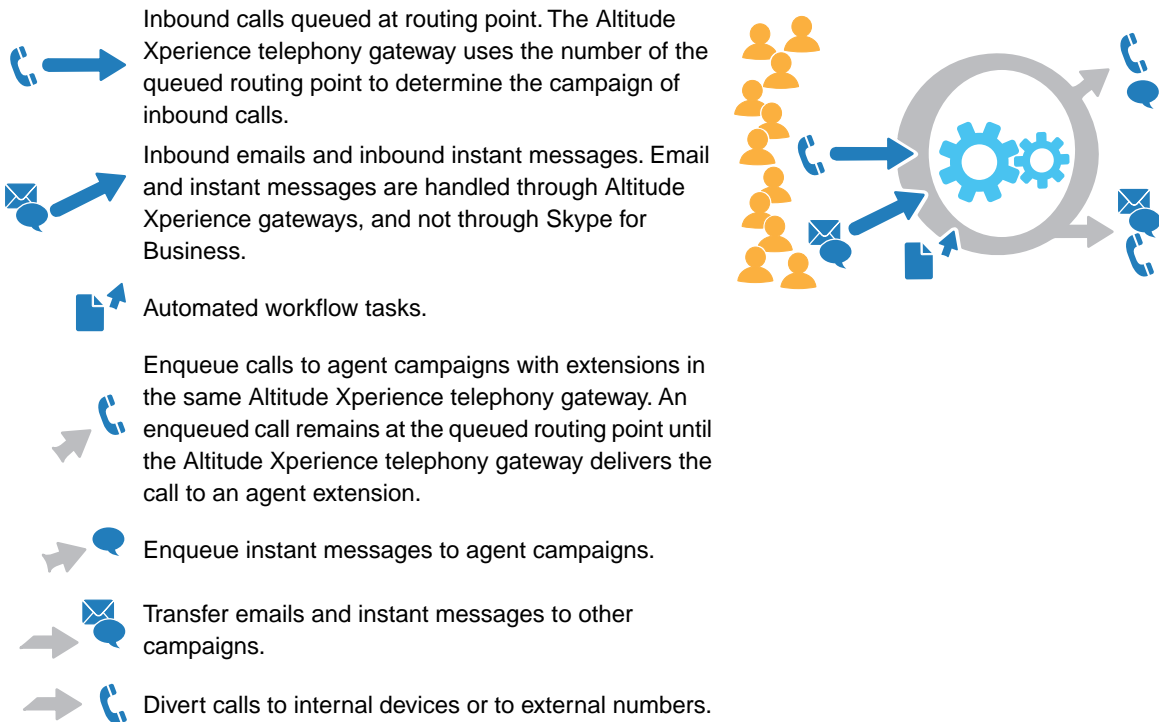
- Communication Server

- For Dialogic classification, Dialogic SR/HMP
- SIP trunk between the Altitude vBox and Communication Server.

Routing campaigns with Altitude vBox

The scenario has Automated Agents with Altitude vBox to route calls, emails, and instant messages.

The scenario supports routing campaigns handling the following combination of interactions:



Requirements

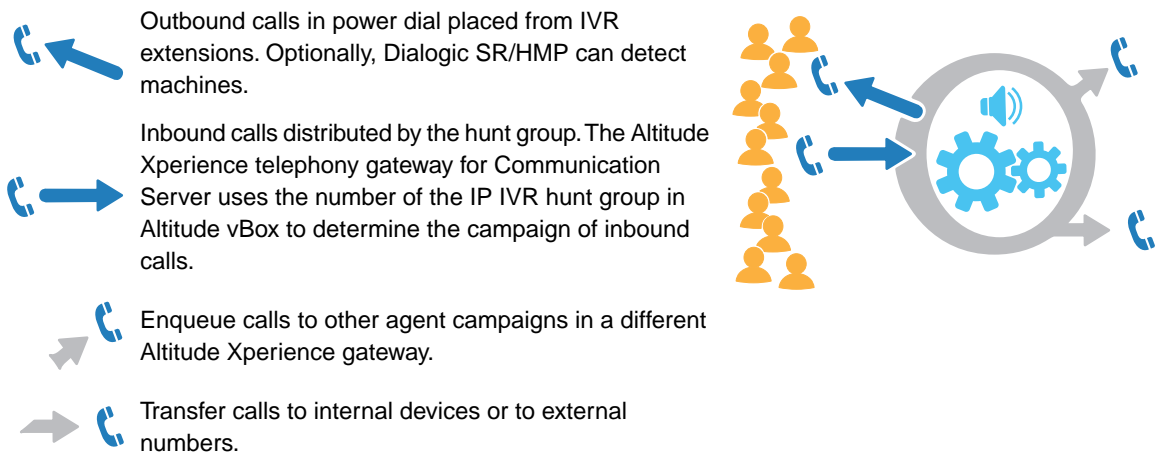
The scenario requires the following media components:

- Altitude vBox core servers
- Altitude vBox media gateways
- Automated Agents
- Routing script
- Altitude Xperience telephony gateway for Altitude vBox and Skype for Business Server.

IVR campaigns with Communication Server

The scenario has an Altitude vBox SIP trunk to Communication Server that provides inbound and outbound IVR extensions.

The scenario supports IVR campaigns handling the following combination of interactions:



Requirements

The scenario requires the following media components and trunks:

- Communication Server
- Automated Agents
- IVR script
- SIP trunk between the Altitude vBox and Communication Server
- Altitude Xperience telephony gateway for Communication Server
- For machine detection in IVR power dial calls, Dialogic SR/HMP.

How to configure campaigns for Skype for Business

Use Management Portal to configure campaign attributes depending on the campaign scenario.

The following configuration tables display the configurations specific to Skype for Business for the supported campaign scenarios:

Skype for Business client
Agent campaigns with Skype for Business client.

Routing
Routing campaigns with Altitude vBox.

To configure Altitude Xperience for the supported campaign scenarios, use the following table to retrieve the required configuration data from the Altitude vBox and Skype for Business:

Altitude vBox configuration	Skype for Business client	Routing
Extension numbers	Required	-
Queued routing point number	For inbound	Required

Altitude Xperience telephony gateway

On the Altitude Xperience telephony gateway, configure the following:

- IP address of two Altitude vBox core servers.
- IP address of the Altitude Skype for Business Agent Monitor.
- CTI gateway user and password as defined on Altitude vBox Management.
- Agent extensions.
- Routing points, for inbound campaigns.
- Call classifiers, for predictive dial with Communication Server.

The Altitude Xperience telephony gateway does not use virtual extensions.

Agent extensions	Skype for Business client	Routing
From, To	Altitude vBox extension range	-
Extension type	Skype for Business Server	-

Routing points	Skype for Business client	Routing
From, To	Altitude vBox queued routing point number	Altitude vBox queued routing point number
Type	Queued	Queued
Synchronize voice data	Disable	Disable

Call classifiers	Skype for Business client	Routing
Address	TCP/IP address of Communication Server	-
Device	Call classifier device number	-
Dialing prefix	Communication Server prefix of outbound rule for agent delivery	-
ANI prefix	Blank	-

Agents

Configure Altitude Xperience agents to work on agent campaigns and IVR campaigns as follows:

Properties	Skype for Business client	Routing
Default extension	Optional	-
Switch agent ID	Blank	-

Campaign telephony gateways

Configure an Altitude Xperience campaign telephony gateway for each campaign that handles calls on Skype for Business as follows:

Inbound	Skype for Business client	Routing
DNIS (for inbound)	Queued routing point	Queued routing point
Mapping group (for inbound)	Blank	Blank
Monitored devices	Empty	Empty

Strategy center skill profiles

Configure the interaction skill profiles of the campaigns using strategy center skill profiles as follows:

Skill profile list	Skype for Business client	Routing
Login group	Blank	-
Native predictive device	Blank	-

Copyright

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