



Administrator Guide

GlobalMeet for Skype for Business Server
May 2018



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Introduction

Thank you for choosing PGI and GlobalMeet Audio as your Skype for Business audio conferencing provider.

GlobalMeet Audio for Skype for Business Server (GMSS) is an integrated solution that brings superior voice quality to every Skype meeting. It allows your Skype for Business users to join online meetings and conferences from any desk or mobile phone.

This guide explains the GMSS solution, details system and environment requirements, and provides installation instructions.

Supported Software

GMSS supports the following Microsoft communications platforms:

- Skype for Business Server
- Lync 2013 Server
- Any supported operating system for Skype / Lync Server
- Microsoft Office 2013, and 2016 – including Click to Run builds from Office 365
- Microsoft Office 2016 x64bit
- Lync 2013 or Skype for Business client

Intended Audience

This document is intended for IT and network personnel. It is not an end user document.

About GMSS

The GlobalMeet for Skype for Business Server solution (GMSS) allows PGI to integrate its core audio conference service to an on-premise Skype for Business / Lync 2013 infrastructure.

Key Customer Requirements

The GMSS solution addresses these key customer requirements:

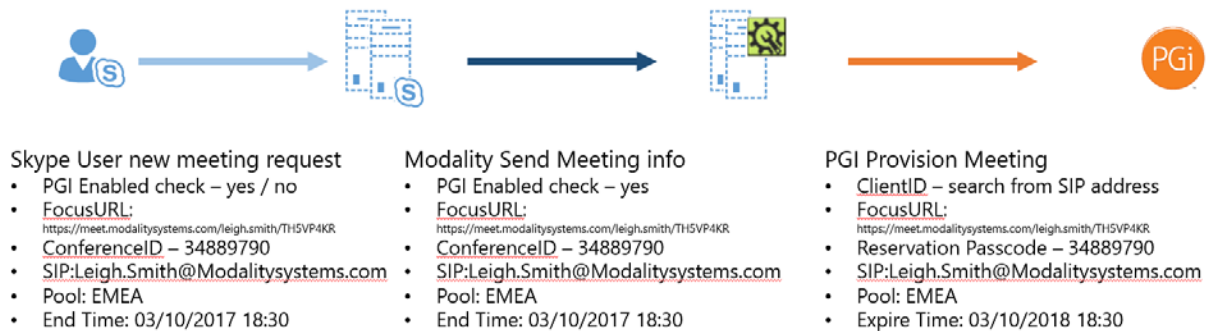
- Native Skype / Lync client experience with support for Office 2013 and 2016
- Support for key user scenarios:
 - > Public meetings
 - > Private meetings
 - > MeetNow Sessions
 - > Delegation
- Support for any location booking:
 - > Outlook
 - > Web
 - > Mobile
- Support for key meeting features:
 - > Call out
 - > Mute
 - > Mute All
 - > Active Speaker
 - > Participant list (with caller ID)
 - > Remove Participant
- High resiliency in the solution:
 - > No single server failure
 - > Minimised impact to current Skype infrastructure
- Speed of delivery:
 - > Ideally should be minimal risk to trial
 - > Implementation costs and times are minimised
- Flexibility on consumption
- No solution-specific dependencies on a customer infrastructure
- Supports a hybrid model of native Skype functions as well as the extended PGI core capability

General Approach

The GMSS solution addresses these requirements by utilising Skype as the source and control for all meeting-related activities. The solution is split up into two areas: Meeting Provision and Meeting Join.

Meeting Provision

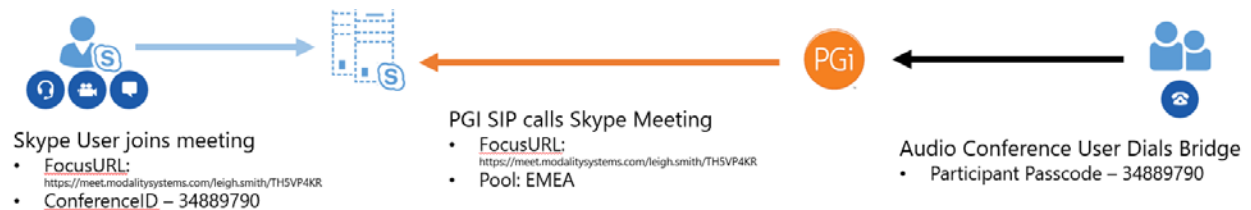
Meeting creation (Public, Private, MeetNow) is all handled by Skype for Business / Lync 2013. The user requests a meeting and GMSS will extract the information from the Skype server front-end. This information is then transmitted to a collection service within the PGI core infrastructure. The collector will then provision the meeting on the PGI core infrastructure.



The collector is also responsible for elements of de-dupe of messages (i.e., not sending repeated requests for the static public bridge info) and can form part of the user provisioning process.

Meeting Join

Once a meeting is provisioned, Skype is ready to receive the VoIP Skype clients and PGI is ready to receive the PSTN audio connections. The conference bridge is configured in such a way that any caller into the conference bridge will start the process of barbell.



PGI will establish an outbound connection to the Skype meeting (using the meeting information provided by GMSS). This outbound connection will contain a single combined audio feed and then a SIP signaling feed per caller.

Advantages of this Approach

While a simplified overview, the advantages of this approach over other solutions in the market is summarised below:

- **Front-end only components.** Outside of a front-end software, there are no infrastructure requirements on a customer site
- **Simplified communications.** The information we are extracting from Skype / Lync is a one-way extract – impact is minimised to the front end.
 - > Meeting status updates are controlled by Skype / Lync.
 - > Meeting information is standardised (SIP Client messages) – as such, Server updates / client updates are unlikely to have a serious impact on our solution.
- **Flexible deployment options.** While the solution is designed for a server component, it is easily extended into CustomInvite, allowing a very flexible approach to pilots / small customer deployments
- **Scalable.** Skype is the control point for the meeting, it is a known and understood solution that we can properly scale / validate with load testing.

Installation Planning

Prerequisites

The GMSS software requires the following system prerequisites to be installed:

- Microsoft Skype for Business Server or Lync 2013 Server FE installation
The GMSS software must be installed on each FE server in the Enterprise.
- Microsoft Message Queuing (MSMQ)
This is a native Microsoft component that is not installed by default.

NOTE: Installation of Skype for Business / Lync 2013 is out of scope of this document.

- Microsoft MSMQ installation

<https://docs.microsoft.com/en-us/dotnet/framework/wcf/samples/installing-message-queuing-msmq>

Installation Requirements

This section covers the requirements for installation, including accounts, connectivity, permissions and PGi specific service information.

Service Accounts

GMSS will require a service account to be used for all services installed on each front-end server. We recommend that a domain account is created – this account **must** be allocated the following permissions:

- RTC Server Applications (Server Local Group)
- RTC Component Universal Services (Domain Group)

An installation check is performed to ensure the provided service account has the required permissions. If it does not, the installation is aborted.

Installation Planning

Microsoft Message Queuing

As above – MSMQ is a prerequisite component of GMSS and it is required to be installed on each FE server. It is a standard Microsoft feature contained within the server features section. It can be installed by either script (PowerShell) or the user interface.

- By script – run the following command. (This string was correct at the time of writing.)

```
Install-WindowsFeature -Name "MSMQ-Server"
```

- By user interface – access the Add roles / features interface (various methods of entry), select “Message Queuing Server” from the message queuing node, and then click install.

Logging

A master logging directory must be created so that all GMSS services can log any errors or exceptions. If this directory is not provided, the installation will attempt to create it (depending on the permissions used when running the installation, this may not be possible).

Create a logging directory on the local server and ensure that the SAI Service account has permissions to this folder.

Connectivity Requirements

GMSS requires access to the internet – specifically, to communicate with Amazon Web Services. On installation, a connectivity check is performed to ensure that HTTPS access to the following URLs are possible from the server:

- <https://aws.amazon.com>
- <https://sns.us-east-1.amazonaws.com>
- <https://sns.us-east-2.amazonaws.com>

Conference Admission Accounts (Butler Accounts)

Skype for Business provides a feature that holds external participants in a lobby prior to the host joining the conference. GMSS allows the host to join via PSTN and requires a method of admitting the barbell into the conference – the butler account provides this service.

The butler account is a standard Skype for Business enabled user account – it does not require any email address or other user services. It is only used to admit the barbell into a conference via an UCWA application hosted by PGI.

Three accounts per pool / region are required for resilience. One of the butler accounts is required to be configured with a line URI as below:

```
+012345678901234
```

Installation Planning

AWS Security Keys

GMSS has built in security protection and requires specific codes provided to each customer before it will function. If no code is provided, installation will not be possible. These codes must be obtained from PGI prior to the installation of your service.

The specific code will be an AWS Access Key and a Secret Key. Both will be long strings of letters and numbers in upper and lower case.

Environment Requirements

GMSS has several Skype for Business / Lync 2013 environment requirements that must be met before you can commission the service into production.

Important: These environment requirements must be met even for pilot / test user groups.

Federation

GMSS uses Skype for Business / Lync 2013 federation to get participants into the conference – as such, Federation for IM / presence, remote sign in and audio participation in meetings is required. The following options must be enabled:

- Communication with federated users
- Communication with remote users
- Edge services for Conferencing and Audio / Video
- SAI domain added to the SIP Federated Domains list
 - > **Domain name:** oneaudioconf.com
 - > **FQDN:** sip.oneaudioconf.com

UCWA Availability

UCWA is utilised by the service components of GMSS and is required. It is installed by default in a properly configured Skype for Business / Lync 2013 environment – however, in some instances, an allowed domain must be configured for the GMSS service as below:

First, run **Get-CsWebServiceConfiguration**, and get the identity of the web services instance managing UCWA calls.

Installation Planning

Then, run the following two commands to register and trust the domain:

```
$x = New-CsWebOrigin -Url "{https://oneaudioconf.com }"  
Set-CsWebServiceConfiguration -Identity "{YOUR_IDENTITY}" -CrossDomainAuthorizationList  
@{Add=$x}
```

Conference Directories

Skype for Business / Lync 2013 utilises conference directories in a pool to ensure that passcodes generated in different pools never conflict. The conference directory also allows an organisation to inflate the initial size of the passcodes from 5 digits. For security purposes, GMSS requires passcodes of at least 6 digits in length – as such, conference directories need to be configured to enforce this.

Conference Directory number 1000 through 9999 is supported for GMSS service

Conference Directory Allocation

PGi hosts two models for GMSS – a dedicated number set option for very large enterprise customers and a shared number set available for smaller / mid-market customers. For both scenarios, PGI will allocate a customer the conference directories that need to be utilised on their front-end pools.

All other conference directories need to be removed – only the allocated conference directories will be authorised to create GMSS meetings.

Conference Directory Migration

Some customers may already be using Skype conferencing using a native SIP trunk or third-party video integration – as such, they will have conference directories created and in use in the environment. In this scenario, the conference directories need to be moved to a new server as part of the migration process. In addition, all public meetings must be reset to the new conference directory post change.

This process is currently being documented and will be provided as part of your deployment discussion with PGI.

Voice Policy

Skype for Business / Lync 2013 uses voice policies to grant Enterprise Voice users the ability to perform various voice activities. If no voice policy is specified for a user, they utilise the global voice policy. GMSS enabled users need to be enabled for PSTN conferencing – as such, they require a voice policy.

A generic voice policy should be provided for users who are **not** Enterprise Voice (EV) enabled. Any EV enabled user will utilise their EV voice policy. This additional configuration does not require an Enterprise Voice licence as you are not specifically enabling Enterprise Voice.

Installation Planning

The generic voice policy should be configured as below:

Settings/Description	
Name	Value
Scope	User
Call Forwarding	FALSE
Delegation	FALSE
Call transfer	FALSE
Call Park	FALSE
Simultaneous Ringing	FALSE
Team Call	FALSE
PSTN re-route	FALSE
BWPolicy Override	FALSE
Malicious Call Tracing	FALSE
Busy Options	FALSE

In addition, include PSTN Usage name (no route is required) to remove the UI error within Skype for Business.

Conference Policy

The conference policy is used by Skype for Business to enable various conference related activities for users. GMSS requires that all GMSS users are enabled with PSTN conferencing in their conference policy.

As a minimum – “Enable PSTN dial-in conferencing” must be enabled in the SAI conference policy.

Other settings such as “Allow anonymous participants to dial out” and “Allow participants not enabled for Enterprise Voice to dial out” are not applied to GMSS. PGi can enable call out conferencing for GMSS or this can be disabled and deferred to the native Skype settings and a configured SIP Trunk.

Access Numbers, Conference Regions and Dial Plans

GMSS does not inject any meeting access details into the invites and we require Skype to do this. We achieve this by creating Access Numbers, allocating those to Conference Regions, and then allocating a region to a Dial Plan.

Installation Planning

Access Numbers

PGi can provide dedicated, unique access numbers for large enterprise customers. GMSS also has an option for a shared number space that can be used by multiple customers – in either case, the access number list will be provided by PGI and will need to be configured in Skype for Business environment.

The only modification to configuring an GMSS access number over a standard native SIP access number is how the display number and Line URI match. Please ensure the Display number is correct but the line URI is a PSTN number that cannot be reached. This ensures that any EV user can dial the access number and hit the GMSS audio service instead of the AVMCU on Skype for Business.

Conference Regions

The access numbers provided by PGI are available all over the world and Skype allows a customer to present these numbers in regions. GMSS has no specific dependency on the number or presentation of the conference regions.

GMSS uses the region to identify that the user is GMSS enabled – as such, all GMSS regions defined by the customer **must** be included as part of the FE commissioning process for GMSS.

Dial Plans

Dial plans are used to apply number normalisation rules (usually defined per country) and what conference region should be presented by default. If the customer organisation contains a mixture of EV and non-EV users, you will have a requirement for a dial plan per EV enabled country plus a global dial plan for any non-EV users.

GMSS must have the GMSS region assigned to a dial plan that is intended for use by an GMSS enabled user.

Installer Setup and Execution

The application is available in a single package:

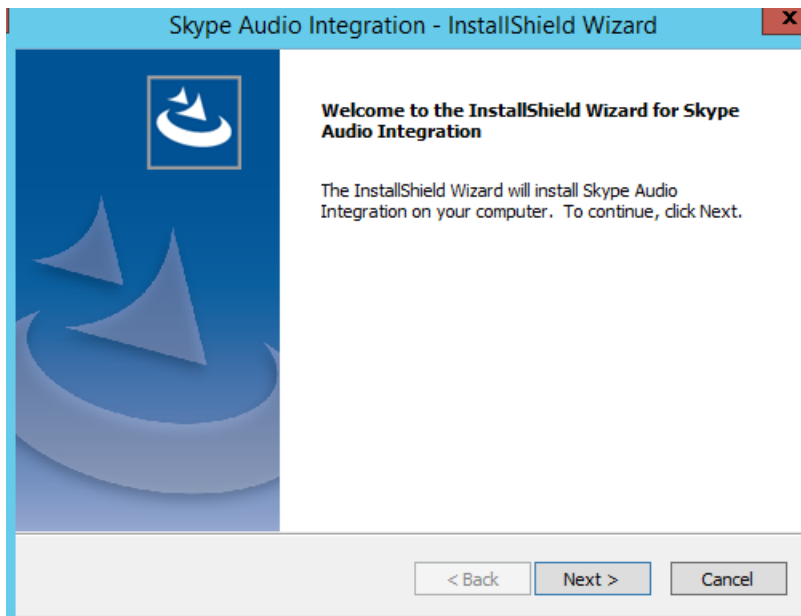
SAI Installer.exe – Skype for Business Server / Lync 2013 Server

This is a standard exe package that can be deployed using either a user interface or a silent command line install. The installation can also be recorded providing the answer file for installation. This section includes instructions for:

- Standalone installation
- Script installation with recording
- Script installation
- Regardless of how you install GMSS, the last step is Validating the Installation.

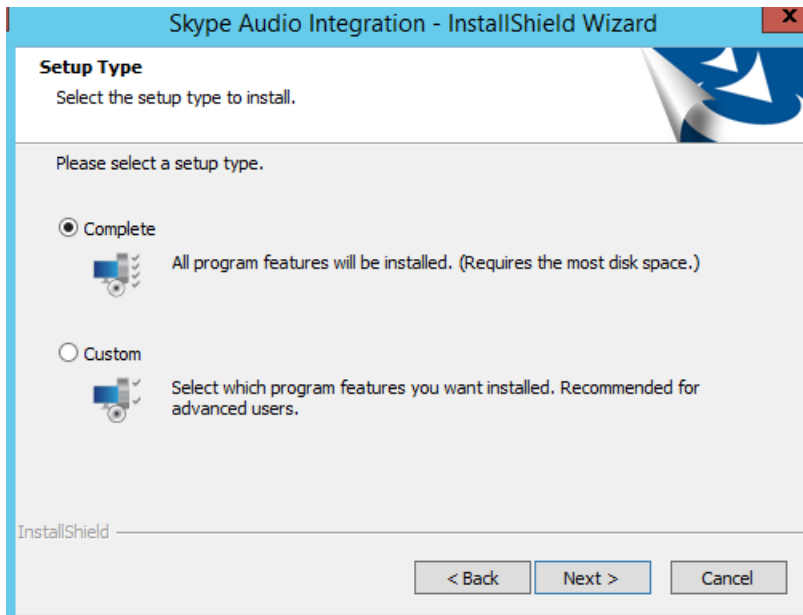
Standalone Installation

1. Right click on **SAI Installer.exe** and click **Run as administrator**.
2. On the welcome screen, click **Next**.



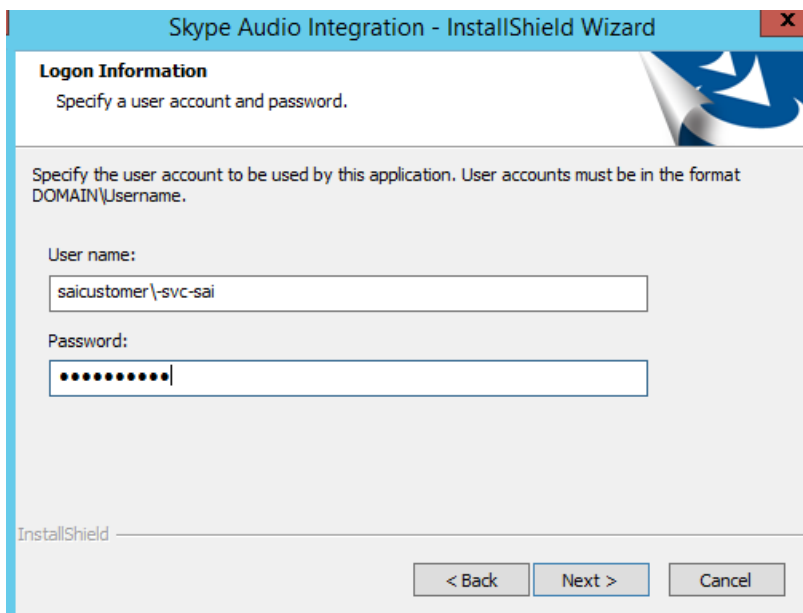
3. Choose the installation type, and then click **Next**. Select:
 - > Complete – to use the default installation location of C:\Program Files\Skype Audio Integration
 - > Custom – if you want to enter a different installation path.

Installer Setup and Execution



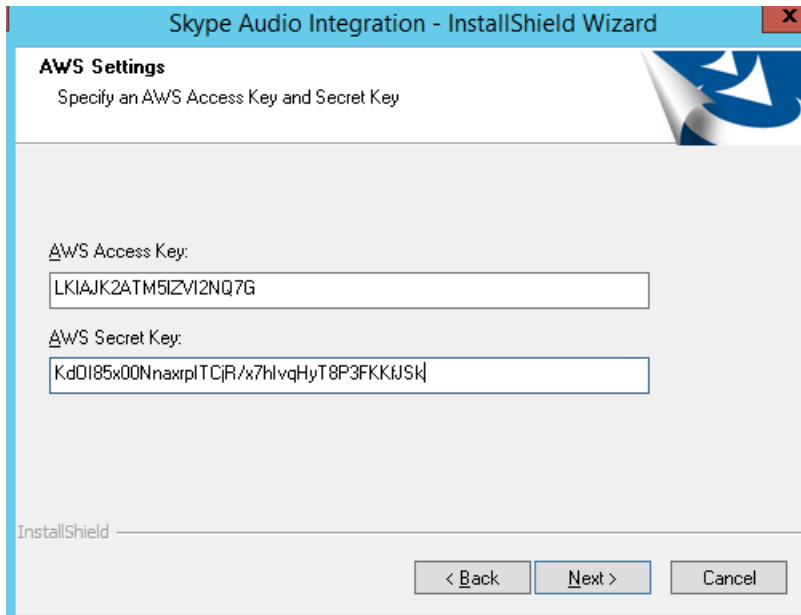
4. Enter the previously created domain account to run the SAI services under, and then click **Next**.
Enter the user name in the format, domain\username.

The installer validates the user name and password, ensuring that the credentials are valid and part of the correct groups. If any validation fails you will be presented with a message and advice to fix the issue. The installer will not proceed until any validation issues are resolved.



Installer Setup and Execution

5. Enter the AWS Access Key and the Secret Key, and then click **Next**.



Skype Audio Integration - InstallShield Wizard

AWS Settings
Specify an AWS Access Key and Secret Key

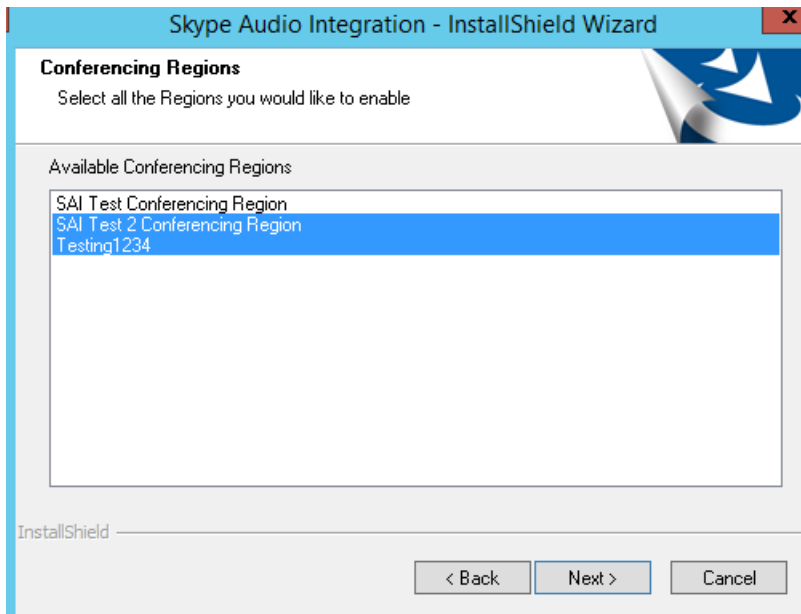
AWS Access Key:
LKIAJK2ATM5IZVI2NQ7G

AWS Secret Key:
Kd0I85x00NnaxrplTCjR/x7hIvqHyT8P3FKKJ5K

InstallShield

< Back Next > Cancel

6. From the list of available conferencing regions, select the regions you would like to enable for SAI. Click **Next**.



Skype Audio Integration - InstallShield Wizard

Conferencing Regions
Select all the Regions you would like to enable

Available Conferencing Regions

SAI Test Conferencing Region
SAI Test 2 Conferencing Region
Testing1234

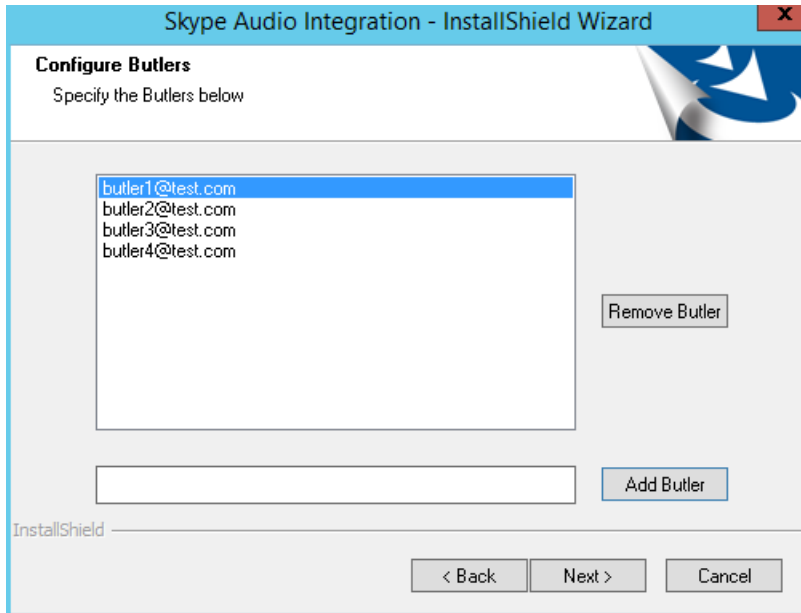
InstallShield

< Back Next > Cancel

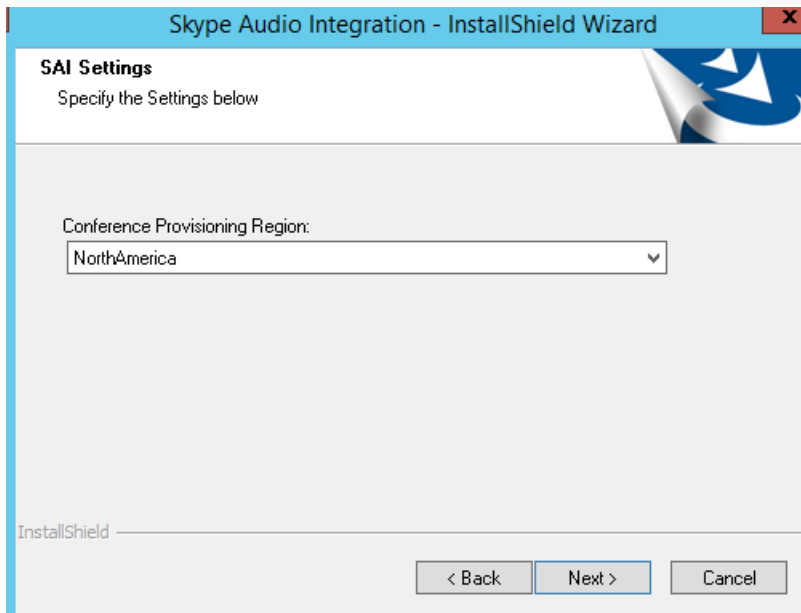
Installer Setup and Execution

7. Enter a butler in the textbox at the bottom, and then click **Add Butler**. Add more butlers, and when finished, click **Next**.

Enter SIP addresses without the **sip:** prefix.

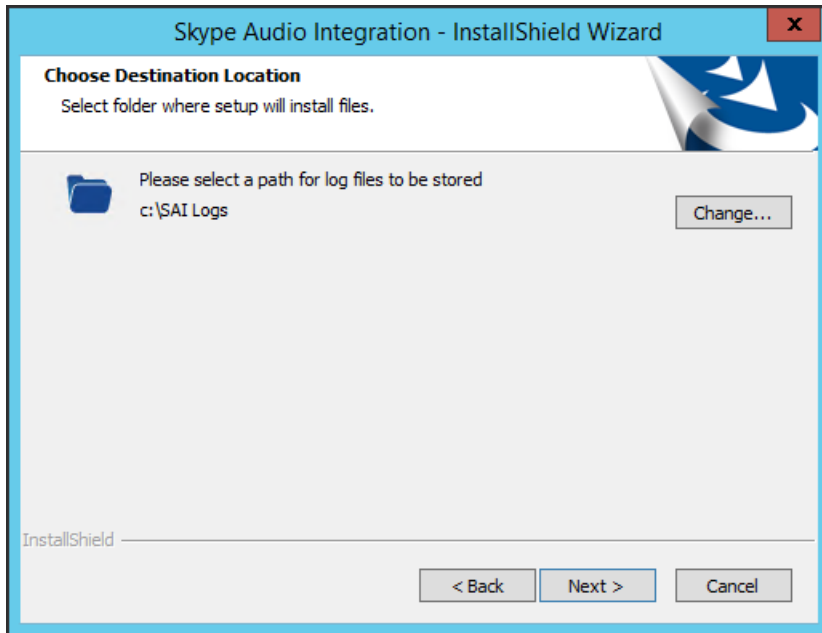


8. Select the conference provisioning region that should be used, and then click **Next**.

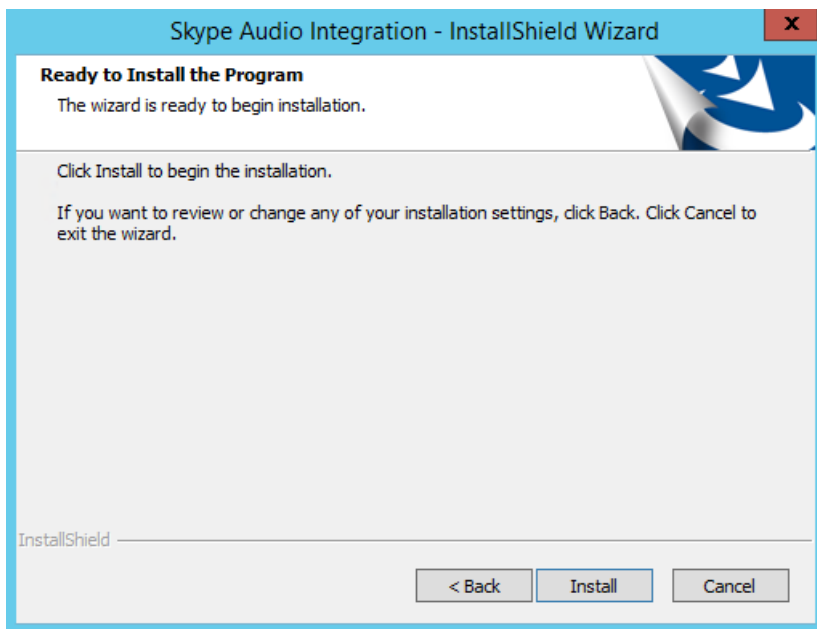


Installer Setup and Execution

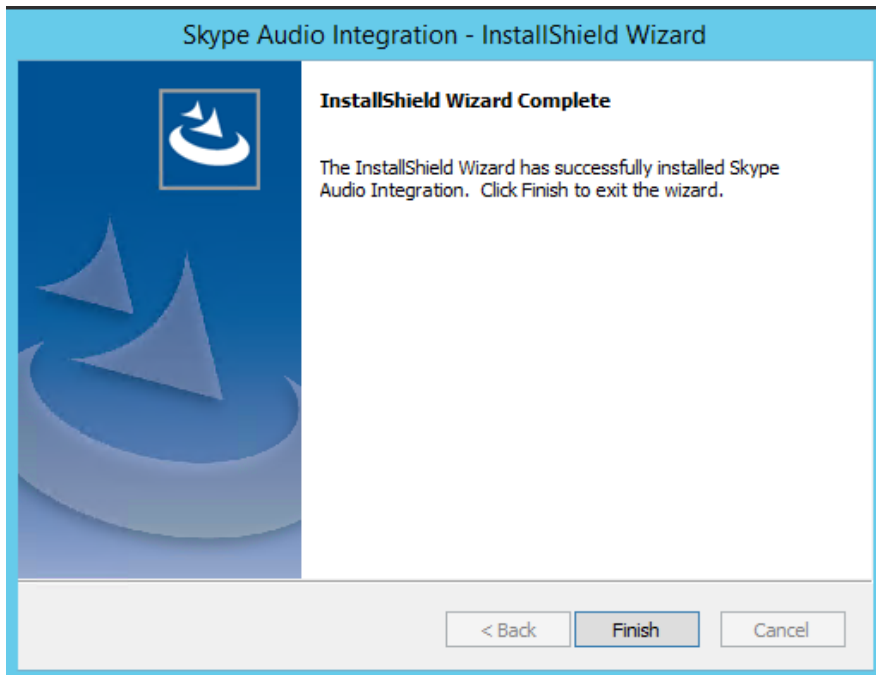
9. Browse to select the logging directory you previously created, and then click **Next**. The installer validates permissions on the folder.



10. The installation process is now ready to start. Click **Install**.



11. Once the installation process has completed successfully, click **Finish** to exit the installer.



Now the installation process is completed, refer to the validating section of this document to ensure all components are installed as expected.

Script Installation (Silent)

Silent installs can be run using the command below. Substitute your **SAI Installer.exe** path and **MyAnswerFile.iss** path. And change or create the c:\Logs path.

```
>'C:\Installers\SAI Installer.exe' /s -f1"C:\ Installers \MyAnswerFile.iss"  
-f2"c:\Logs\InstallMsi.log" /debuglog"c:\Logs\ InstallFullLog.log"
```

Script Installation with Recording

Installs can be recorded by running the command below. All values and options selected will be outputted to the .iss file. Substitute your **SAI Installer.exe** path and **MyAnswerFile.iss** path. Ensure you change or create the c:\Logs path.

```
>'C:\Installers\SAI Installer.exe' -r -f1"C:\ Installers \MyAnswerFile.iss"  
-f2"c:\Logs\InstallMsi.log" /debuglog"c:\Logs\ InstallFullLog.log"
```

Validating the Installation

Ensure the following GMSS services are running after install. If not please start them.

- SAI Conference Provisioning
- SAI Dial Out
- SAI Dispatcher
- SAI Hide Audio Stream
- SAI Monitoring

Check the log path that was specified during install to ensure no error logs have been created.

Open MSMQ Private Queues and check that all four queues exist.

Using a user that is GMSS enabled and homed to the pool that SAI was just installed on. Create a new Skype For Business meeting and verify that others can dial in to the meeting via PGI.

Upgrade Installation

Should new releases of the front-end application be made available – these will need to be applied using an uninstall / re-install approach. It is highly recommended to utilise the scripted installation capabilities of GMSS to make this a quick and efficient process.

Enterprise Management

GMSS is completely automated once installed and requires no direct interaction or further configuration. Should the configuration require modification (additional regions or butler accounts), it is suggested that this is handled through an uninstall / re-install of the application using answer files. The process is very quick and easy to automate.

User enablement for GMSS is owned by the Skype administration team. Users to be enabled for GMSS require a provisioned account in PGI (see account provisioning section below). After this, they can be moved to the dial plan enabled for GMSS (with the GMSS conference region and enabled for audio conferencing). At this point, their Skype client will update and any future meetings will be GMSS enabled.

PGi Account Provisioning

PGi have developed an automated way of provisioning users within the PGI environment for GMSS. The provisioning service is called GMAP and involves a simple AD export script plus and FTP service. Once set up, the administration team can deposit an extract from their Active Directory environment with new users to the FTP service. PGI polls that service every 24 hours, picking up the requests and provisioning the users.

Details of this service are documented in the GMAP document.

Frequently Asked Questions

This section provides answers about many aspects of GMSS:

- [General Features](#)
- [Supported Environments](#)
- [Installation](#)
- [User Instructions](#)
- [Troubleshooting](#)

General Features

What can a business do with GMSS?

GMSS is a seamless integration into Skype for Business / Lync 2013 Server that allows you to utilise the native conference service but extends it to include the global PGI audio conference infrastructure. Today you can:

- Schedule Public and Private meetings
- Perform Meet Now sessions
- Utilise Mobile and desktop clients (including MAC)
- Support for advanced options such as Lobby or restricted PSTN access

What can an administrator do with GMSS?

- Seamlessly add GMSS as an additive service to an existing native Skype / Lync audio conference service
- Provide a global audio conference service without the need for any voice infrastructure on site
- Enable users, groups of users or the entire enterprise as required

Supported Environments

What version of Lync/Skype for Business is supported with CustomInvite?

Lync 2013 and Skype for Business are supported. Both on premise only.

Are there any other environment considerations?

Yes, Federation support is required as is support for UCWA. The service also uses the internet so HTTPS access from each front-end server will be required.

Installation

How do I install GMSS?

GMSS is delivered via an EXE package and can be deployed using either UI or scripts. It is highly recommended to use scripts for installation if you have a large volume of servers

Are there any pre-requisites for installation?

Yes, there are feature, environment and installation pre-requisites that must be in place prior to commissioning the service.

How do I remove GMSS?

Simply uninstall the components from the front-end servers and remove the number sets from the Skype configuration – all meetings provisioned for GMSS will remain as Skype only meetings as all PGI conferences will be deleted when the service is removed.

User Instructions

How do I enable GMSS?

GMSS is automatically enabled as soon as the administrator adds the users to the correct dial plan in Skype / Lync and the user has been provisioned with a PGI GMSS account. There is no change required by the user.

I installed GMSS but my invites appear un-changed?

It is sometimes required to restart Skype to pick up new dial-plan settings. Depending on your environment, this can take a few minutes to become available to the user after enablement.

Can I use alternative languages?

Yes, the service supports all local language deployments of Outlook and Skype for Business / Lync 2013 clients.

Can I select an alternative dial-in number?

Yes, the administrator has the option of configuring the access numbers as required. PGI generally recommend a list of top 10 numbers plus a global access list.

Can I create an alternative invite?

Yes, there is an additional tool provided by PGI called CustomInvite that can be used to modify the invitation as needed. This is a separate product offering, please contact your PGI account team to discuss.

Can I create a meeting offline?

Yes – if offline meetings are supported by your client, they will work. Please note, in Skype for Business / Lync 2013, only the public meeting can be scheduled offline.

Troubleshooting

GMSS will not install?

Please check that you have the required permissions for installation, that you have met the installation prerequisites, and that your service account has the required permissions. Incorrectly formatted answer files will cause the installation to fail.

I installed GMSS, but meeting invitations look the same?

First, check the following:

- Confirm the services are started on the front-end server
- Confirm the target user is in the correct dial plan
- Restart the Skype / Lync client – verify that the invite or the meet now session contains the correct dial in number and alternative numbers
- Verify that PGI account has been created – this may require a support call with PGI.

There are different approaches, depending on the issue. If the invitation:

- Correctly presents the numbers, but you cannot dial in to the meeting, please enter a support ticket with PGI to investigate.
- Does not display the correct information, re-verify the dial plan and user configuration as these meetings will not be configured in PGI.

Known Issues and Workarounds

At time of writing – there are no issues reported.