

StarLeaf VoiceConnect

Admin Guide

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About PSTN SIP trunks

Integration with a PSTN SIP trunk, known as StarLeaf VoiceConnect, provides calling to and from the global telephone network for your organization. In this topic:

- [About VoiceConnect \(p4\)](#)
- [About SIP trunk providers \(p4\)](#)
- [Integrating PSTN SIP trunks with your StarLeaf organization \(p5\)](#)
- [Example deployments \(p5\)](#)

About VoiceConnect

Integration with a PSTN SIP trunk, known as StarLeaf VoiceConnect, provides calling to and from the global telephone network for your organization. This gives your organization:

- Direct-dial numbers for inbound and outbound calling for StarLeaf room systems
- Direct-dial numbers for individual StarLeaf users, for inbound and outbound calling
- Direct-dial numbers for hunt groups in your organization
- Telephone numbers that can be set as the caller ID for outbound calls (and these can be set as a site/organization default or per user/room system)
- The ability to choose a specific SIP trunk for outbound PSTN calls on a per site basis

Note: Direct-dial numbers are also known as DID (Direct Inward Dialing) in the US and DDI (Direct Dial-In) in Europe and elsewhere.

About SIP trunk providers

You will use a SIP trunk provider to connect your StarLeaf organization to the PSTN. StarLeaf supports SIP trunk providers across the globe. The StarLeaf Portal provides pre-configured templates for each supported provider making it simple to configure.

Go here for a list of StarLeaf approved [SIP trunk providers](#).

You will need to choose a SIP trunk provider and set up an account with that provider before configuring your StarLeaf organization with the details of that provider and your account.

An external SIP trunk can only be configured with a single SIP trunk added in the StarLeaf Portal. Entering the same **Gateway** and **Extension authentication** of an external SIP trunk to multiple SIP trunks in the StarLeaf Portal, will cause the configuration to fail.

If you want to have multiple SIP trunks configured to a single SIP trunk provider, you must purchase more SIP trunks from that external provider.

Note: When you configure a PSTN SIP trunk through the Portal, all users in your organization will be able to make PSTN calls from their StarLeaf account. If you have more than one PSTN trunk configured, you can control how a user's calls are routed by the configuration of your sites and trunks. For more information, go to [Sites](#).

Integrating PSTN SIP trunks with your StarLeaf organization

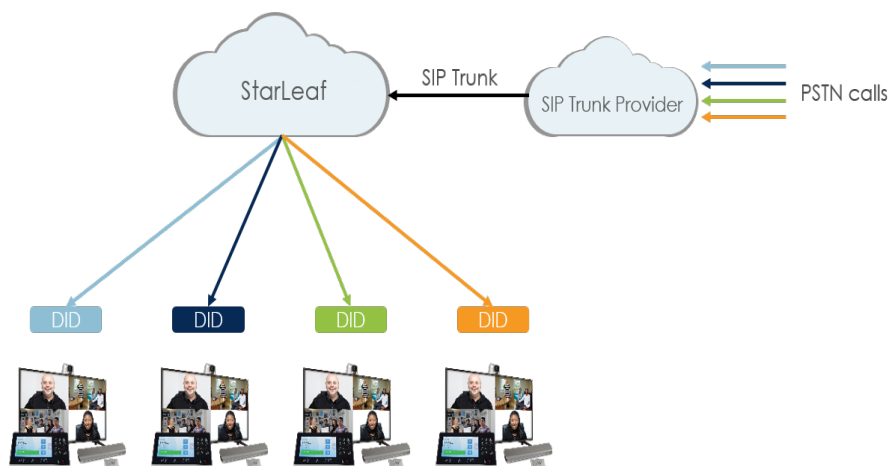
Before you configure any sites or PSTN SIP trunks in your StarLeaf organization, consider the following:

- Is there more than one geographical location in your organization with different requirements?
- Do you have or need hunt groups?
- Do you have homeworkers calling to the PSTN?
- Do all, or some users need a direct-dial number?
- Do you want to enable StarLeaf room systems for telephone calling?

Example deployments

Example one

This deployment example is an organization that needs to provide PSTN connectivity to StarLeaf meeting rooms.





Every meeting room system is allocated with a direct-dial number. The above diagram shows a small organization with only one site and only one PSTN SIP trunk. This is a scalable solution which can be deployed across meeting rooms in multiple sites.

Portal configuration for example one

There is one site configured, the default site:

Sites

Label	Country (Area)	Default	
Default site	United Kingdom	✓	 

There is one trunk configured, the **Xampleco trunk**:

Name	Provider	Site	Status
Xampleco trunk	Gradwell (UK)	Default site	✔ Online ✎ 🗑️

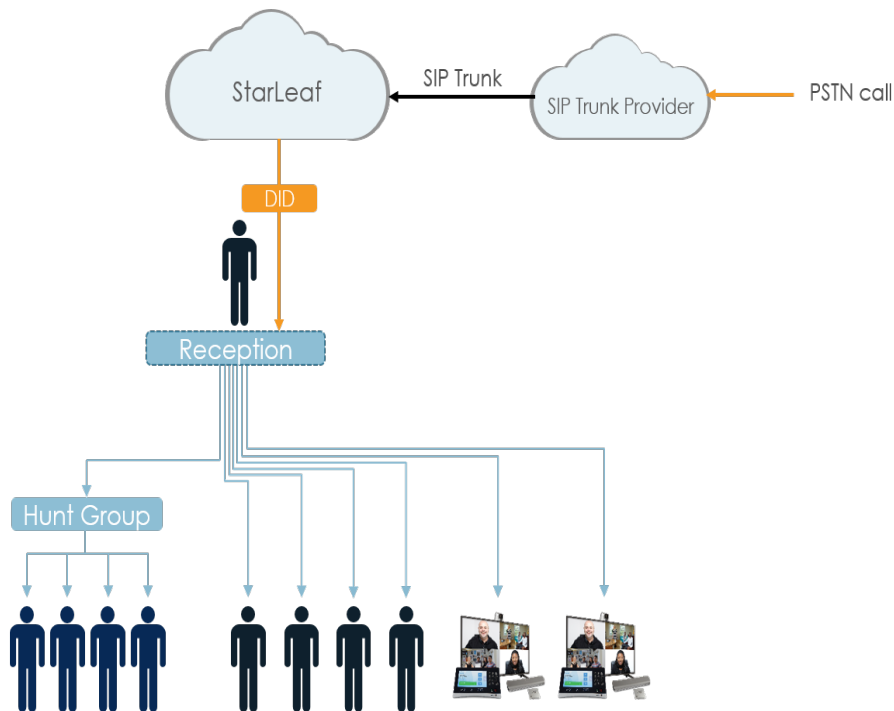
Xampleco have purchased five telephone numbers and assigned one to each of their five room systems:

PSTN SIP numbers

Site	Trunk name	PSTN number	Target	Site default	Organization default	Status
Default site	Xampleco trunk	+44 (0) 12	Amsterdam	<input type="radio"/>	<input checked="" type="radio"/>	✕ Offline
Default site	Xampleco trunk	+44 (0) 123	Utrecht	<input type="radio"/>	<input type="radio"/>	✕ Offline
Default site	Xampleco trunk	+44 (0) 1234	Rotterdam	<input type="radio"/>	<input type="radio"/>	✕ Offline
Default site	Xampleco trunk	+44 (0) 123456	The Hague	<input type="radio"/>	<input type="radio"/>	✕ Offline
Default site	Xampleco trunk	+44 (0) 1234567	Delft	<input type="radio"/>	<input type="radio"/>	✕ Offline

Example two



Example two is a small organization with only one site and only one PSTN SIP trunk. There is a receptionist who has a direct-dial number. The receptionist receives all incoming calls from the PSTN to that direct-dial number and where necessary transfers calls to the relevant person, room system, or hunt group. All outgoing calls to the PSTN from all users will use the same trunk and will use the direct-dial number as the caller ID.





Portal configuration for example two

There is one site configured, the default site:

Sites

Label	Country (Area)	Default	
Default site	United Kingdom	✓	 

There is one trunk configured, the **Xampleco trunk**:


Name	Provider	Site	Status	
Xampleco trunk	Gradwell (UK)	Default site	✓ Online	 

Xampleco have purchased one telephone number and this is assigned to Richard Cory (the receptionist):

Edit PSTN SIP trunk

Trunk ✓ Online


Provider:

Gradwell (UK) 

Description:

One trunk to cover all dialing requirements of my org


Name:


Xampleco trunk 

> [Advanced](#)

PSTN numbers

Site:

Default site 

	PSTN number	Registration name	Extension authentication	Extension password	Assigned
	+44 (0) 123456	123	123	123	✓ Richard Cory

The telephone number is also the **Organization default** which means that all outgoing calls (from every user and room system) will use this trunk and have this telephone number as the caller ID.

PSTN SIP numbers

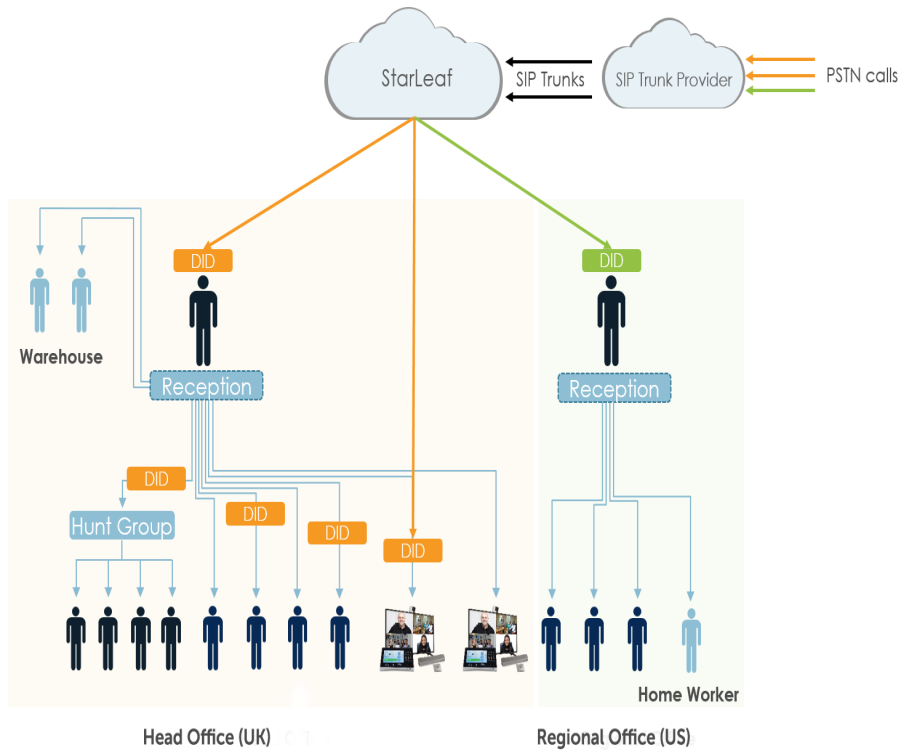
Site	Trunk name	PSTN number	Target	Site default	Organization default	Status
Default site	Xampleco trunk	+44 (0) 123456	<u>Richard Cory</u>	<input type="radio"/>	<input checked="" type="radio"/>	✓ Online

Example three

Example three is a medium-sized organization with a head office, warehouse, regional office, and some remote homeworkers.

Direct-dial numbers are allocated to the following:





- The receptionist (Richard Cory) at the head office
- The receptionist at the regional office
- The hunt group
- Two executives
- One room system







Portal configuration for example three

There are two sites configured, the default site (UK) and Scarsdale (US):

Sites

Label	Country (Area)	Default	
Default site	United Kingdom	✓	 
Scarsdale	United States (New York)	✗	 

There are two trunks configured (one for the UK and one for the US):

Name	Provider	Site	Status	
US trunk	Geils (US / UK)	Scarsdale	✓ Online	 
Xampleco trunk	MIXvoip (LU)	Default site	✓ Online	 

Xampleco have purchased five telephone numbers on the UK trunk and one for the US trunk.

The telephone number is also the **Organization default** which means that all outgoing calls (from every user and room system) will use this trunk and have this telephone number as the caller ID.

Outgoing calls from homeworkers will be routed to the trunk that is configured to be the **Site default** for the US site (the US PSTN SIP trunk in the example), with the caller ID for outgoing calls to be the receptionist's number.

Outgoing calls from the warehouse will be routed to the trunk that is configured to be the **Organization default** (the UK trunk in the example), with the caller ID for outgoing calls to be the receptionist's number.

Note that where a user or room system is not allocated with a direct dial number, any outgoing calls will be routed via the **Site default** if there is one, or the **Organization default**.

Site	Trunk name	PSTN number	Target	Site default	Organization default	Status
Default site	Xampleco trunk	+44 (0) 12	Richard Cory	<input type="radio"/>	<input checked="" type="radio"/>	✓ Online
Default site	Xampleco trunk	+44 (0) 123	Sales team	<input type="radio"/>	<input type="radio"/>	✓ Online
Default site	Xampleco trunk	+44 (0) 1234	Alexis Reena	<input type="radio"/>	<input type="radio"/>	✓ Online
Default site	Xampleco trunk	+44 (0) 123456	Nicodemo Albertus	<input type="radio"/>	<input type="radio"/>	✓ Online
Default site	Xampleco trunk	+44 (0) 1234567	Amsterdam	<input type="radio"/>	<input type="radio"/>	✓ Online
Scarsdale	US trunk	+1 (1) 555	Trudie Doriane	<input checked="" type="radio"/>	<input type="radio"/>	✓ Online

Portal configuration for PSTN SIP trunks

Integration with PSTN SIP trunks, known as VoiceConnect, provides inbound and outbound calling to and from the global telephone network for your organization.

On this page:

- [About PSTN SIP trunks \(p10\)](#)
- [How to configure a PSTN SIP trunk \(p10\)](#)
- [SIP trunk integration guides \(p12\)](#)

About PSTN SIP trunks

An external SIP trunk can only be configured with a single SIP trunk added in the StarLeaf Portal. Entering the same **Gateway** and **Extension authentication** of an external SIP trunk to multiple SIP trunks in the StarLeaf Portal, will cause the configuration to fail.

If you want to have multiple SIP trunks configured to a single SIP trunk provider, you must purchase more SIP trunks from that external provider.

Note: VoiceConnect (integration with PSTN SIP trunks) is an optional extra on your StarLeaf account.

How to configure a PSTN SIP trunk

Step one: Set up an account with a SIP provider

Supported providers:

<ul style="list-style-type: none"> ■ Atom IP (UK) ■ Backstage (NL) ■ blueface (IE) ■ Coredial/Nutopia (US) ■ Deutsche Telefon (DE) ■ DIDLogic (worldwide) ■ Geils (US, UK) ■ Go Trunk (America North) ■ Go Trunk (Europe) ■ Gradwell (UK) ■ Hexanet (FR) ■ Itec (ZA) ■ messagenet.it (IT) ■ MIXvoip (LU) ■ Motto (NL) ■ My Republic (SG) ■ OpenIP (FR) ■ Over the Wire (AU, NZ) ■ Paratus (NA) 	<ul style="list-style-type: none"> ■ Pure IP (worldwide) ■ sip.us (US) ■ SIPcity (AU) ■ sipgate basic (DE) ■ sipgate basic (UK) ■ sipgate team (DE) ■ sipgate team (UK) ■ siptrunk.com (US) ■ Switch Telecom (ZA) ■ Telavox (SE) ■ Telitcloud (LU) ■ Telnyx (US, CA) ■ TetraVX (US) ■ Twilio (worldwide) ■ Vodafone Iceland ■ Voice flex (UK) ■ Voicehost (UK) ■ Weblink (SE)
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Step two: Configure sites and hunt groups

Consider your requirements and what you are trying to achieve. For more information on what you can do with StarLeaf, refer to [About PSTN SIP trunks](#), [Sites](#), and [Hunt groups](#).

A site determines the location of any telephone numbers on the trunk. That is, you cannot change the country or area code for a telephone number on a trunk.

Step three: Configure the trunk in the StarLeaf Portal

Consider how you want to deploy PSTN if you have multiple sites. Refer to [About PSTN SIP trunks](#); you might want to configure multiple sites in the Portal before you proceed.

1. In the StarLeaf Portal, go to **PSTN SIP trunks** and choose **Add PSTN SIP trunk**:

[PSTN SIP trunks](#)



2. From the Provider drop-down menu, select your SIP trunk provider and complete the following:
 - **Name:** Give the trunk a name (so you can identify this trunk)
 - **Description:** Add a description (optional)
 - **Gateway:** For some providers, the Portal asks for a gateway. This might be a specific domain allocated on a per-customer basis or it will be a region specific gateway and in this case, enter a domain or an IP address
 - **Site:** Choose the site for this SIP trunk. Note that the country (and area, if applicable) of the site will dictate the dialing code for the telephone numbers associated with this trunk
3. Add the telephone numbers that you have bought from the provider. For each number that you have purchased, enter authentication details from your SIP trunk provider. What you enter here varies from provider to provider (and some provider configurations are documented in [PSTN SIP authentication](#)). You might need to contact StarLeaf Support for help.
 - **Registration name:** Sometimes this is the telephone number, a username, or an account number and sometimes this is not required
 - **Extension authentication:** You must enter a value here. It will be the same as the **Registration name** (unless that is empty). Often it is the username or the telephone number, but sometimes it is an account number
 - **Extension password:** The password for the telephone number

	PSTN number	Registration name	Extension authentication	Extension password	Assigned
	+44 (0) 123	xyzxyz	xyzxyz	wxyzwxyz	None

4. Notice that the numbers are currently not **Assigned**. Complete the next step.

Step four: Assign the PSTN numbers

1. In the StarLeaf Portal, go to **PSTN SIP numbers**. You will see all the numbers that you have purchased and added to your configured trunks. For each PSTN number you can configure these settings:

- **Target:** Choose a user, room system or hunt group to be the target for a PSTN number. This means that any incoming calls to this number will be routed to the chosen user, room system or hunt group. It also means that outgoing calls from the target, where that is a user or a room, will use the PSTN number as the caller ID. Note that members of hunt groups will not use the target as their outgoing caller ID and will instead use either their own target number if they have one, or the site default if there is one, or the organization default
- **Site default:** You can choose one PSTN number per site to be the site default. This means that all outgoing calls from the site will use this number as their caller ID (unless the room or user making the call is a target for another PSTN number)
- **Organization default:** You can choose one PSTN number to be the organization default. This will be used as the caller ID where the user or room both does not have a site default *and* is not a target for another PSTN number

PSTN SIP numbers

Site	Trunk name	PSTN number	Target	Site default	Organization default	Status
Default location	Head Office DIDs	+44 (0) 12	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	✓ Online
Default location	Head Office DIDs	+44 (0) 123	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	✓ Online
Default location	Head Office DIDs	+44 (0) 1234	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	✓ Online
Default location	Head Office DIDs	+44 (0) 123456	Richard Cory	<input type="radio"/>	<input checked="" type="radio"/>	✓ Online
Default location	Head Office DIDs	+44 (0) 1234567	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	✓ Online
Scarsdale	Scarsdale US office and homeworkers	+1 (1) 98988888	Alexis Reena	<input checked="" type="radio"/>	<input type="radio"/>	✓ Online

2. Click **Apply**.

Note: You can also assign PSTN numbers through the **Users > Edit**, the **Room systems > Edit**, and the **Hunt groups > Edit** pages.

Note: Assigned PSTN numbers do not automatically appear in the directory, however if necessary, you can add these by editing the details for a room, user, or hunt group. For example, you can add the PSTN number as a user's **Work** number.

SIP trunk integration guides

For VoiceConnect guides that are specific to certain SIP providers, select one of the following:

- [sip.us](#)
- [Telnyx](#)
- [Twilio](#)

PSTN SIP authentication

For a complete list of supported SIP trunk providers, refer to [Portal configuration for PSTN SIP trunks](#).

An external SIP trunk can only be configured with a single SIP trunk added in the StarLeaf Portal. Entering the same **Gateway** and **Extension authentication** of an external SIP trunk to multiple SIP trunks in the StarLeaf Portal, will cause the configuration to fail.

If you want to have multiple SIP trunks configured to a single SIP trunk provider, you must purchase more SIP trunks from that external provider.

Select a provider below for information on which details and authentication to use when configuring a SIP trunk for them:

Atom IP (UK)

StarLeaf Portal	Service provider
Registration name	Username
Extension authentication	Username
Extension password	Password for the telephone number
Gateway	Not required by StarLeaf Portal

DIDLogic (US)

StarLeaf Portal	Service provider
Registration name	SIP user name
Extension authentication	SIP user name
Extension password	Password for the SIP account
Gateway	Not required by StarLeaf Portal

Geils (US/UK)

StarLeaf Portal	Service provider
Registration name	Leave blank
Extension authentication	Telephone number
Extension password	Password for the telephone number
Gateway	Not required by StarLeaf Portal

GoTrunk (Europe)

StarLeaf Portal	Service provider
Registration name	SIP endpoint > SIP username
Extension authentication	SIP endpoint > SIP username
Extension password	SIP endpoint > SIP password
Gateway	Not required by StarLeaf Portal

Gradwell (UK)

StarLeaf Portal	Service provider
Registration name	Account number
Extension authentication	Account number
Extension password	Password for the telephone number
Gateway	Not required by StarLeaf Portal

messagingnet.it (IT)

StarLeaf Portal	Service provider
Registration name	Username
Extension authentication	Username
Extension password	Password
Gateway	Not required by StarLeaf Portal

sip.us (US)

StarLeaf Portal	Service provider
Registration name	Trunk # (from your sip.us control panel's SIP Trunks menu)
Extension authentication	Trunk # (from your sip.us control panel's SIP Trunks menu)
Extension password	Password (from your sip.us control panel's SIP Trunks menu)
Gateway	Not required by StarLeaf Portal

Telnyx (US, CA)

StarLeaf Portal	Service provider
Registration name	Username (from your Telnyx control panel's Edit Connection menu)
Extension authentication	Username (from your Telnyx control panel's Edit Connection menu)
Extension password	Password (from your Telnyx control panel's Edit Connection menu)
Gateway	Not required by StarLeaf Portal

Twilio (Worldwide)

StarLeaf Portal	Service provider
Registration name	Complete phone number (from your Twilio Console's Credential List)
Extension authentication	Complete phone number from your Twilio Console's Credential List
Extension password	Password from your Twilio Console's Credential List
Gateway	The entire SIP subdomain (as created from the Twilio Console) plus us1 inserted after .sip. For example: starleaf123456.sip.us1.twilio.com

Custom SIP trunk configuration

Note: Custom SIP trunk configuration is in **beta** so it is subject to change, depending on its stability. StarLeaf continuously strives to improve its products and service so please send any feedback you might have to your StarLeaf representative.

Integration with PSTN SIP trunks, known as VoiceConnect, provides inbound and outbound calling to and from the global telephone network for your organization.

VoiceConnect (integration with PSTN SIP trunks) is an optional extra on your StarLeaf account.

On this page:

- [About custom SIP trunk configuration \(p17\)](#)
- [Prerequisites \(p17\)](#)
- [How to configure a custom PSTN SIP trunk \(p17\)](#)
- [Limitations \(p22\)](#)

About custom SIP trunk configuration

If the PSTN SIP trunk provider that you want to use is not listed in the [providers currently supported by StarLeaf](#), you can configure a **custom** SIP trunk through the StarLeaf Portal.

In a custom configuration, you can either:

- Connect directly to a SIP trunk **or**
- Connect to a SBC (session border controller) with a SIP trunk behind it

Prerequisites

- Enhanced StarLeaf Support
- Either a StarLeaf rooms or VoiceConnect license

How to configure a custom PSTN SIP trunk

In this section:

- [Step one: Enable custom PSTN SIP trunks \(p17\)](#)
- [Step two: Configure sites and hunt groups \(p17\)](#)
- [Step three: Configure the custom trunk in the StarLeaf Portal \(p18\)](#)
- [Step four: Assign the PSTN numbers \(p21\)](#)

Step one: Enable custom PSTN SIP trunks

Request StarLeaf Support to enable custom PSTN SIP trunks for your organization.

Step two: Configure sites and hunt groups

Consider your requirements and what you are trying to achieve. For more information on what you can do with StarLeaf, refer to [About PSTN SIP trunks](#), [Sites](#), and [Hunt groups](#).

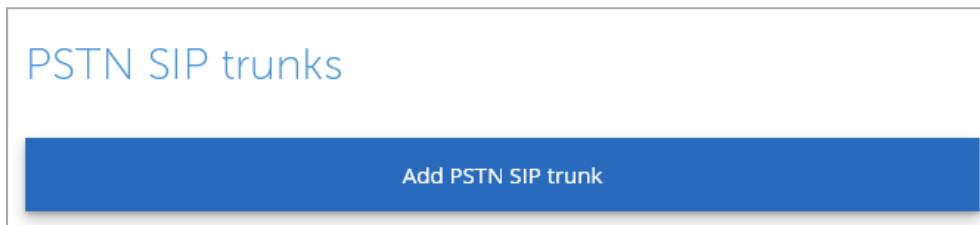
A site determines the location of any telephone numbers on the trunk. That is, you cannot change the country or area code for a telephone number on a trunk.

Step three: Configure the custom trunk in the StarLeaf Portal

Consider how you want to deploy PSTN if you have multiple sites. Refer to [About PSTN SIP trunks](#); you might want to configure multiple sites in the Portal before you proceed.

To configure the custom trunk in the StarLeaf Portal:

1. Go to **PSTN SIP trunks** and choose **Add PSTN SIP trunk**:



2. From the **Provider** drop-down menu, select **Custom Provider**.
A new custom PSTN trunk profile is created in the Portal:

 A screenshot of the 'Add PSTN SIP trunk' configuration form. The form is titled 'Add PSTN SIP trunk' and is organized into sections. The 'Trunk' section includes a 'Provider' dropdown menu set to 'Custom Provider', a 'Description' text area, and a 'Name' text field. Below this is an 'Advanced' section, indicated by a downward arrow, which contains several fields: 'Gateway' (text field), 'Signalling protocol' (dropdown menu), 'Ingress numbering scheme' (dropdown menu), 'Egress numbering scheme' (dropdown menu), and 'Supported codecs' (text field).

3. Complete the fields in the Portal as they are described in the table below:

Setting	Value	Description
Name	Free text	The name of the trunk which will be displayed on the user interface for assigning numbers to users/rooms.
Description	Free text	Description of the trunk (optional).
Gateway	Free text	Type the IP address or hostname of the SIP device to which this trunk will connect. If this gateway is not listening on the default SIP signaling port (5060), you also need to append the far-end signaling port to the IP address using this format: <IP address>:<signaling port> For example: 10.192.0.35:5062 It is not possible to configure a separate proxy.
Signalling protocol	UDP or TCP	It is expected that it would normally be UDP.

Setting	Value	Description
Ingress numbering scheme	PSTN local or PSTN global (E164)	<p>Configure the numbering scheme for the trunk using the Ingress and Egress numbering schemes.</p> <p>Ingress numbering specifies the type of numbers that StarLeaf expects for the calls that it will route onto this trunk. Ensure that any calls that StarLeaf will route to this trunk will be of the correct called number type for the trunk, otherwise the call will fail.</p> <p>Note: In most cases, ingress numbering and egress numbering will use the same setting; only configure these with different settings if the device at the other end of the trunk has particular requirements that you must accommodate.</p> <p>Select one of:</p> <p>PSTN location specific: The trunk expects to receive PSTN numbers in a local or national format. A local PSTN number is one that can be interpreted by a local PSTN. That is, it needs the geographical context of its local PSTN to be meaningful. For example, 01923 778899 is a valid telephone number when considered in combination with a UK location. Similarly, 778899 is a valid telephone number when considered in combination with a Rickmansworth, UK location. A PSTN local number is one that is a national or local telephone number. The dial plan rule that routes calls to this trunk needs to have a Called number type of PSTN local numbers</p>
Egress numbering scheme	PSTN local or PSTN global (E164)	<p>PSTN global (E.164): The number that the trunk expects is a fully-qualified international PSTN number. If you have a trunk connecting to a service that expects to receive dialed numbers as fully-qualified E.164 numbers, you must select this option. The dial plan rule that routes calls to this trunk needs to have a Called number type of PSTN global (E.164). The STPBX will use the location settings of the trunk to add the necessary international dialing code to the called number that it receives from the dial plan. Note that it will not include a + prefix</p>

Setting	Value	Description
Supported Codecs	AAC, DTMF, G.711A, G.711U, G.722, G722.1, H.224, H.239, H.263, H.264, H.264 HVC Lync, iLBC, RDP, SIP Content, and/or VP8	Select one audio codec out of G.711A , G.711U , and G.722 . G.711 is used internally so is preferred. G.711U is used in North America and Japan; G.711A is used in most other countries. Normally DTMF should be selected. This requires the provider to support RFC2833. The other codecs should not be selected.

- Add the telephone numbers that you have bought from the provider. For each number that you have purchased, enter authentication details from your SIP trunk provider. What you enter here varies from provider to provider. You might need to contact StarLeaf Support for help.
 - Registration name:** Sometimes this is the telephone number, a username, or an account number and sometimes this is not required
 - Extension authentication:** You must enter a value here. It will be the same as the **Registration name** (unless that is empty). Often it is the username or the telephone number, but sometimes it is an account number
 - Extension password:** The password for the telephone number

	PSTN number	Registration name	Extension authentication	Extension password	Assigned
	+44 (0) 123	xyzxyz	xyzxyz	wxyzwxyz	X None
					

- Notice that the numbers are currently not **Assigned**. Complete the next step.

Step four: Assign the PSTN numbers

- In the StarLeaf Portal, go to **PSTN SIP numbers**. You will see all the numbers that you have purchased and added to your configured trunks. For each PSTN number you can configure these settings:
 - Target:** Choose a user, room system or hunt group to be the target for a PSTN number. This means that any incoming calls to this number will be routed to the chosen user, room system or hunt group. It also means that outgoing calls from the target, where that is a user or a room, will use the PSTN number as the caller ID. Note that members of hunt groups will not use the target as their outgoing caller ID

and will instead use either their own target number if they have one, or the site default if there is one, or the organization default

- **Site default:** You can choose one PSTN number per site to be the site default. This means that all outgoing calls from the site will use this number as their caller ID (unless the room or user making the call is a target for another PSTN number)
- **Organization default:** You can choose one PSTN number to be the organization default. This will be used as the caller ID where the user or room both does not have a site default *and* is not a target for another PSTN number

PSTN SIP numbers

Site	Trunk name	PSTN number	Target	Site default	Organization default	Status
Default location	Head Office DIDs	+44 (0) 12		<input type="radio"/>	<input type="radio"/>	✓ Online
Default location	Head Office DIDs	+44 (0) 123		<input type="radio"/>	<input type="radio"/>	✓ Online
Default location	Head Office DIDs	+44 (0) 1234		<input type="radio"/>	<input type="radio"/>	✓ Online
Default location	Head Office DIDs	+44 (0) 123456	Richard Cory	<input type="radio"/>	<input checked="" type="radio"/>	✓ Online
Default location	Head Office DIDs	+44 (0) 1234567		<input type="radio"/>	<input type="radio"/>	✓ Online
Scarsdale	Scarsdale US office and homeworkers	+1 (1) 98988888	Alexis Reena	<input checked="" type="radio"/>	<input type="radio"/>	✓ Online

2. Click **Apply**.

Note: You can also assign PSTN numbers through the [Users > Edit](#), the [Room systems > Edit](#), and the [Hunt groups > Edit](#) pages.

Note: Assigned PSTN numbers do not automatically appear in the directory, however if necessary, you can add these by editing the details for a room, user, or hunt group. For example, you can add the PSTN number as a user's **Work** number.

Limitations

There are some limitations of this GUI for setting up PSTN SIP Trunks. These apply only to custom SIP trunk configurations; they do not apply to configurations using SIP trunks that are in the [StarLeaf-supported list of providers](#).

- It is not possible to specify a separate proxy from the gateway address.
- When using Igress/Egress global numbering, there is no option to include a + prefix.
- Caller ID is taken as the registration name for each number.
- StarLeaf always connects from source port 5376.
- StarLeaf sends a separate registration for each configured line including the contact header (also known as binding address) containing the PSTN global (E.164) with +. Correspondingly, StarLeaf expects calls to be addressed to **e164_form_of_did_with_a_plus@sl_ip_address**

Sites

On this page:

- [About sites \(p23\)](#)
- [Sites \(p23\)](#)
- [How to create a site \(p24\)](#)

About sites

Configure sites on the Portal for the purposes of location-specific settings such as how StarLeaf will:

- specify the default timezone
- specify the default language to be used on the touchscreen controllers of room systems, StarLeaf app, and other StarLeaf endpoints
- apply location-specific QoS settings in a multi-site deployment
- apply location-specific power-line frequency to eliminate flicker on room systems caused by florescent lights

When you create an organization, the country you enter will determine your data center location. This will also become your default site. Individual users and room systems can be configured to use a different time zone and language to the default for their site or organization.

Note: You can change the settings of your default site including country, but your organization will not be moved to a different data center.

Sites and PSTN SIP trunks

When used in combination with PSTN SIP trunks, sites also allow StarLeaf to:

- route calls originating from a particular site to a particular PSTN SIP trunk. A site usually maps onto a geographical location, but where necessary you can configure more than one site per geographical location (for example, to allow calls from one geographical location to be routed to more than one PSTN SIP trunk) or you might find that you can group multiple geographical locations into one site if they have the same requirements
- interpret and re-format locally-dialed numbers for the trunk to which they are destined. For example, certain providers expect telephone numbers to be formatted as national numbers whereas other providers expect numbers to be formatted for international dialing
- present a caller ID to the person receiving a call from a PSTN SIP trunk that will make sense to that person within the context of their own location. For example, an incoming call to an endpoint in a US site from a French PSTN SIP trunk will need to look like a French number rather than a locally dialed number

Integration with PSTN SIP trunks (VoiceConnect) is an optional addition to StarLeaf accounts. For more information about PSTN SIP trunks, refer to [About PSTN SIP trunks](#).

In general, the sites you configure will map onto the geographical locations in your organization. If you are creating sites for the purposes of deploying PSTN connectivity, remember that a site determines the location of any telephone numbers on the trunk. This means that you cannot change the country or area code for a telephone number on a SIP trunk.

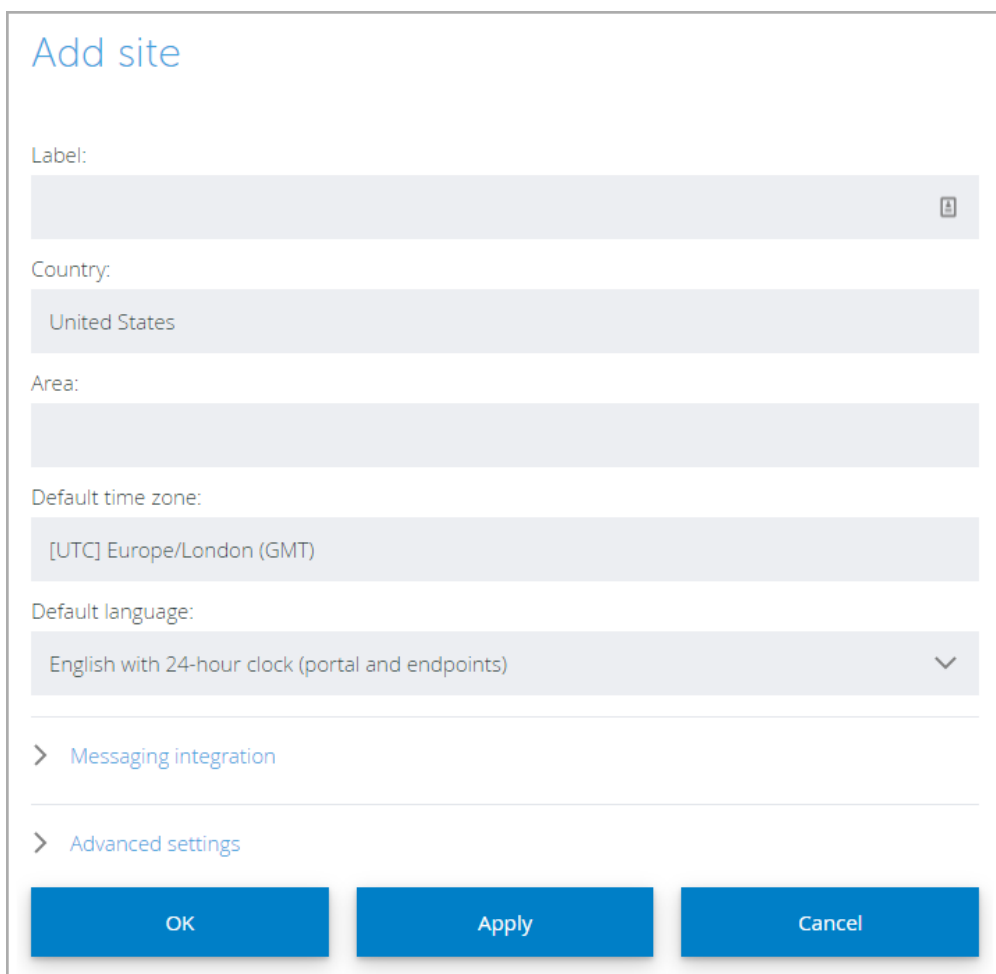
You can have many trunks for a site, but a trunk can only exist in one site. It might be useful to group several of your geographical locations together into one 'site' based on their shared requirements.

For example, in some deployments, home workers could be placed into their own site to provide them with the necessary settings and a default site trunk to which their PSTN calls are routed. However, in other deployments, it might be more appropriate to place home workers into a site along with other physical locations where users have the same dialing requirements.

How to create a site

If you have sites enabled on your StarLeaf organization, you will by default have one site pre-configured. This is the default site for your organization. To add additional sites:

1. In the Portal, go to **Sites > Add site**:
2. Complete the fields:



The screenshot shows the 'Add site' configuration form. It includes the following fields and options:

- Label:** A text input field with a lock icon on the right.
- Country:** A dropdown menu with 'United States' selected.
- Area:** A text input field.
- Default time zone:** A dropdown menu with '[UTC] Europe/London (GMT)' selected.
- Default language:** A dropdown menu with 'English with 24-hour clock (portal and endpoints)' selected.
- Messaging integration:** A link with a right-pointing chevron.
- Advanced settings:** A link with a right-pointing chevron.
- Buttons:** Three blue buttons at the bottom: 'OK', 'Apply', and 'Cancel'.

- **Label:** A name to help you identify this site
 - **Country:** Geographical location of this site
 - **Area:** Some countries are divided into areas for the purpose of PSTN dialing
 - **Default time zone:** The time zone that the site is in. This is for the purpose of displaying the correct time on endpoints and also to schedule conferences at the correct time when participants are in different time zones. You can override the default time zone on a per-user and per-room system basis
 - **Default language:** The default language for users and room systems for this site. You can override the default language on a per-user and a per-room system basis
 - **Messaging integration:** Open this dropdown to select the site's preferred messaging integration.
 - **Advanced settings:** Open this dropdown to set the max send and receive rate for the site. You can also set the **Power line frequency**, and configure the **DSCP value** for [Quality of Service](#).
3. Click **Apply** at the bottom of the page.

Hunt groups

Prerequisites

Hunt groups are an optional extra. Contact StarLeaf support or your reseller if your organization requires hunt groups.

About hunt groups

You can assign a group of extension numbers to a specific number or video address. When this number or video address receives an incoming call, the call is directed to the group of extension numbers. For example, organizations often have one public phone number, that when called, directs to a number of receptionists in the same organization.

When a call comes into the hunt group, the apps (or endpoints) of the hunt group members will either ring simultaneously or in a sequence depending on the configuration.

StarLeaf provides five types of hunt group:

- **Linear:** An incoming call to the hunt group will ring the first member of the hunt group and if there is no answer within the **Ringling duration** time (a configuration option), the call will be routed to the second member of the hunt group and so on until the call is answered. If nobody in the hunt group answers the call, the configured **Fallback** will be applied
- **Group:** An incoming call to the hunt group will ring every member of the group simultaneously. If nobody in the hunt group answers the call, the configured **Fallback** will be applied
- **Whole organization:** An incoming call to the hunt group will ring every user and room system in the organization simultaneously. If nobody answers the call, the configured **Fallback** will be applied
- **All users:** An incoming call to the hunt group will ring every user in the organization simultaneously. If nobody answers the call, the configured **Fallback** will be applied
- **All room systems:** An incoming call to the hunt group will ring every room system in the organization simultaneously. If nobody answers the call, the configured **Fallback** will be applied

Create a hunt group

For every hunt group, you can specify the type of hunt group, the ringing duration, the fallback type, and whether or not the hunt group will cause StarLeaf on mobile devices to ring.

To create a hunt group:

1. Go to the **Hunt groups** tab In your StarLeaf Admin Portal.
2. Click **Add hunt group**.
3. Type a **Name** for the hunt group.
4. Choose whether or not the hunt group will cause StarLeaf on mobile devices to ring. For example, for some hunt groups it will only be appropriate for members to answer if they are at their desk on their desktop device.
5. Choose the **Hunt type** (see above for more details of hunt types).

6. Type the **Ringing duration**. This is the amount of time for which an app or endpoint will ring before the call is routed to the next recipient (if this is a linear group) or to the configured fallback.
7. If this is a **Linear** or **Group** hunt group, add the **Members**. These can be users or room systems.
8. Choose a **Fallback** type:
 - **None**: the call will hang up if nobody answers it
 - **User/Room system/Hunt group**: the call will be diverted to a particular user, room system, or hunt group that you enter
 - **Voicemail**: the call will be diverted to the voicemail system of a particular user that you enter
9. Click **Apply** and you will see that the **Dialing information** is automatically completed by the Portal. For more information about video addresses, refer to [StarLeaf video addresses](#).

Add hunt group

▼ Hunt group settings

Name

Sales team 🔍

Ring StarLeaf app on mobile devices

▼ Members

Hunt type

Group ▼

Ringing duration (seconds)

20

Members

Richard Cory	×
Nicodemo Albertus	×
Alexis Reena	×

Fallback type

None ▼

> Dialing information salesteam@xampleco.call.sl, +44 (0) 3300571888 (Xampleco SIP Trunk)

To view or edit existing hunt groups, go to the **Hunt groups** tab in your Admin Portal.

Quality of Service with StarLeaf

Quality of Service (QoS) support is an optional extra that can be included as part of your organization's endpoint subscriptions. When enabled for an organization, you can set a DSCP value for that organization. This will set the DSCP bits in the signaling and media packets from StarLeaf room systems, desktop systems and the Phone 2105. It will not affect traffic from StarLeaf apps or H.323 endpoints.

For organizations with QoS enabled, you can find the setting in the Portal. From the organization page in the Portal go to **Sites > Edit site > DSCP value**.

Edit site

Label:
Default site

Country:
United Kingdom

Default time zone:
[UTC] Europe/London (GMT)

Default language:
English (portal and endpoints)

Default max send rate (kbit/s):
Automatic

Default max receive rate (kbit/s):
Automatic

Power line frequency (Hz):
50

DSCP value:
46

OK Apply

StarLeaf video addresses

Within an organization, every user and room system has a directory number and is also listed in the directory. StarLeaf users and StarLeaf guests can call each other by email address and this works between organizations. In this topic:

- [About video addresses \(p29\)](#)
- [How to add a video address to a StarLeaf room system \(p31\)](#)
- [Who can you call and who can call you? \(p33\)](#)

About video addresses

Within an organization, every user and room system has a directory number and is also listed in the directory.

StarLeaf users and StarLeaf guests can call each other by email address and this works between organizations.

Every user that is provisioned is also automatically assigned a unique video address such that they are reachable from any standards-based video endpoint that is routable on the Internet.

To view a user's video addresses, go to the [Edit user](#) page for that user and view the [Dialing information](#):

▼ **Dialing information**

StarLeaf video address maya.kiran@xampleco.com

External video address maya.kiran @xampleco.call.sl
 autocomplete

PSTN number

Extension 2103

Legacy video address 830652103@xampleco.call.sl

Show in address book

Address types:

- **StarLeaf video address:** the user's email address. StarLeaf users and StarLeaf guests can call each other by email address
- **External video address:** StarLeaf provides external addresses for each user, room system, and scheduled meeting. An external video address is to be used by people outside the organization who are using H.323 devices or SIP devices or Skype for Business

clients that are routable on the Internet. By default, StarLeaf autocompletes this address. However, if you require, you can edit the first part of the address.

When a user sends a guest invite, all dialing information for this user is also provided for the guest. This means that a guest can dial from existing video conferencing equipment if he prefers. A room system's external video address is displayed on the **Home** screen of the StarLeaf touchscreen controller

- **PSTN number:** If you have configured a [PSTN trunk](#) for your organization, you can assign a direct dial number for this user.
- **Extension:** StarLeaf assigns each user an internal extension number. Other StarLeaf users inside your organization can either choose to call someone from the directory (contacts), or they can dial the extension of the person they want to talk to. In the above example, the extension is 2103
- **Legacy video address:** this address is only necessary where someone is attempting to dial this endpoint from an older H.323 device where it is not possible to dial certain characters. StarLeaf creates this address from the directory number and a unique organization prefix that is assigned when a StarLeaf account is created in combination with the account **Subdomain**

Examples

An example user is configured with these settings:

Organization name: Xampleco

Subdomain: xampleco

Organization prefix: 83065

User first name: Alexis

User last name: Reena

User email address: alexis.reena@xampleco.com

User extension: 2101

StarLeaf assigns these addresses for Alexis Reena:

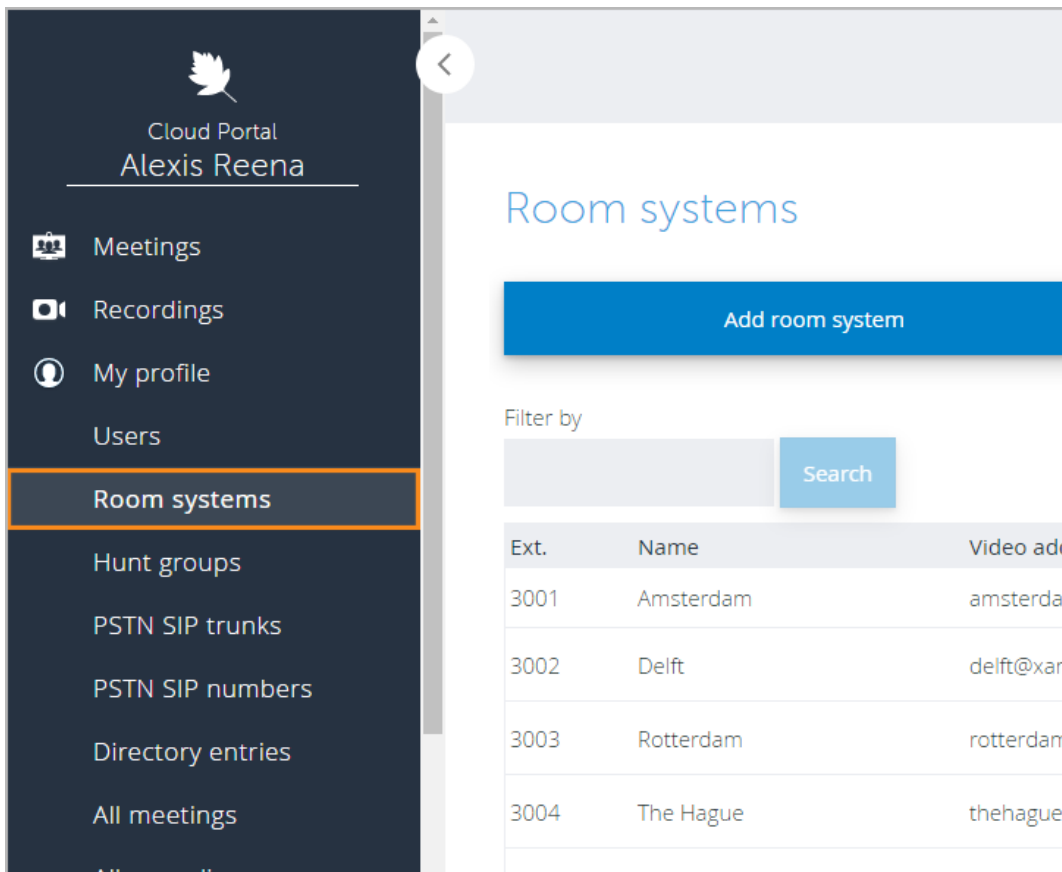
StarLeaf video address: alexis.reena@xampleco.com

Legacy video address: 830652101@xampleco.call.sl

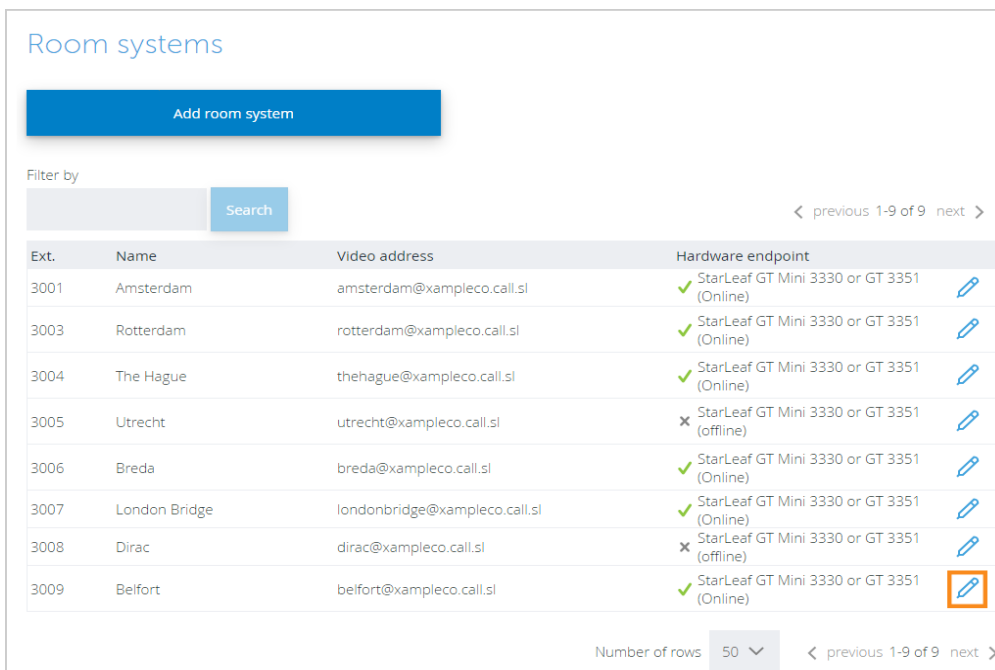
How to add a video address to a StarLeaf room system

By default, organizations have the option to configure a StarLeaf room system with an email address. If, however, this option is not available, then contact StarLeaf Support to enable this feature.

1. Go to the **Room systems** page in your Admin Portal:



2. Click the edit icon next to the room system that you want to configure an email address with:



3. In **Room resource email address**, add the room's Exchange email address. In the example below, the meeting room's Exchange email address is **belfort@xampleco.com**:

Edit room system

▼ **Meeting room**

Name:

Belfort

Room resource email address:

belfort@exampleco.com

Hide meeting titles

Enable video mail

Under **Dialing information**, the room system's **Video address** is automatically updated:

▼ **Dialing information**

Video address: belfort @exampleco.call.sl

autocomplete

PSTN number

Extension 3009

Legacy video address 830653009@exampleco.call.sl

Show in address book

4. Click **Apply**.

You can edit this address at any time by following the same steps as above.

Who can you call and who can call you?

Your StarLeaf endpoints are connected to the StarLeaf platform. This means that from a StarLeaf endpoint, you can call anyone who has a standards-based video device

connected to the public Internet and they can call you. If you want to video-call someone who does not have a StarLeaf device, send that person a guest invite from the StarLeaf app or a StarLeaf room system.

Depending on your account settings, you might also be able to call out to the public telephone network.

The features and functionality of StarLeaf endpoints are fully explained in the documentation available in the [Knowledge Center](#).

Legal information

Third party software acknowledgments

Acknowledgments of third-party software are available at:

www.starleaf.com/support/legal

Disclaimers and notices

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