

Using the Store and Forward functionality on Claudio

To enable 'Store and Forward' (SAF) and related functionality, you need your subscription to be upgraded to Claudio Ultimate. Once the subscription is upgraded, Streamit will also provide you the account information to access the content storage space on Claudio.

When we talk about Store and Forward functionality, we refer to the content that gets downloaded by the player, including the planning when the content needs to play. The types of content can be:

- Music content
- Advertisements (commercials) that get played between the music tracks
- Announcements, that interrupt the music and play exactly at the specified time
- Optionally, playlist in the PLS format. These are only required when music tracks are to be played in a specific (pre-defined) order and to allow scheduled content changes.

All audio content, and eventually music playlists, are uploaded to the storage space and organized accordingly.

Accessing the storage space

The storage space is a dedicated Amazon S3 bucket connected to your Claudio account. Streamit does not provide own tools to access the storage. Instead, you are required to install a third-party S3 client software. There are numerous tools available for this purpose.

	Windows	Mac OS X
S3 Browser (https://s3browser.com/)	✓	
TntDrive (https://tntdrive.com/)	✓	
ExpanDrive (https://expandrive.com)	✓	✓
CyberDuck (https://cyberduck.io/s3/)	✓	
Mountain Duck (https://mountainduck.io/)	✓	✓
FileZilla Pro (https://filezilla-project.org/filezilla_pro.php)	✓	

Some tools run as a separate app (e.g., S3 browser, CyberDuck), while others run as services that enable you to mount the S3 storage in the Windows File Explorer or macOS Finder.

Most tools have free version or a free trial period. Our experience is that the free version might have limitations e.g., in speed, making it less suitable for 'production'. All tools should be okay for testing and will allow you to choose the tool that works best for you.

While no two UIs are the same, on each tool you need to choose to connect to Amazon S3. The credentials required to connect to the storage can be found in the account details sheet sent to you by Streamit. In the UI of most tools, you will easily identify the fields Access Key ID and Secret Access Key. The Amazon S3 Bucket field could also be called path or remote path.

Streamit Claudio

Amazon S3

Nickname: Streamit Claudio

Labels:

URL: <https://AKIAYXZ3ABC4YXZ55XYZ@s3.amazonaws.com/0123456>

Server: s3.amazonaws.com Port: 443

Access Key ID: AKIAYXZ3ABC4YXZ55XYZ

Secret Access Key:

Path: 0123456789ABCDEF1234

Drive Letter: Auto

Connect Mode: Default

Options: ☐ Read only

Connect OK Cancel

In this example, the Amazon S3 Bucket needs to be entered in the field 'Path'.

Figure 1: Connect to S3 bucket

Uploading and organizing your content

Once you have connected to (or mounted) your storage, you can start uploading your content. For the content to be usable, it needs to be organized in a specific structure.

The way you organize the music content, is mainly determined by the following two requirements:

- Whether you will be providing playlists, that determine the order in which tracks will be played
- Being able to prepare changes to the audio content scheduling in advance

For relaxed requirements and when using SAF functionality to simply update the fallback content of the players, simply uploading the audio files might be enough. In that case, the SAF service on Claudio will automatically generate the playlists by itself.

A playlist determines the order in which tracks will play on the Lisa. When a specific order is required, providing your own playlists is a must.

By providing your own playlists you enable other advantages, such as a better way of organizing your content, reducing/avoiding file duplicates, preparing changes ahead of time and uploads being required less frequently.

Not providing own playlists

When you will not be providing own playlists, audio content is organized in playlist folders. The name of a playlist folder ends with '.pls'. All the tracks required for each playlist are uploaded under the specific folder.

The content in each playlist folder will be converted to a single playlist for the player, where tracks will be ordered alphabetically. If a random order is required, this needs to be enabled on the player by means of return commands or using any other command interfaces.

The structure for two such playlists is shown below:

```
<your_bucket>
├── dance.pls/
│   ├── dance001.mp3
│   ├── ...
│   ├── dance201.mp3
│   └── dance202.mp3
└── top40.pls/
    ├── house001.mp3
    ├── ...
    ├── top129.mp3
    ├── ...
    └── dance201.mp3
```

As you already figured out, this will very often result in duplication. In the above example, we have 'dance201.mp3' in two folders.



When both playlists are assigned to the same player, files with the same name will be considered by the player as the same file and only the first occurrence will be downloaded.

Working with playlists – v1

When you can provide your own playlists (PLS format) that meet the Streamit requirements, you can have playlist tracks play in a pre-defined order.

You upload all playlists on the root of the bucket and create a folder named 'music', where you upload all the music content.

```
<your_bucket>
├── music/
│   ├── dance001.mp3
│   ├── ...
│   ├── dance202.mp3
│   ├── house001.mp3
│   ├── ...
│   └── house138.mp3
├── dance.pls
└── house.pls
```

Having all tracks in one folder, you only need to upload an audio file once, regardless of how many playlists will be using it.

Working with playlists – v2

To enable better content organization for more demanding applications, it is also possible to combine playlist folders with playlists files, within the same account.

Some possible combinations are illustrated in the example below:

```

<your_bucket>
├── music/
│   ├── classic001.mp3
│   ├── classic002.mp3
│   └── classic003.mp3
├── dance.pls/
│   ├── dance001.mp3
│   └── dance002.mp3
├── mixed.pls/
│   ├── ambient001.mp3
│   ├── ...
│   ├── reggae127.mp3
│   └── relax.pls
└── classic.pls

```

Looking at the ordering of tracks when the above playlists are served to a player:

- Playlist *dance.pls*: The tracks in this folder in alphabetical order
- Playlist *mixed.pls*: The tracks as listed in *relax.pls*, taken from the folder *mixed.pls*
- Playlist *classic.pls*: The tracks as listed in *classic.pls*, taken from the folder *music*

Working with playlists – v3

For all the options above, to make changes to the content that a player will be receiving you need to make changes to the playlists or playlist folders. As soon as changes get made, players performing an update will receive the changed content from that point in time.

To apply changes on specific days, you will need to make those changes at the end of the previous day. It goes without saying that for many applications this is very labor intensive and often not acceptable.

Customers that have been using the Streamit ADP system, are known with the feature ‘date substitution’. The specific feature allows the content manager to prepare/upload playlists in advance (including audio content), and the system would choose the one that was intended for a specific day.

The advantages of the above-mentioned functionality are now also available on Claudio, with the convenience in use that should by now be familiar to you.

To facilitate the functionality in question, your playlists need to be organized in playlist container folders that end with the ‘.sub’ extension. The audio files that get referenced by the playlists can be uploaded on the root music folder, but it is also possible to create a dedicated music folder inside the ‘.sub’.

The name of the folder may contain fixed parts as well as (special) letters inside square brackets, which the system interprets as:

[d] – day of the month

[m] – month

[y] – year

[dow] – day of the week

You then generate playlists to match the specific filename format and upload these to each respective folder.



Make sure that you use a two-digits format for day (01-31), month(01-12), and day of the week (01-07, where Monday=01 and Sunday=07), and a four-digits format for the year.

```
<your_bucket>
├── music/
│   ├── c1_001.mp3
│   ├── ...
│   ├── c1_253.mp3
│   ├── c2_001.mp3
│   ├── ...
│   └── c2_872.mp3
├── c1_pop_[y][m][d].sub
│   ├── c1_pop_20220404.pls
│   ├── c1_pop_20220405.pls
│   ├── ...
│   └── c1_pop_20220431.pls
├── c2_rock_[dow].sub
│   ├── c1_rock_01.pls
│   ├── c1_rock_02.pls
│   ├── ...
│   └── c1_rock_07.pls
└── c3_[d]_classic.sub
    ├── music/
    │   ├── c3_001.mp3
    │   ├── ...
    │   └── c3_627.mp3
    ├── c3_01_classic.pls
    ├── c3_02_classic.pls
    ├── ...
    └── c3_31_classic.pls
```

The example above shows some of the options possible, that could be used for some specific cases:

- Playlist *c1_pop_[y][m][d].sub*: You have unique playlists for each day, and the referenced audio files may be shared across playlists (uploaded to and served from the root music folder).
- Playlist *c2_rock_[dow].sub*: You have unique playlists for each day of the week, and the referenced audio files may be shared across playlists (uploaded to and served from the root music folder).
- Playlist *c3_[d]_classic.sub*: You have unique playlists for each day of the month, and the referenced audio files are specific to this playlist (uploaded to and served from the dedicated music folder)

By following the substitution rules in naming your folders and deciding on whether a dedicated music folder is required, there are many more combinations possible.

Audio messages

All audio messages to be used as ads or announcements, must be uploaded in the same folder and this must be named 'messages'. All the files must be at the same level (so, no sub-folders).

```
<your_bucket>
├── music/
│   ├── dance001.mp3
│   ├── dance002.mp3
│   └── house001.mp3
├── messages/
│   ├── commercial-001.mp3
│   ├── commercial-002.mp3
│   └── announcement-001.mp3
├── dance.pls
└── top40.pls
```

Assigning the content to players on Claudio

With the content uploaded on the storage space, you can proceed configuring/managing your Lisa players on Claudio. The Store and Forward functionality will only be available when you log in with your 'master' account, after this is upgraded to the Claudio Ultimate subscription.

The first thing you will notice when you log in to Claudio (<https://claudio.streamit.eu>), will be two new menu items, 'Playlists' and 'Ad sets'.

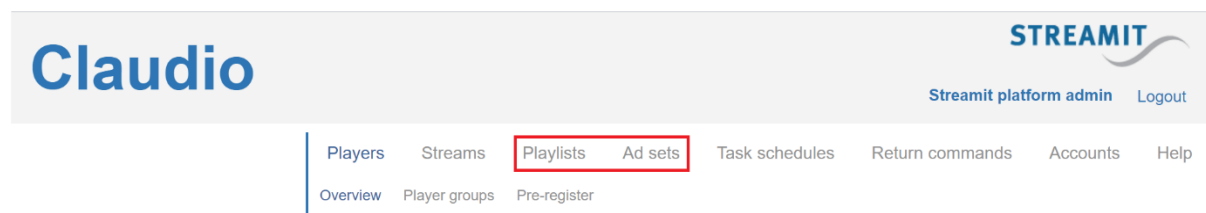


Figure 2: Menu structure of account with Claudio Ultimate subscription

Adding playlists

The playlists overview page lists the playlists already available on the system and ready for use. All playlist folders and playlists uploaded to your storage for the v1 and v2 scenarios will be automatically displayed.

For the more advanced v3 scenario you are required to create a mapping by adding the playlists on the Claudio front-end. This enables you to select a user-friendly name instead of the cryptic folder names and includes checks to help avoid any mistakes in setting things up.

- Press the button 'Add a new playlist'
- Give your playlist a name, so that that you can easily recognize when assigning it to players
- Select the filename format that was used for your playlist container folder. The dropdown will only list what has not yet been added.
- Wait shortly for Claudio to list all uploaded playlists contained in the '.sub' folder that respect the filename format. Make sure that all items are listed as expected.
- Click 'Save' button, for the playlist to be become available for use.

Add playlist

Name*

Customer1 - Pop

Filename format*

c1_pop_[y][m][d].sub

Check available files

c1_pop_20220727.pls, c1_pop_20220728.pls, c1_pop_20220729.pls, c1_pop_20220730.pls,

Cancel

Save

Figure 3: Add a playlist on Claudio

Once you have saved your playlist, you will be forwarded back to the overview page, and you will find your new playlist in the list.

Playlists

Add a new playlist

Download as CSV











Sort by:	Name	Updated at ▲
Filter:	Name	
 	Customer1 - Pop	Thu, 28 Jul 2022 09:23
 	fixedname_sub	Wed, 27 Jul 2022 16:40
 	example40.pls	Wed, 27 Jul 2022 14:25
 	media	Wed, 27 Jul 2022 14:24

Figure 4: Playlists overview

You can assign the playlist to a selection of players, simply by clicking  and filtering out the players you want the set assigned to. Assignment to a single player is also available at the player level. Click on  to see which player have a specific playlist assigned as a preset

Planning advertisements

The 'Ad sets' page will allow you to plan how/when ads, or block of ads are played between music tracks in a Store and Forward operation. A calendar-based scheduling tools is available, making the schedule visual.

- Access the 'Ad sets' page
- Press the button 'Add a new ad set'
- Give your set a name that you can recognize when assigning it to players

- Click 'Add adverts' button, or click/select the time on the calendar you want one or more ads to play
- The ad scheduler will be shown. Fill in the information, to schedule your first ad (block).

The screenshot shows a web form titled 'Schedule ad (block)'. It has the following fields and values:

- Title***: tomatoes
- Starting from***: 2021-07-12, 01 : 00
- Repeat interval (min)**: 240
- Ending on**: 2021-07-24, 18 : 30
- Days of the week**: Mon (unchecked), Tue (checked), Wed (checked), Thu (checked), Fri (unchecked), Sat (checked), Sun (unchecked), ALL (unchecked)
- Ads***: comm1.mp3 x, comm2.mp3 x. Below this is a 'Choose file(s)' link.
- Buttons**: Cancel, Save

Figure 5: Schedule ad (block)

In this example, two ads will play (order will be the same as the order in which you select them, in this case comm1.mp3, comm2.mp3).

The available files will be the ones present in the 'messages' folder.

The ad will play for the first time at 01:00 on the first day of repetition, starting from the 17th of July.

Click 'Save' to store your input.

Once you have completed scheduling your ads, press 'Save' button, and your set will be ready for use by the Lisa players.

Add adverts
Cancel
Save

Name*
vegetables-set

	Title	Starts	Ends	Repeat interval	Repetition days
 	tomatoes	2021-07-12 at 01:00	2021-07-24 at 18:30	240 min	Tue, Thu, Wed, Sat
 	potatoes	2021-07-12 at 03:00		120 min	Mon, Tue, Wed, Thu, Fri, Sat, Sun
 	cucumber	2021-07-12 at 00:00	2021-07-24 at 23:30	360 min	Mon, Wed, Sun, Fri

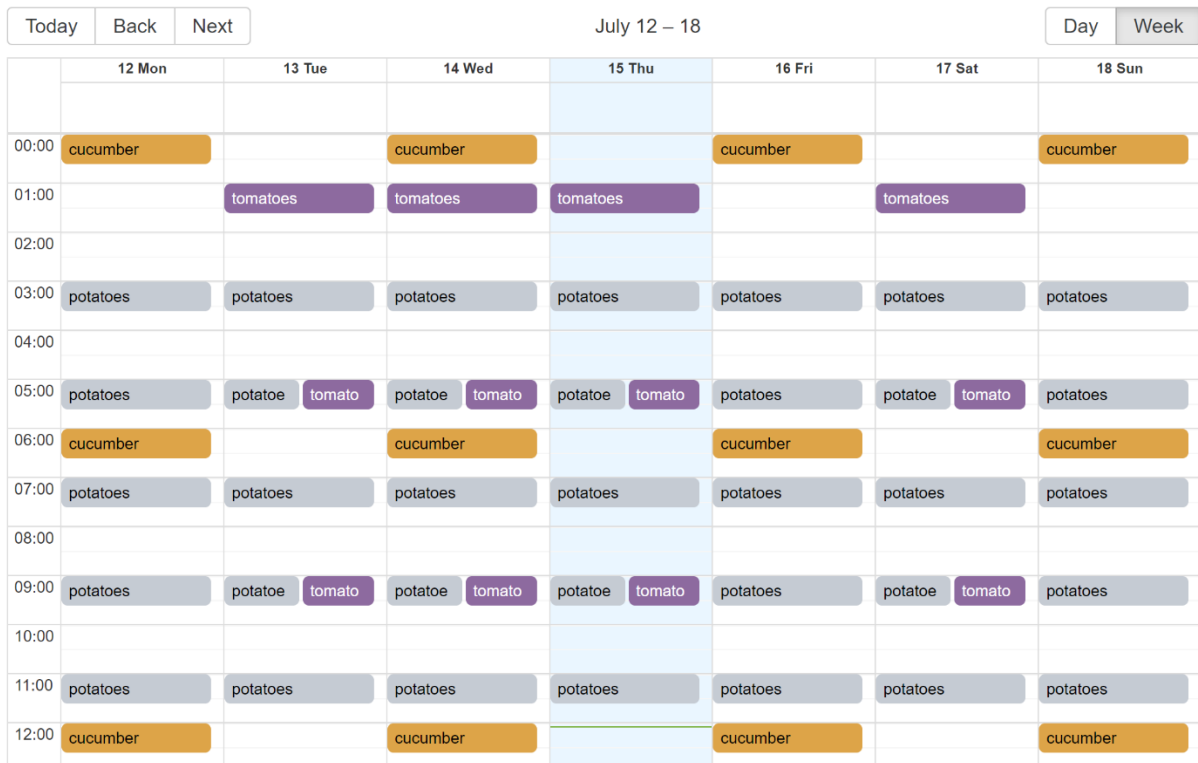




Figure 6: Ad set schedule

You can edit each ad from the list view, or just clicking it on the calendar. The edit mode also allows you the option to ‘clone’ it.

Once you have saved the set, this will be shown in the list of sets on the ‘Ad sets’ page. This page enables you to use an existing set as the basis for a new one (clone), by clicking the icon . You can also assign the specific set to a selection of players, simply by clicking  and filtering out the players you want the set assigned to. Assignment to a single player is also available at the player level.

Claudio

STREAMIT

Streamit platform admin Logout

Players

Streams

Playlists

Ad sets

Task schedules

Return commands

Accounts

Help

Ad sets

Add a new ad set

Sort by:	Name	Updated at	# of devices
Filter	<input type="text" value="Name"/>		
	fruits	Thu, 15 Jul 2021 12:12	23
	vegetables-set	Thu, 15 Jul 2021 12:11	0
	Copy of fruits	Thu, 15 Jul 2021 12:12	0

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Figure 7: Ad sets overview

Connecting the content to your Lisa player

With playlists uploaded and ads scheduled, it is time to make sure that the Lisa player is configured properly.

To enable the Store and Forward functionality for a specific player, you access the 'General settings' tab, and select 'Claudio' as the content update resource to be used.

Platform and resources

Platform

Device portal

Software update

Keep existing setting on device

Proxy server URL

Content Update Resource

Claudio

Figure 8: Enable the Claudio SAF functionality

You can also configure the content update resource to a selection of players using the bulk action 'Config content update resource' from the 'Bulk actions' dropdown on the players overview page.

Once the content update resource is set properly, you will notice that two new tabs for the respective player, 'Playlist presets' and 'Ads'.

To assign the music content to your player, select the ‘Playlist presets’ tab and select the desired playlist presets that should become available on the player.

It is also possible to assign a playlist as preset to a selection of players (bulk assignment feature) at once. This is done from the playlists overview page, however, for this to work the respective players need to have the content update resource set to ‘Claudio’ at the time of assignment.

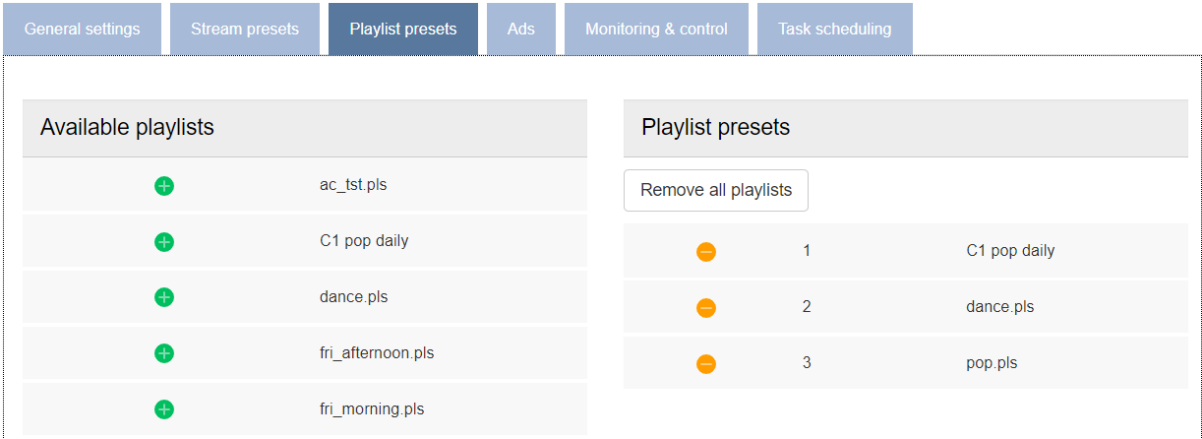


Figure 9: Assign playlist presets to Lisa player

With the playlists assigned, you can eventually move to the ‘Ads tab’ and assign the desired set to your player. Just select the set from the dropdown, and press ‘Save’ to store your choice.

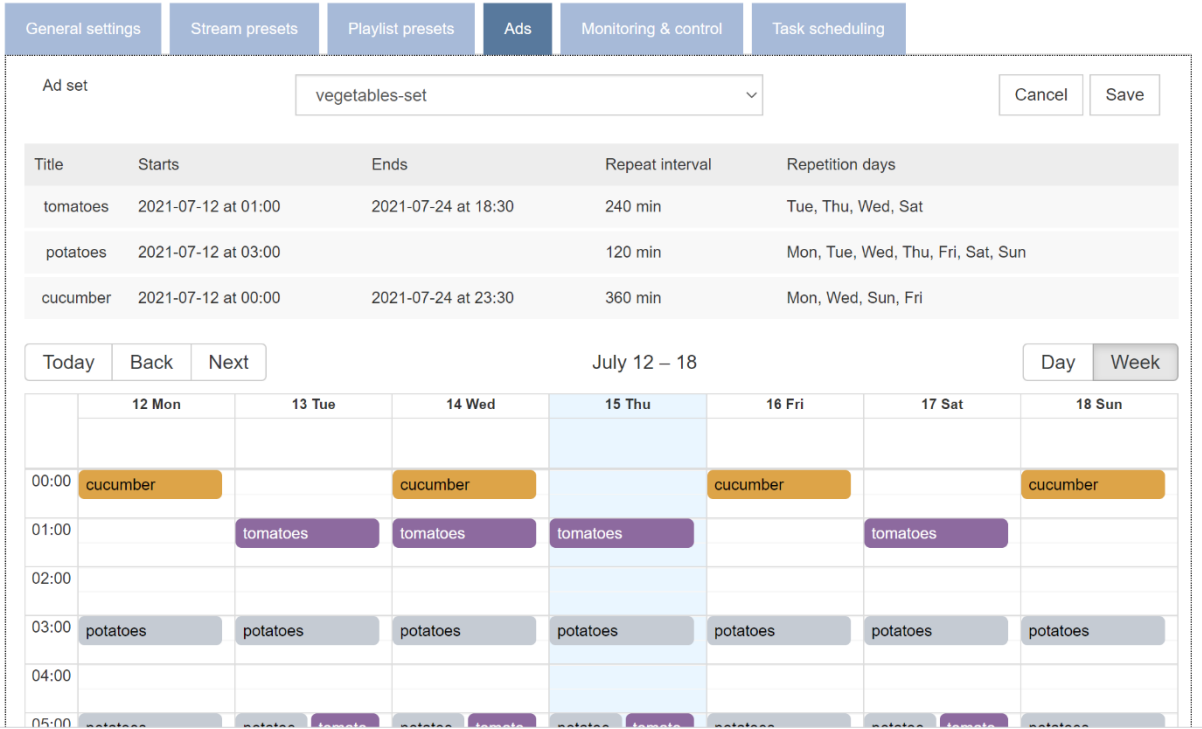


Figure 10: Ad set assignment at the player level

It is also possible to assign ads to a selection of players (bulk assignment feature) at once. This is done from the ad sets overview page, however, for this to work the respective players need to have the content update resource set to 'Device Portal' at the time of assignment.

Enabling players to update and play their content

Connecting the content to a player, does not ensure that the content automatically becomes available on the player. There is no permanent connection between the Lisa and Claudio, nor can Claudio push the content to the Lisa.

It is always the Lisa that initiates communication and carries out updates (and other tasks) at the desired times. The user must prepare a task schedule and assign it to the respective player, to enable the updates and other events on the Lisa.

Looking at a simple Store and Forward application, the task schedule must include at least the content update task ('Update playlists') and one 'Play playlist' task.

To enable some more flexibility, we always recommend including the 'Update schedule' task. This way, should it be required to make changes for the next day (e.g., playlist to start at 07:00 instead of 06:30), then all you need to do is make the change before the schedule update task (in example below 22:00) and all players using the same schedule will update accordingly.

Below, we are showing one example of a schedule used in Store and Forward application.

Schedule: basic-saf-schedule















Add new task		Rename schedule		Remove schedule		Back to overview	
Task		Parameter	Starts	Ends	Repeat interval	Repetition days	
Synchronize time						At schedule update	
		Update schedule	2021-07-12 at 22:00			Mon,Tue,Wed,Thu,Fri,Sat,Sun	
		Power on/off	off	2021-07-12 at 23:30		Mon,Tue,Wed,Thu,Fri,Sat,Sun	
		Update playlists	2021-07-12 at 00:15			Mon,Tue,Wed,Thu,Fri,Sat,Sun	
		Play playlist	1	2021-07-12 at 06:30		Mon,Tue,Wed	
		Play playlist	2	2021-07-12 at 06:30		Thu,Fri	
		Play playlist	3	2021-07-12 at 06:30		Sat,Sun	
		Play announcement	announcement-002.mp3	2021-07-12 at 20:00	2021-07-31 at 20:30	10 min	Mon,Tue,Wed,Thu,Fri,Sat,Sun

Figure 11: An example of a Store and Forward schedule

The parameter of the play playlist task will determine which playlist is to be played, which is why the order of the presets at the player level is important.

When assigning the specific schedule to a Lisa player, or when creating the schedule at the player level, you will notice that the playlist name will be displayed (as assigned in Figure 9).

General settings
Stream presets
Playlist presets
Ads
Monitoring & control
Task scheduling

Scheduling
Active

Schedule
basic-saf-schedule

Edit

Schedule: basic-saf-schedule

Contains 8 tasks

Add new task

Rename schedule

Task	Parameter	Starts	Ends	Repeat interval	Repetition days
Synchronize time					At schedule update
Update schedule		2021-07-12 at 22:00			Mon,Tue,Wed,Thu,Fri,Sat,Sun
Power on/off	off	2021-07-12 at 23:30			Mon,Tue,Wed,Thu,Fri,Sat,Sun
Update playlists		2021-07-12 at 00:15			Mon,Tue,Wed,Thu,Fri,Sat,Sun
Play playlist	1. dance.pls	2021-07-12 at 06:30			Mon,Tue,Wed
Play playlist	2. pop.pls	2021-07-12 at 06:30			Thu,Fri
Play playlist	3. rock.pls	2021-07-12 at 06:30			Sat,Sun
Play announcement	annoucement-002.mp3	2021-07-12 at 20:00	2021-07-31 at 20:30	10 min	Mon,Tue,Wed,Thu,Fri,Sat,Sun

Figure 12: Schedule assignment at the player level

With the schedule assigned, there remains only one last thing, making sure that the device starts following the schedule. To do so, you just power on the Lisa device or restart it once.

Planning announcements

An announcement in the Lisa terminology, is a special type of message that plays exactly at the scheduled time (1 minute resolution), interrupting the music being played, whether in a Store and Forward or streaming application. When the announcement has played completely, the Lisa will proceed where it had left off.

When your account is upgraded to Claudio Ultimate, you will be able to plan 'Play announcements' tasks in the task schedule (as shown in Figure 12).