

# Makalu 1.3

**User Manual** 

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# 1. About this document

This document is intended for beginner and intermediate Makalu users and describes the main Makalu functions, the most frequently used tasks, and workflows.

After reading this document, readers will understand how to use Makalu and will e.g. be able to:

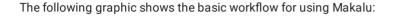
- use the Makalu applications
- ingest, preview, and manage files
- create and manage playlists, shows and clips
- manage and assign graphics
- · control the rundown and streaming

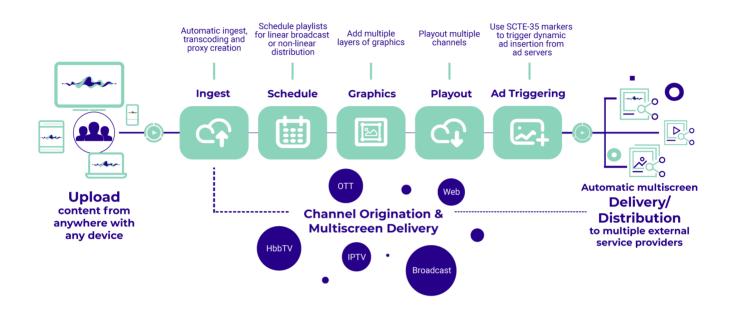
# 2. About Makalu

Makalu is a software-defined playout automation, suitable for broadcasters and content providers of any kind and size. It enables a full-featured end-to-end signal workflow – from ingest to distribution – and covers further media tasks like storage, media management, transcoding, graphics, planning, playout, and streaming. It is designed for managing and distributing linear content to social media, broadcast, IPTV, and OTT platforms.

The system is based on a manufacturer-independent, microservice-oriented architecture to achieve a maximum level of flexibility and scalability. It runs on most public or hosted private clouds as well as on virtualized environments and onpremises. This enables a wide range of applications, including hybrid broadcast concepts (e.g. cloud-based planning and physical playout servers).

# 3. Functional overview





#### Figure: Makalu basic workflow

From a top-level perspective, Makalu consists of the following functional areas:

- Ingest
- Schedule (Traffic/Planning)
- Graphics
- Playout (Automation)
- · Ad triggering (optional)

#### Ingest

The ingest functionality provided by Makalu is focused on the file-based upload of video content. To upload files, the included Makalu Asset Uploader application can be used. Uploaded video files are automatically processed, which includes e.g. the creation of a thumbnail image, a low-res (proxy) video file and media information (technical metadata). As a result the processed files can be used properly by Makalu. In addition to file-based content, Makalu also supports live sources (provided as web streams).

#### Schedule

Makalu includes a traffic component for strategic/operative as well as rough/daily planning. It enables using uploaded files to create shows, adding shows to playlists as well as adding graphics and other secondary events. A playlist can be added to a rundown in the Makalu Automation to define the content the playout should actually play.

#### Graphics

Makalu uses the Singular.Live graphics platform for overlay graphics, which provides tools for composing, controlling and output of professional graphics. Each output generated by Singular.Live can be received by the Makalu Automation and can be used as additional layer on top of the main video output.

#### Playout

The Makalu Automation component is used to control one or more players running on playout instances, that are seamlessly playing video files or live sources from a playlist. The automation can be controlled either manually by the operator or scheduled/time-triggered via the planning component. The player output can be distributed to web, OTT, and IPTV targets.

# 4. Ingest

The purpose of the ingest workflow is to provide new video files to the playout. After each successful upload, the corresponding file is automatically processed by Makalu. When the internal file processing is completed, the uploaded file is registered in Makalu and can be scheduled for playout. In the final step, each scheduled file (that is added to a rundown as part of a show in a playlist) is automatically transferred from the ingest storage to the playout storage. For more information, see section File transfer.

## 4.1 Manual file upload via Makalu Asset Uploader

The ingest process starts with the file upload. For this purpose, Makalu includes the Asset Uploader, a web application for uploading files to the ingest storage.

### 4.1.1 Uploading files

With Makalu Asset Uploader you can either upload a new file to the system, creating a completely new asset or you can assign the file to be uploaded to a placeholder asset that already exists in the system. A placeholder is a virtual element, that can be used to schedule a file for playout, that is not yet available (that has not yet been created). By using this concept, playlists can already be prepared via the planning component, even if the actual files are created later. As a result, the uploaded file replaces the placeholder everywhere it is used in the planning component.

To upload a file, proceed as follows:

- 1. Open Makalu Asset Uploader by either:
  - a. Opening Makalu Automation via https://automation.customer-identifier.makalu.live and selecting the Asset Uploader tab or
  - b. Opening the Makalu Asset Uploader standalone user interface via https://asset-uploader.customeridentifier.makalu.live/s3uploader

The Asset Uploader user interface is opened.

S MAKALU.As	ssetUploa	der									٠
UPLOAD LIST   TARGET BUCKET:	er bahat mala	TARGET FOL	DER:							TOTAL PARTS II	I-PROGRESS: 0
# FILE NAME											
Add file Assign to placeholder	Assign to file	Io target folder sel	ected! To add files, first oper	the sidebar on the right side :	and select a target folder.			Clear upload list	Pause all	Resume all	Cancel all
											Ξ

Figure: Asset Uploader

2.

Select a folder in the ingest storage as target for your upload, by clicking on the the target folder sidebar. Then select the target folder.



icon on the right side to open

1AKALU.AssetUpl	bader				TARGET BUCKET	×
					CREATE NEW FOLDER	
					Folder name	
					Create	]
					Example_Folder_1     Example_Folder_2	
					Example_Folder_3	

Figure: Asset Uploader - Target folder sidebar

The folder is selected, and the sidebar is closed. The name of the selected folder is displayed above the upload list.

#### 🗴 Tip

You can also create a new folder by using the Create new folder area in the target folder sidebar.

When creating a new folder, the following restrictions apply to the folder name:

• Do not use a leading slash but append a closing slash (Example: folder/subfolder/).

• Not permitted (system-reserved) top-level folder names are Live, live, Placeholder and placeholder.

• Permitted characters are letters (a-z, A-Z), numbers (0-9), hyphen (-) and underscore (\_).

To create a new folder, proceed as follows:

- a. Enter a valid name for the new folder in the Folder name field.
- b. To create the folder, click Create.

The folder list is updated, and you can select the newly created folder as target.

3. Optional (if you want to assign the file to be uploaded to an already existing placeholder asset): Select a placeholder as follows:

#### a. Click Assign to placeholder.

A list of available placeholders is displayed.

$\mathbf{x}$	MAKALU <mark>。</mark> AssetUplo	bader															\$
UPLOAD L	IST   TARGET BUCKET:	TARGET FO	LDER: Exa	mple_Fol	der_1											TOTAL PARTS IN	-PROGRESS: 0
Add file	Assign to placeholder Assign to file												Cle	ear upload list	Pause all	Resume all	Cancel all
			SELEC	T A PLAC	EHOLDEI	R						×					
						2021-10-07 15:32:56.27 2021-10-07 15:33:12.52	2021-10-07 15:32:56.27 2021-10-07 15:33:12:52	Example placehok									
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									Die	splaying placeholders 1-3 of 3	< >						
			Dele	te						Cancel	Ok						

Figure: Asset Uploader - List of available placeholders

- b. Use the Search field and/or the paging buttons to search for a specific placeholder.
- c. Select a placeholder.
- d. Click Ok.

The list of placeholders is closed, and the name of the selected placeholder is displayed right to the Assign to placeholder button.

۸ 😒	MAKALU. Asse	tUploader							۵
UPLOAD LIS	T   TARGET BUCKET:	TARGET FC	DLDER: Example_Folder_1					TOTAL PARTS IN	-PROGRESS: 0
Add file	Assign to placeholder As	ssign to file Selected placeho	ilder: Example placeholder 1		Clear	upload list	Pause all	Resume all	Cancel all

Figure: Asset Uploader - Placeholder selected

4. To select the files to upload, click Add file.

The file selection window opens.

5. In the selection window select one or more files and click Open.

#### Notice

If you selected a placeholder as described in the optional step 3, you can only select a single file. If no placeholder is selected, you can select multiple files.

#### Notice

Depending on how the Makalu Asset Uploader is configured, only allowed file types can be selected and uploaded. It is possible to allow any file type or to restrict the allowed file types to e.g. MP4 files only. In this case only files of this type are displayed in the selection window.

The selected files are added to the upload list and the upload starts automatically.

	AKALU.AssetUplo	ader						۵
UPLOAD LIS	T   TARGET BUCKET:	TARGET FO	DLDER: Example_Folder_3					TOTAL PARTS IN-PROGRESS: 4
1	Example_File_01.mp4	33.5 MB	Example_Folder_1	Uploading	Speed: 537.68 KB/s   Uploaded: 16.0 MB   Overall: 47%		Pause Resume	Cancel
2	Example_File_02.mp4	33.5 MB	Example_Folder_2	Uploading	Speed: 623.12 KB/s   Uploaded: 13.9 MB   Overall: 41%		Pause Resume	Cancel
3	Example_File_03.mp4	33.5 MB	Example_Folder_3	Uploading			Pause Resume	Cancel
Add file	Assign to placeholder Assign to file					Clear	r upload list Pause all	Resume all Cancel all

#### Figure: Asset Uploader - Upload started

During the upload process the progress of each upload is displayed, including current upload speed, amount of uploaded data and overall upload percentage. Completed uploads are highlighted in green with the status "Upload completed".

#### Notice

The upload speed is not limited. The application will use the full upload bandwidth currently available on client side.

۵ ک	/IAKALU <mark>.</mark> AssetUplo	ader							٠
UPLOAD LIS	T   TARGET BUCKET:	TARGET FC	DLDER: Example_Folder_3					TOTAL PARTS IN-PRO	OGRESS: 0
1	Example_File_01.mp4	33.5 MB	Example_Folder_1	✓ Upload completed	Speed: 536.24 KB/s   Uploaded: 33.5 MB   Overall: 100%		Pause Resur	Cancel	
2	Example_File_02.mp4	33.5 MB	Example_Folder_2	O Upload completed	Speed: 496.44 KB/s   Uploaded: 33.5 MB   Overall: 100%		Pause Resur	te Cancel	
3	Example_File_03.mp4	33.5 MB	Example_Folder_3	OUpload completed	Speed: 548.19 KB/s   Uploaded: 33.5 MB   Overall: 100%				ļ
Add file	Assign to placeholder Assign to file					Clear	upload list Pause all	Resume all C	Cancel all

Figure: Asset Uploader - Upload completed

#### i Notice

While uploads are in progress, you can either pause, resume, or cancel individual or all uploads via the corresponding buttons.

#### 🔺 Warning

Don't close your browser while uploads are in progress. Otherwise your upload progress will be lost.

When a file upload is completed, the file processing starts automatically.

### 4.2 File processing

After each successful upload, the internal file processing is automatically triggered. When the file processing is completed, the uploaded files are registered in Makalu and can be scheduled for playout.

File processing consists of the following sub-processes:

Sub-process	Purpose	Input (uploaded) file format	Output file format
Creating a low-res (proxy) video file This is only necessary, if original files are uploaded in a format other than MP4.	Web-based preview of the video file	MXF or any other source video format	MP4
Creating a thumbnail image	Display the image in the user interface	Created from uploaded source video file	PNG

Sub-process	Purpose	Input (uploaded) file format	Output file format
Creating a proxy subtitle file This is only necessary, if matching subtitles are uploaded for the original video file.	Web-based preview of the video file including subtitles	SRT, STL, TTML	VTT
Determining technical metadata	Optimized internal file processing, display file information in the user interface	Created from uploaded source files	XML
Creating a checksum for original and proxy files	Check if files were correctly transferred from ingest storage to playout nodes	-	-

### 4.3 Previewing uploaded files

For previewing uploaded files, Makalu includes the Asset Viewer web application.

It provides the following features:

- list all files contained in the ingest storage
- · preview media files including optional additional graphic overlays
- · display closed captions for video files
- download files
- · manually delete files and folders

To preview uploaded and processed files, proceed as follows:

1. Open Makalu Asset Viewer via https://asset-viewer.customer-identifier.makalu.live.

The Makalu Asset Viewer user interface is opened.

2	N N	1A	KA	LU-AssetViewer						¢
FILE L	ST   BL	UCKET	T: MAR	TOTAL OBJECTS: 8				ø	PREVIEW	
Search										
L										
				Example_Folder_1/	Other	0.0 B	2021-10-07 17:18:53			
0				Example_Folder_1/Example_File_01.mp4	Video	33.5 MB	2021-10-07 17:45:09			
				Example_Folder_1/Example_File_04.mp4	Video	33.5 MB	2021-10-07 17:54:59		No file loaded.	
0				Example_Folder_2/	Other	0.0 B	2021-10-07 17:18:59			
				Example_Folder_2/Example_File_02.mp4	Video	33.5 MB	2021-10-07 17:45:17		To start the preview,	
0				Example_Folder_2/Example_File_05.mp4	Video	33.5 MB	2021-10-07 17:55:28		select a file from the file list.	
•				Example_Folder_3/	Other	0.0 B	2021-10-07 17:19:03			
0	8			Example_Folder_3/Example_File_03.mp4	Video	33.5 MB	2021-10-07 17:45:29			
Delo	te select	ted				Files per pag	ye 10 1-8 of 8 <	>		

Figure: Makalu Asset Viewer

- 2. To find a specific file, either enter a term (e.g. a file name or a file type/extension) in the **Search** field above the file list or use the paging buttons below the file list.
- 3. Select a video file.

The preview player on the right side is loaded.

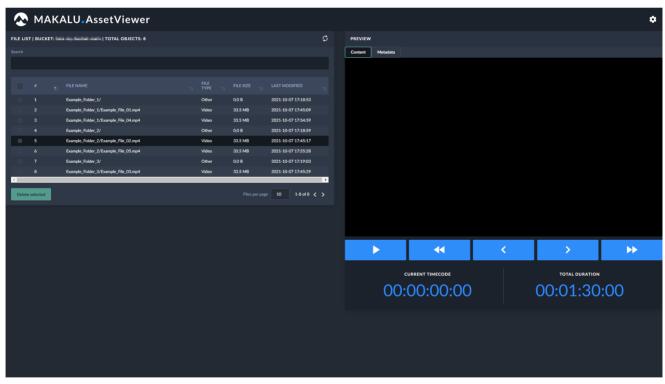


Figure: Asset Viewer - File selected

4. Use the player controls below the video to preview the file.

$\mathbf{x}$	МАК	ALU.AssetViewer									¢
FILE LIST	T   BUCKET: 🖿	I TOTAL OBJECTS: 8				ø	PREVIEW				
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		Example_Folder_2/	Other	0.0 B	2021-10-07 17:18:59		and the state	A RE DONE L	S. A. A. B. S.	L'AL CONCERN	
•	5	Example_Folder_2/Example_File_02.mp4	Video	33.5 MB	2021-10-07 17:45:17	-81	S. 1. 14 St.				
0		Example_Folder_2/Example_File_05.mp4	Video	33.5 MB	2021-10-07 17:55:28						
0		Example_Folder_3/	Other	0.0 B	2021-10-07 17:19:03			YYY SPE	and your		and the second division of the second divisio
	8	Example_Folder_3/Example_File_03.mp4	Video	33.5 MB	2021-10-07 17:45:29	•		A A A A A A A A A A A A A A A A A A A	and the second second		
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							00	:00:26:45	5	00:01:3	00:0

Figure: Asset Viewer - File playing

#### 💧 Tip

To download a file, select it in the file list, select the **Metadata** tab at the top of the preview area and in the **Common area** click **Download**.

### 4.4 Housekeeping

Makalu provides two workflows for deleting files within the scope of housekeeping: automatic and manual.

Both workflows include the following steps:

- 1. Removing the file internally from the Makalu system by removing all corresponding database entries
- 2. Deleting the file from the ingest storage
- 3. Deleting the file from local storage on playout instances

#### 4.4.1 Automatic housekeeping

Automatic housekeeping deletes files automatically based on their expiry date. This time period is globally configured, and the actual expiry date is calculated individually for each uploaded file based on this setting. When the expiry date is reached, the corresponding file is automatically deleted.

It is possible to configure protected folders, that are excluded from housekeeping. Files uploaded to these folders are never automatically deleted, even if the global expiry date is reached.

#### 4.4.2 Manual housekeeping

Manual housekeeping allows you to delete uploaded files at any time (regardless of the global expiry date) via Makalu Asset Viewer.

To delete a file manually, proceed as follows:

1. Open Makalu Asset Viewer via https://asset-viewer.customer-identifier.makalu.live.

The Makalu Asset Viewer user interface is opened.

FILE LIST   BUCKET.         I TOTAL OBJECTS: 277         PREVIEW           Barch         FILE INT   BUCKET.         FILE INT   BUCKET.         PREVIEW           Barch         Glap/Documentation/ProwyDemo.02 mp4   Bucket         Other         15.88         2021:1012 14122           Barch         Glap/Documentation/ProwyDemo.03 mp4   Bucket         Mage         221:1012 14125         To start the preview, select a file from the file list.           Barch         Glap/Documentation/ProwyDemo.05 mp4   Bucket         Video 11:11/B 201:1012 14125         Select a file from the file list.
FILE NAME         FILE SZE         LAST MODIFIED           85         Gipu/Documentation/Demo, 02.mp4_mi.xml         Other         1.5.KB         2021-10-12 14:2021           95         Gipu/Documentation/Demo, 02.mp4_mi.xml         Other         1.5.KB         2021-10-12 14:2021           92         Gipu/Documentation/Pemo, 06.mp4         Video         4.2.3 MB         2021-10-12 14:2021           102         Gipu/Documentation/Pemo, 06.mp4         Video         12.1 MB         2021-10-12 14:12:22           97         Gipu/Documentation/Pemo, 06.mp4, mi.xml         Other         1.5.KB         2021-10-12 14:12:27           90         Gipu/Documentation/Pemo, 06.mp4, mi.xml         Other         1.5.KB         2021-10-12 14:12:27           90         Gipu/Documentation/Pemo, 06.mp4, mi.xml         Other         1.5.KB         2021-10-12 14:12:27
100       Capir/Documentation/Proof/Demo_Shampi       In Mile       2/021-1012/2 M-1125         103       CBips/Documentation/Proof/Demo_Shampi       Image       8.1 K8       2/021-1012/2 M-1125         101       CDips/Documentation/Proof/Demo_Shampi       Image       8.1 K8       2/021-1012/2 M-1125         88       CDips/Documentation/Proof/Demo_Shampi       Image       9.4 K8       2/021-1012/2 M-012         Color/Documentation/Proof/Demo_Shampi       Other       1.5 K8       2/021-1012/2 M-002         Color/Documentation/Proof/Demo_Shampi       Demo       1.5 Int of 2/77 < >       >

Figure: Makalu Asset Viewer - User interface

- 2. To find a specific file, either enter a term (e.g. a file name or a file type/extension) in the **Search** field above the file list or use the paging buttons below the file list.
- 3. Select one or more files to be deleted.

	МАК	ALU.AssetViewer										۵
FILE LIS	T   BUCKET:	TOTAL OBJECTS: 277				¢	PREVIEW					
Search							Content	Metadata				
demo	_06											
۲	92	Clips/Documentation/Demo_06.mp4_mixml	Other	1.5 KB	2021-10-12 14:12:27							
<b>1</b>	102	Clips/Documentation/Proxy/Demo_06.mp4	Video	12.1 MB	2021-10-12 14:12:22							
1	103 91	Clips/Documentation/Proxy/Demo_06.png Clips/Documentation/Demo_06.mp4	Image Video	8.1 KB 191.1 MB	2021-10-12 14:09:11 2021-10-12 14:06:19							
		entra coconcination come_comp.	1000			Þ						
Delet	eselected	Trigger processing			age 10 1-4 of 4 <							
								-	•	<	>	••
									URRENT TIMECODE		TOTAL DURATION	
							00:	00:00:00		00:02:30	0:06	

Figure: Makalu Asset Viewer - Files selected

# $_{\mbox{4.}}$ Click $\mbox{Delete selected}$ below the file list.

E LIST   BUCKET: 📄	TOTAL OBJECTS: 277				ø	PREVIEW				
						Content Metadata				
emo_06										
92	Clips/Documentation/Demo_06.mp4_mi.xml	Other	1.5 KB	2021-10-12 14:12:27						
102	Clips/Documentation/Proxy/Demo_06.mp4	Video	12.1 MB	2021-10-12 14:12:22						
103	Clips/Documentation/Proxy/Demo_06.png	Image	8.1 KB	2021-10-12 14:09:11						
91	Clips/Documentation/Demo_06.mp4	Video	191.1 MB	2021-10-12 14:06:19						
							4			
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							CURRENT TIMECODE		TOTAL DURATIO	N
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							CURRENT TIMECODE		TOTAL DURATIO	N

Figure: Makalu Asset Viewer - Delete files

5. Confirm the dialog by clicking **Delete selected**.

The selected files are deleted.

# 5. Graphics

Makalu uses the Singular.Live graphics platform for graphics overlays. Graphics are managed via the Singular.Live dashboard and are automatically synchronized with Makalu.

Graphics can be triggered via Makalu in the following ways

- trigger graphics manually via the Graphics tab in Makalu Automation
- trigger scheduled/time-controlled graphics automatically based on the current rundown, e.g. by using playlists created via Makalu Traffic

#### Notice

Graphics are automatically synchronized between Singular.Live and Makalu at regular intervals. This interval is configurable and usually set between 10 and 30 minutes.

Triggering graphics manually is not affected by the synchronization process. The Graphics tab in Makalu Automation always shows all available graphics in their latest versions, allowing you to trigger graphics at any time.

Using scheduled/time-controlled graphics depends on the synchronization process. If you create new graphics via the Singular.Live dashboard, they must first be synchronized with Makalu, before you can use them e.g. in a playlist and schedule them in a rundown. If you delete graphics via the Singular.Live dashboard, that are still used in a Makalu playlist, the graphics cannot be triggered and displayed anymore. In these cases be aware that it may take a few minutes until these changes are synchronized and become available in Makalu.

Singular.Live graphics are organized based on projects. Each project can include one or more compositions, which can be considered as master templates. Each composition consists of sub-compositions (the actual graphics to be displayed) that can be assigned to and controlled via control apps. Control apps allow manual triggering of graphics.

#### Notice

Each control app can be assigned to one Makalu channel.

#### 🔺 Warning

Each control app has a unique output URL that is used in Makalu Automation to display the corresponding graphics as an overlay.

The output URLs are configured during the commissioning of the system and are used by multiple Makalu applications.

Do not change these URLs in the Singular.Live settings! Misconfigurations can lead to graphics not being displayed correctly by Makalu Automation.

#### Notice

If you have multiple linear playout channels and want to use one preview output per channel, at least two control apps must be created for each channel (one for the channel's main on air output and one for its preview output).

#### 🗴 Tip

You can find a Singular.Live beginner's guide in this video and a quick tutorial about how to build your own graphics in this video.

For detailed information about creating and managing Singular.Live graphics refer to the Singular Support .

To manage Singular.Live graphics, proceed as follows:

1. Open the Singular.Live website and click Login.

The Singular.Live sign in page is opened.

2. Enter your credentials and sign in.

#### Notice

If you successfully sign in for the first time the Singular.Live marketplace is displayed. There you can select and download default templates to try out and get familiar with Singular.Live.

To download a template click on the corresponding item and then on **Download**.

The template is added to your apps.

Afterwards close the marketplace.

The Singular.Live Dashboard is displayed.

SINGULAR.LIVE	<b>O</b> Support	Free	
Dashboard -			
New		T All	▼ IF Last Modified ▼ i
Favorites     Apps     O MyRecent			
Recent     Infox		Owner	Last modified a few seconds ago
a Trash			

Figure: Singular.Live Dashboard

The control app is displayed.

3. To open the control app of your template, double-click on the corresponding item in the Apps list.

SING	JL	R.LIVE	.al Tran	isparent				16 ¢
🗟 Tr 8 Playlist						Preview		
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-		Freeform 1						. LI V E
-								
-							GET READY FOR THE STU	JDIO'S
-							FIRST LIVE OPENING	31
-								
=							00:10:00	
=						Active Overlays		
						Overlay Editor		
-								
-								
-								
-		Backgroun						
+			to Add Overla					

Figure: Singular.Live control app

- 4. Select an overlay in the list on the left side and use the Overlay Editor on the right side to edit the properties.
- 5. Use the controls on the left side to trigger overlays.

# 6. Schedule

Makalu Traffic is the included planning/scheduling component. Its planning concept is based on playlists, shows and clips. The following table summarizes the characteristics of these and other elements that are required to understand the full planning concept:

Element	Characteristics
Asset	<ul><li>any uploaded and ingested file</li><li>virtual placeholders for video files</li></ul>
Primary event	<ul> <li>main component of a show</li> <li>types: <ul> <li>a video file added to a show (turning it into a "clip")</li> <li>a live segment added to a show (turning it into a "clip")</li> </ul> </li> </ul>
Secondary event	<ul> <li>additional component of a playlist, show or clip</li> <li>examples: <ul> <li>graphics (e.g. corner bug, crawl)</li> <li>metadata (e.g. EPG)</li> <li>stream targets (e.g. YouTube, generic)</li> </ul> </li> </ul>
Clip	<ul> <li>an asset (original video file or virtual placeholder) is considered a clip if it is assigned to a show</li> <li>a clip is considered a primary event</li> <li>can have secondary events (optional)</li> <li>the duration can vary from the actual file duration if a subclip is defined, by setting mark in and mark out</li> </ul>

Element	Characteristics
Show	<ul> <li>container for one or more media elements (primary events and optional secondary events)</li> </ul>
	Example: A show created for a television news program
	This usually consists of primary events like:
	• opener
	<ul> <li>multiple stories (each consisting of an introduction and a report)</li> </ul>
	• closer
	<ul> <li>show content can be categorized</li> </ul>
	<ul> <li>has a duration, which corresponds to the combined duration of all included primary events</li> </ul>
	<ul> <li>flags define the show behavior, e.g. play clips randomly, play show without any assigned secondary events (if the show includes ads), show is approved, etc.</li> </ul>
	<ul> <li>flags define the clip behavior and can be set for each clip</li> </ul>
	<ul> <li>can have secondary events (optional)</li> </ul>
	<ul> <li>in order to be played, a show must be added to a playlist (cannot be played directly)</li> </ul>
Playlist	consists of one or more shows
	<ul> <li>is time-related, as it has an actual start date and time</li> </ul>
	<ul> <li>has a duration, which corresponds to the total duration of all included shows</li> </ul>
	<ul> <li>consists only of shows and optional secondary events</li> </ul>
	<ul> <li>if all included shows are approved, the playlist can be transferred to the Makalu Automation to be used in a rundown for a channel</li> </ul>
Rundown	<ul> <li>channel-specific list of media elements to be played</li> </ul>
	consists of playlists

### 6.1 Accessing Makalu Traffic

1. Open Makalu traffic via https://traffic.customer-identifier.makalu.live.

The Makalu Traffic user interface is opened. Existing playlists and shows are displayed on the right side including properties.

🐼 MAKALU.Tra	affic										8
PLAYLISTS		✓ PLAYLISTS								7	
SHOWS											
Example						2021-03-22 00:00:00.0	00 00:30;	00.00	00:05:51.11		
Demo											
	i +								1-1 of 1		
		✓ SHOWS								7	
		Example	default	default	00:05:20.00	00.00.00.00					
		Demo	default	default	00:30:00.00	00:05:51.09					

Figure: Makalu Traffic user interface

# 6.2 Using shows

#### 6.2.1 Creating a show

To create a new show, proceed as follows:

1. In the left sidebar, select Shows and click the plus icon (Add show).

🐼 MAKALU.	Traffic
PLAYLISTS	<
	~
Example Demo	
	1 + 2

Figure: Makalu Traffic - Add show

A new tab is opened for editing the show details.

📀 MAKALU. Traffic	2			8
	Show Properties		Show Addons	Show Addon details
PLAYLISTS <				
shows 🗸				
+ Filter			Type Name Offset Duration B-Start B-End Extend Channel Action	
Untitled				
Untitled  Example Demo		CATEGORY		
Demo		Media Ready     Approved	No Addons to display!	
		Random Play		
		DURATION 00:00:00		
			<u> </u>	
		Close Save		
Î		00:00:00.00 OVERTIME 00:00:00.00		, 〒 ┶ ^ ヾ ✔ 章
	File			
PRIMARY EVENTS ~				
File	Example_Folder_2			
Live				
Placeholder				
SECONDARY EVENTS <				
		Please save the Show!		
				DROP ZONE

Figure: Makalu Traffic - Show details

2. In the Show properties area, edit the basic show properties.

📀 MAKALU. Traffic		Θ
	Show Properties Sho	Addons Show Addon details
PLAYLISTS <	SHOW NAME Example Show	
shows 🗸		
+ Filter	CATEGORY default	
Example_Show	SUB-CATEGORY default	
Example_Show Example Demo	Media Ready     Approved	
	Random Play     Clean	
	PLANNED DURATION 00 : 00 : 30 . 00	
	CURRENT DURATION 00:00:00	
	DESCRIPTION	
	0/260	
	Close Save	DROP ZONE
<b>î</b> +	CURRENT DURATION 00.00.00.00 OVERTIME -00.00.30.00	〒 ± ^ ヾ ✔ 章
PRIMARY EVENTS 🗸		Pos Thumb Type Title Start-Time Duration Sub SE Meta Flags Clean Action
File		
Live		
Placeholder		
SECONDARY EVENTS <		
METADATA <		
	Please save the Show!	
		DROP ZONE

Figure: Makalu Traffic - Edited show details

3. Save the show by clicking Save below the show properties.

The show is saved, which is confirmed by a notification message. It is also added as first entry at the top of the Shows area in the left sidebar.

#### Notice

This step is required, otherwise you cannot add primary or secondary events to the show.

### 4. Add a primary event to the show.

a. In the left sidebar select Primary events and then either File, Live or Placeholder.

Depending on your selection, either files, live sources or placeholder are listed in the corresponding area to the right.

🐼 MAKALU. Traffic						θ
	Show Properties		Show Addons	Sho	w Addon details	
PLAYLISTS <		Example_Show		1		
+ Filter		default 👻				
Example_Show Example Demo		default 👻				
Demo		Media Ready     Approved     Random Play     Clean				
		00:00:00				
		// 0/260				
		Duplicate Close Delete	DROP ZONE			
â +	CURRENT DURATION 00:00:00.00	OVERTIME -00:00:30.00				
PRIMARY EVENTS 🗸 🗸	File Example_Folder_1 Filter					
File		Q Last 7 Days	-			
Live						
Placeholder	_		221 15:55:04			
SECONDARY EVENTS <		Example_02 00:01:56.08 01-05-20	021 15:58:49			
METADATA <						
						_

Figure: Makalu Traffic - Primary events

- b. To filter the available primary events, either use the **Filter** search field (if you want to search for a specific file name) and/or use the dropdown menu (if you want to select a specific time period for when the file was uploaded/created).
- c. Select a primary event and drag it onto the Drop Zone in the lower right area.

#### Notice

If you drag a file, it is directly added to the show's clip list.

If you drag a live event, a dialog is displayed where you must set the planned duration for the event.

🐼 MAKALU. Traffic				θ
	Show Properties		Show Addons	Show Addon details
PLAYLISTS <		Example_Show	/ 1	
SHOWS		default 👻		
Example_Show Example		default 👻		
Demo		Media Ready Approved Random Play Clean		
		00:00:42.14		
		A 0/260		
		Duplicate Close Delete		
<b>î</b> +	CURRENT DURATION 00:00:42.14 01	/ERTIME 00:00:12.14		 〒 ± ^ ヾ ✔ ■
PRIMARY EVENTS 🗸	File Example_Folder_1	Q Last 7 Days	Pos Thumb Type Title Start-Time I	Duration Sub SE Meta Flags Clean Action
File	Example_Folder_2 Name	Duration Expiry		xxxxx42.14
Placeholder	Example_Folder_3	<u> </u>		1
SECONDARYEVENTS <	C Examp	20-05-2021	132849	
				DROP ZONE

Figure: Makalu Traffic - Primary event added to show The primary event is added to the show's clip list.

#### Notice

The fields Current duration and Overtime are updated accordingly.

#### Notice

The checkmarks **Sub**, **SE** and **Meta** in the clip list indicate, if there are additional elements (subtitles, graphics and/or metadata) assigned to the clip.

#### 💧 Tip

You can also add multiple primary events at the same time, by selecting multiple elements and dragging them onto the **Drop Zone** in the lower right area.

d. Repeat these steps to add more primary events to the show.

The primary events are added to the show's clip list. The start time of each added clip is calculated accordingly, depending on the duration of the previously added clips.

#### 💧 Tip

To delete a clip from the clip list, proceed as follows:

- 1 Select one or more clips to be deleted, by activating the corresponding Action checkbox(es) in the clip list.
- 2 Click the recycle bin icon (Delete Clip).
- 3 In the subsequently displayed dialog, click Confirm.

- 5. (Optional) Change the order of the clip list.
  - a. Select one or more clips, by activating the checkbox in the Action column.
  - b. Use the arrow icons (move up, move down, move to top, move to bottom) above the clip list to change the order.
- 6. (Optional) Edit the clip flags.

#### Notice

By default, the Auto Follow flag is activated for all added primary events.

- 7. (Optional) Add secondary events to the show.
  - a. In the left sidebar select Secondary events and click on the type, e.g. Graphics.

Available secondary events of the selected type are displayed to the right.

🐼 MAKALU. Traffic						θ
	Show Properties		Show Addons		Show Addon details	
PLAYLISTS <		Example_Show			ī —	
SHOWS		default 👻	Type Name Offset Durat		n	
Example_Show		default 👻				
Example Demo		Media Ready  Approved				
		Random Play Clean				
		00:05:42.07				
		// 0/260				
		Duplicate Close Delete				
<b>i</b> +	CURRENT DURATION 00.05:42.07 OV	ERTIME 00.05:12.07				
PRIMARY EVENTS <	Graphics	Q DEV_CH1	Pos Thumb 1			
SECONDARY EVENTS V			。 <u> </u>	MP4 Example_01 00.00.00.00	00.00:42.14	=
Graphics			A 1 🗠 ,	MP4 Example_02 00:00:42.14	00:01:56.08	2*0#2 •   •
Stream Targets	Upper Left - 1 Line Fullscreen - No	w, Baseline - Manual Full Scr	2 💾 👂	MP4 Example_03 00:02:38.22	00:01:35.01	₩D#2 • 0
Splicing Recordings			t, Later 3 💾 🕨	MP4 Example_04 00:04:13.23	00:01:28.09	□ @ \$\$ <b>□</b> \$ <u>5</u>
METADATA <	Full Screen - Social Panel Right - So Media Media	scial Ticker - Bug LIVE Bug	g-Logo			
	Media Media					
			$\mathbf{\Lambda}$			
	Fullscreen - Freeform Imag Welcome Page	e 2 Fullscreen - Basel Countdown	ine - RSS		DROP ZONE	

Figure: Makalu Traffic - Secondary events

b. (Optional) To search for secondary events based on the event name, use the Filter search field.

Only secondary events are displayed that match the search term.

c. (Optional) To search for graphics based on the channel they are assigned to, select a channel in the dropdown menu right to the search field, which is by default set to **All Channels**.

Only graphics are displayed that are assigned to the selected channel.

#### 🛕 Warning

If you add multiple graphics to a show, only add graphics that are all assigned to the same channel. Otherwise, you cannot send a playlist to playout that includes this show.

d. Select a secondary event and drag it onto the Drop Zone in the Show Addons area.

The secondary event is added to the show addons list.

🐼 MAKALU.T	raffic													8
		Show Properties			Sho	w Addons					She	ow Addon details		$\sim$
PLAYLISTS			WNAME Exam	ple_Show							•			
SHOWS + Filter			ATEGORY defau		- Tyr						tion			
Example_Show		SUB-C	ATEGORY defau		- GF	X Bug-Li	go 00:00:00.00	00:00:00	00 - 0	DEV_CH1				
Example Demo				dia Ready O App ndom Play O Clea					1					
			URATION											
			URATION 00:05	:42.07										
					/ 0/260									
				Duplicate Close	Delete		4	DR	OP ZONE					
	î +	CURRENT DURATION	05:42.07 OVERTIM	E 00:05:12.07			7							
PRIMARY EVENTS	<	Graphics	•	DEV_CH1			os Thumb							
SECONDARY EVENTS			Q	DEV_CH1		■ /	• 🖻	MP4	Example_01	00:00:00.00	00:00:42.14		240×2	
Graphics						X	1 💾	MP4	Example_02	00:00:42.14	00:01:56.08		200×2	
Stream Targets Splicing		Upper Left - 1 Line	Fullscreen - Now,	Baseline - Manual	Full Screen - No	"/	2 💾	MP4	Example_03	00:02:38.22	00:01:35.01		240 <b>0%5</b>	
Recordings			Next, Later One		Next, Later		3 💾	MP4	Example_04	00:04:13.23	00:01:28.09			
METADATA		Full Screen - Social Media	Panel Right - Social Media	Ticker - Bug LIVE	Bug-Logo	Ĺ								
			Δ		Δ									
		Fullscreen - Welcome Page		Fullscreen - Countdown							DRC	OP ZONE		

Figure: Makalu Traffic - Secondary events added to a show

- e. Repeat the previous two steps to add more secondary events to the show.
- f. (Optional) Edit the properties of an added secondary event, by selecting the corresponding **Action** checkbox in the **Show Addons** area and click the **Edit Addon** button.

The show addon details are displayed to the right, where you can edit the available properties.

#### 💧 Tip

To delete an added secondary event, proceed as follows:

1 - Select one or more secondary events to be deleted, by activating the corresponding **Action** checkbox(es) in the **Show Addons** area

- 2 Click the recycle bin icon (Delete Show Addons).
- 3 In the subsequently displayed dialog, click Confirm.
- 8. (Optional) Add metadata to the show.
  - a. In the left sidebar select Metadata and click on the type, e.g. System Metadata.

Available metadata sets are displayed to the right.

🐼 MAKALU. Traffic												9
PLAYLISTS		Ecanple,Show default default default  Readom Pity Cost 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		me Offset		s B-Start B-End	Extend Channel Acti		w Addon details			
	+ CURRENT DURATION 00-05-42.07	Duplicate Close Delete			DR	OP ZONE				7 ⊥	~ ~	/ 1
PRIMARY EVENTS < SECONDARY EVENTS < METADATA  System Metadata	Filter		ୟ ≣	Pos Thumb O 💾 1 💾	Type MP4 MP4	Title Example_01 Example_02	Start-Time 00:00:00:00 00:00:42:14	Duration 00:00:42:14 00:01:56:08		Flags 같※미다근 같※미다근	Clean	
	Exc			2 2	MP4 MP4	Example_03 Example_04	00:02:38 22	00:01:33:01			•	

Figure: Makalu Traffic - Metadata

- b. To search for metadata based on the name, use the Filter search field.
- c. Select a metadata set and drag it onto the Drop Zone in the Show Addons area.

The metadata set is added to the show addons list.

🐼 MAKALU. Traffic												•
PLAYLISTS <	Show Properties		Show Addon	6			/ 1		v Addon details			
SHOWS ▼ - Filter = All Categories ▼		Example_Show default		e Offset		n B-Start B-End	Extend Channel Actio					
Approved     Media ready     Example, Show		Media Ready Approved Random Play Cean 00 : 00 : 30 . 00 000342.07 0220	GFX Bug	Logo 00:00:00 0	0.00.00	000 <b>▲</b> ⊘	DEV_CH1					
		Duplicate Close Delete	~		DR	KOP ZONE				<b>÷</b> 1		. =
PRIMARY EVENTS	CURRENT DURATION 00:05:42:07 C	OVERTIME 00:05:12:07	-	Pos Thumb								Action
SECONDARY EVENTS <	Filter		ୟ ≣	• 💾	MP4	Example_01	00:00:00.00	00.00:42.14			•	
System Metadata				1 💾 2 💾	MP4 MP4	Example_02 Example_03	00:00:42.14	00:01:56.08		24042 240 <b>%</b> 2	•	
	EPG			3 🖽	MP4	Example_04	00:04:13.23	00:01:28.09		200%	•	
								DROP	ZONE			

Figure: Makalu Traffic - Metadata added to a show

- d. Repeat the previous two steps to add more metadata sets to the show.
- e. (Optional) Edit the properties of an added metadata set, by selecting it in the **Show Addons** list and clicking the **Edit Addon** button.

The show addon details are displayed to the right, where you can edit the available properties.

#### 9. In the Show properties area click Update.

The show is saved.

10. To close the tab with the show details, click  $\ensuremath{\textbf{Close}}$  below the show properties.

The tab is closed.

#### 6.2.2 Editing a show

To edit a show, proceed as follows:

- 1. In the left sidebar, select **Shows**.
- 2. (Optional) To narrow the displayed shows, click on **Filter** and use the available options (e.g. select a content category, activate flags, or enter a name).

🐼 MAKALU.	Fraffic
PLAYLISTS SHOWS	< ~
Filter =     All Categories     Approved Me	▼ dia ready
Example_Show	×

Figure: Makalu Traffic - Filter displayed shows

Click on the name of the show to be edited.
 The show details are opened in a new tab.

File         File         Point Tourist	
SHOWS Filter # Additionage Show Bender Redy Bender Re	
SHOWS       CATEGORY       default       Tree Name Office Duration BStart BEde ExtendChowel Action         CATEGORY       default       Sile CATEGORY       default         Sile CATEGORY       default       Sile CATEGORY       Sile CATEGORY         Sile CATEGORY       default       Sile CATEGORY       Sile CATEGORY         Sile CATEGORY       default       Sile CATEGORY       Sile CATEGORY         PLANNED DURATION       OX 1: 00 1: 00 1: 00 0: 0	
CATGORY extent   CATGORY extent   Sub-CATGORY extent   CURRENT DURATION 003:4207   OCK Dest	
SUB_CATECORY       detail <ul> <li>SUB_CATECORY</li> <li>detail</li> <lidetail< li=""> <li>detail</li> <l< td=""><td></td></l<></lidetail<></ul>	
Model Readorn Pige      Model Readorn Pige      Clean     PLANRED DURATION     00034207     DESCRIPTION      DESCRIPTION	
Example 35wv       X         Frieder       Image: Stave         Frieder       Frieder	
CURRENT DURATION       00054207         DESCRIPTION       02050         Description       0200         Description       0200         Page Index       Over Description         File       00054207         File       0100000000000000000000000000000000000	
Description         Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>	
Description         Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>	
PRIMARY EVENTS         File         File         Point Turning Folder 1         Trites         Q Today         Point Turning Today         Point Tu	
Duplicate         Close         Dedite         DROP ZONE           Image: Contract of the contract	
File         Part Thumb         Table         Durando Folder:1         Table         Part Thumb         Table         Durando Folder:1         Table         Part Thumb         Table         Durando Folder:1         Table         Table         Durando Folder:1         Table         Table         Durando Folder:1         Table         Table         Durando Folde:1         Table         Table         Durando Folder:1         Table         Table         Durando Folder:1         Table	
File         Part Thumb         Table         Durando Folder:1         Table         Part Thumb         Table         Durando Folder:1         Table         Part Thumb         Table         Durando Folder:1         Table         Table         Durando Folder:1         Table         Table         Durando Folder:1         Table         Table         Durando Folde:1         Table         Table         Durando Folder:1         Table         Table         Durando Folder:1         Table	
PRIMARY EVENTS         File         Post Thombs         Type         Title         Duration         Sub 55         Meta         Filips           File         In Scample, Folder, 1         File         In Scample, 01         00000000         000042.14         -         <	
PRIMARY EVENTS         Complex Folder:1         Inter         Q         Today         Pair         Non-         Sub-         St. Mets         Flags           File         Domplex Folder:1         Inter         Q         Today         0         IM-         Mass         Start File         Start F	
File         Dumple Folder, 1         Piter         Q.         Today         0         MPA         Dumple, 01         00000000         00004214         -         -         CR         Children           Live         Dumple, Folder, 2         Name         Dumple, 01         00000000         00004214         -         -         CR         C	
	•
Placeholder	•
SECONDARY EVENTS	
SECURAR FEEDING 3 번 MPA Dample_04 00041323 00012807 문유민하극	

Figure: Makalu Traffic - Show details

#### Notice

When a user opens a show for editing, the show is locked. Until the editing user closes the show, other users only have read access to the show.

- 4. Edit show properties, primary and/or secondary events as required.
- 5. To save your changes, click **Update** in the **Show Properties** area.

The show is saved.

6. To close the tab with the show details, click **Close** below the show properties.

The tab is closed.

#### 6.2.3 Editing a clip

To edit a clip, proceed as follows:

1. In the left sidebar, select **Shows** and click on the name of a show.

The show details are opened in a new tab.

📀 MAKALU. Traffic												9
	Show Properties		Show Addon	s					Show Addon details			
PLAYLISTS <		Example_Show										
shows 🗸		Champiconon										
- Filter =		default 👻	Type Nam									
All Categories -	SUB-CATEGORY	default 👻	META EPG	00:00:00.00	00:00:00							
Approved     Media ready		Media Ready     Approved	GFX Bug-	.ogo 00:00:00.0	00:00:00	.00 📀	- DEV_CH1					
Example_Show X		Random Play     Clean										
		00 : 00 : 30 . 00										
	▶											
		00.05:42.07										
		// 0/260										
			'   <u> </u>									
		Duplicate Close Delete				OP ZONE						
				_		_						
<b>î</b> +	CURRENT DURATION 00:05:42.07	OVERTIME 00:05:12:07										/ 1
PRIMARY EVENTS	File											Action
File	Example_Folder_1 Filter	Q All		• •	MP4	Example_01	00:00:00.00	00:00:4	2.14		•	
Live	Example_Folder_2				MP4			00:01:5			•	-
Placeholder	Example_Folder_3	nple_01 00:00:42:14 01-05-2	2021 15:55:04	1 💾		Example_02	00:00:42.14					
SECONDARY EVENTS <	Dan	nple_02 00:01:56.08 01-05-2	2021 15:58:49		MP4	Example_03	00:02:38.22	00:01:3	5.01	2400×2		U
METADATA <	Dian	nple_08 00:00:56.17 02-05-0	2021 08:42:13	3	MP4	Example_04	00:04:13.23	00:01:2	8.09	200*2		
	🗌 💾 Exam	uple_10 00:00:42:14 02-05-2	2021 08:47:45									
									DROP ZONE			

Figure: Makalu Traffic - Show details

- 2. If the clip to be edited is not in the show's clip list, add it as described in step 8 in section Creating a show.
- 3. In the clip list select a clip to be edited, by activating the corresponding **Action** checkbox and clicking the **pencil icon (Edit Clip)**.

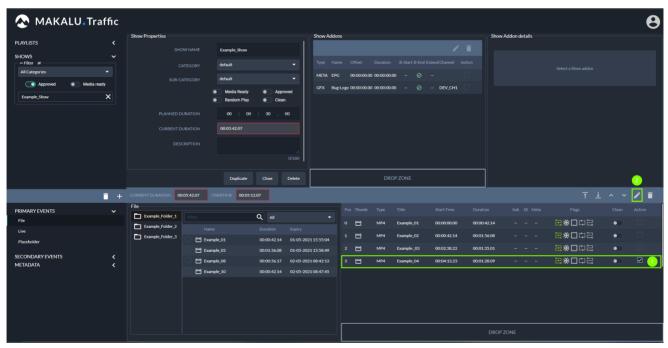


Figure: Makalu Traffic - Select clip

The clip details are opened in a new tab.

🐼 MAKALU. Traffic						8
	Clip Properties		Clip Addons		Clip Addon details	
PLAYLISTS <				🛛 🖊 î		
SHOWS			Type Name Offset Duration B-	Start B-End Extend Channel Action		
Example_show  Example Demo						
Demo						
	<b>44</b> K ■ ► >	> >>				
		Close	DRC	PP ZONE		
<b>î</b> +						
SECONDARY EVENTS 🗸	Graphics					
Graphics				Q DEV_CH1		≡
Stream Targets						$\wedge$
Splicing			🔨 📥			🚄 📐
Recordings						
METADATA 🕻	Full Screen - Social Media		Panel Right - Social Media	Ticker - Bug LIVE		Bug Logo
	Fulforreen - Welcome Page		Freeform Image 2	Fullscreen - Countdown		Baseline - RSS

Figure: Makalu Traffic - Clip details

4. Either select Secondary Events or Metadata in the sidebar on the left.

The corresponding elements are displayed to the right.

- 5. (Optional) Use the filter functions for name and channel to narrow down the displayed the search results.
- 6. Drag an element onto the **Drop Zone**.

The element is added to the Clip Addons list.

📀 MAKALU. Traff	fic							9
SHOWS + Filter		Clip Properties ← K ► > >	1 32	Clip Addons Type Name Offset Duration CitX Bug Lage 00:00:00:00 00:00:000		Clip Addon details		
	+	Pos: 00:00:00:00 Du	uration: 00:01:28:10 Close	DROI	PZONE			_
	ř	Graphics Filter Upper Left: 1 Line	Fullser	reen - Now, Heat, Later One Page	Q Baseline - Manual		Full Screen - How, Next, Later	• =
ΜΕΤΑΔΑΤΑ		Full Screen - Social Media		Panel Inge - Social Media			Rug Lopo Buseline - BSS	

Figure: Makalu Traffic - Add secondary event to clip

#### 🔺 Warning

If you add multiple graphics to a clip, only add graphics that are all assigned to the same channel. Otherwise, you cannot send a playlist to playout that includes a show with this clip.

7. To edit the element, activate the Action checkbox and click the pencil icon (Edit Addon).

The addon properties are displayed in the Clip Addon details area.

🐼 MAKALU. Tra	ffic						Θ
		Clip Properties		Clip Addons	2	Clip Addon details	
PLAYLISTS	< ~				🖬 🗾 î	ADDON NAME	Bug-Logo
+ Filter					B-Start B-End Extend Channel Action	ADDON SUB-TYPE	Singular
Example_Show Example				GFX Bug-Logo 00:00:00.00 00:00:00.0	o ⊘ DEV_CH1 🗹 🚺	START OFFSET	00 : 00 : 00 . 00
Demo						BIND START OFFSET TO END	
						END OFFSET	00 : 00 : 00 . 00
						BIND END OFFSET TO END	CO EXTEND O
						USE PAYLOAD	<u> </u>
		- К ■ ►	ы ₩			SCALE	15
		Pos: 00:00:00:00	Duration: 00:01:28:10				_
			Close	DRC	IP ZONE		Update
	<b>î</b> +						
SECONDARY EVENTS	~	Graphics					
Graphics					Q DEV_CH1		• ≣
Stream Targets				•			
Splicing							
Recordings		Upper Left - 1 Line		creen - Now, Next, Later One Page	Baseline - Manual		Full Screen - Now, Next, Later
Recordings							
METADATA		Full Screen - Social Media		Panel Right - Social Media	Ticker - Bug LIVE		Bug-Logo
		Fullscreen - Welcome Page		Freeform Image 2	Fullscreen - Countdown	, u	Raseline - RSS

Figure: Makalu Traffic - Edit addon details

8. Change the properties.

#### 💧 Tip

If you are editing a graphics secondary event, you can set the time-related clip properties to default values, by clicking the **set default icon (Set default values)** above the clip addons list.

9. To save your changes, click Update in the Clip Addon details area.

The clip is saved.

10. To close the tab with the clip details, click **Close** below the clip properties.

The tab is closed.

### 6.2.4 Duplicating a show

To duplicate a show, proceed as follows:

1. In the left sidebar, select  ${\bf Shows}$  and click on the name of the show to be duplicated.

The show details are opened in a new tab.

📀 MAKALU. Traffic												8
PLAYLISTS < SHOWS  +Filter Example Show 1 Bangle	Show Properties SHOW NAME CATEGORY SUB-CATEGORY	ey default 👻	META EPG	e Offset 00.00.00.00	00:00:00	∞ - ⊘		Î	row Addon details			
Demo 🗍		N 00.05:42.07	GFX Bug	Logo 0000:00 00		00 - OP ZONE	DEV_CH1					
<b>i</b> +	CURRENT DURATION 00:05:42.07	7 OVERTIME 00:05:12.07								∓ ⊥	~ ~	/ 1
PRIMARYEVENTS V File Line Plicaholder SECONDARYEVENTS C METADATA C		Name         Duration         Expiry           Example_08         00:00:56.17         02:05:	¥ 8021 08:42:13 8021 08:47:45	Pos         Thumb           0         2           1         2           3         2	Type MP4 MP4 MP4 MP4	Title Example_01 Example_02 Example_03 Example_04	Start-Time 00000000 00004214 00023822 00041323	Duration 00.00.42.14 00.01.56.08 00.01.35.01 00.01.28.09			Clean	Action
								DR	OP ZONE			

Figure: Makalu Traffic - Show details

2. Below the show properties click Duplicate.

A copy of the show (including all properties, primary and secondary events) is opened in a new tab.

- 3. Edit show properties, primary and/or secondary events as required.
- 4. To save your changes, click **Update** in the **Show Properties** area.

The show is saved.

5. To close the tab with the show details, click **Close** below the show properties.

The tab is closed.

#### 6.2.5 Deleting a show

To delete a single show, proceed as follows:

1. In the left sidebar, select **Shows** and click on the name of the show to be deleted.

The show details are opened in a new tab.

🐼 MAKALU. Traffic													8
	Show Properties			Show Addons					s	how Addon details			
PLAYLISTS <		NAME Example_Show							Î				
+ Filter		GORY default	•										
Example_Show 1		GORY default	-	META EPG	00:00:00.00	00:00:00.	∞ - ⊘						
Demo		Media Ready	Approved	GFX Bug-L	ogo 00:00:00.00	00:00:00	∞ - ⊘	DEV_CH1					
		Random Play	Clean										
		00 : 00	: 30 . 00										
		ATION 00.05:42.07											
			0/260										
			2										
		Duplicate	Close Delete			DR	OP ZONE						
Î +	CURRENT DURATION 00:05:4	42.07 OVERTIME 00:05:	12.07										/ 1
PRIMARY EVENTS ~	File												Action
File			Q Today		• 💾	MP4	Example_01	00:00:00.00	00:00:42.14	•	₩00	•	
Live	Example_Folder_2 Example_Folder_3				1 🗠	MP4	Example_02	00:00:42.14	00:01:56.08	3			
Placeholder	Comple_rolder_3	Example_08		21 08:42:13	2 2	MP4	Example_03	00:02:38.22	00:01:35.01			•	
SECONDARY EVENTS <		Example_10	00:00:42.14 02-05-20:										
METADATA <					3 💾	MP4	Example_04	00:04:13.23	00:01:28.09				
										ROP ZONE			

Figure: Makalu Traffic - Show details

- In the Show Properties area click Delete.
   A confirmation dialog is displayed.
- To delete the show, click Confirm.
   The show is deleted.

To delete multiple shows, proceed as follows:

1. In the left sidebar, select **Shows** and activate the checkbox to the right of each show to be deleted.

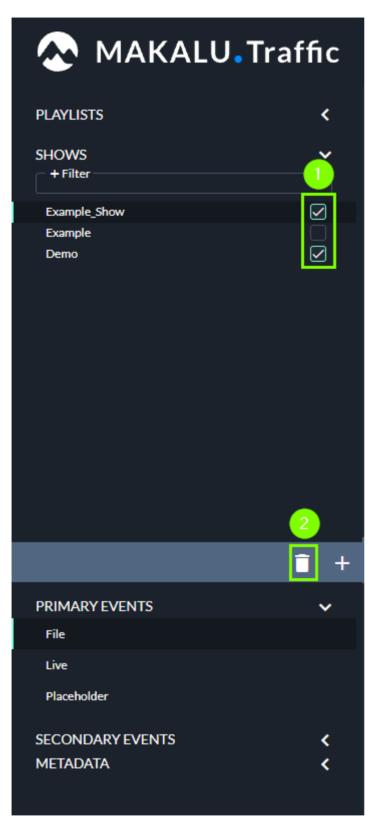


Figure: Makalu Traffic - Shows selected for deletion

2. Click the Recycle bin icon (Delete shows).

A confirmation dialog is displayed.

To delete the selected shows, click Confirm.
 The selected shows are deleted.

# 6.2.6 Show properties

The following table provides an overview of all available show properties:

# i Notice

Time-related properties use a frame-accurate notation in the format hh:mm:ss.ff. The frame rate time base is part of the global system configuration. Makalu supports the frame rates 25, 30, 50 and 60 fps.

Property	Description
Show name	Name of the show
Category	Main content category
Sub-category	Content sub-category, based on the selected main content category
Media Ready	For future use
Random Play	For future use
Approved	For future use
Clean	If activated, graphics addons are not displayed when the show is played, even if graphics are assigned to the show or included clips. This also applies to cases where graphics addons of the previous show would normally extend beyond the regular end of the previous show. Depending on how the duration of the graphics addon is set, graphics of the previous show can stay displayed even after the next show starts. But if the clean flag is activated for the next show, graphics are not displayed. This is e.g. useful for a show container, that only contains commercials.
Planned Duration	Target duration
Current Duration	Actual show duration, corresponds to the total combined duration of all assigned primary events
Description	Text description for the show
Overtime	Time difference between planned duration and current duration

# 6.2.7 Clip flags

Each clip within a show has a set of flags, that define how it should be played by the automation, especially how the start and end of each clip should be handled.

The following table provides an overview of all available clip flags:

Flag icon	Flag name	Description
	Auto Follow	When the playback of the previous clip is finished, the playback of the current clip starts automatically.
		By default, the Auto Follow flag is initially activated for every clip.
*	Freeze Last	When the playback of the clip is finished, the last frame stays displayed as freeze frame.
	Freeze Black	When the playback of the clip is finished, a black image stays displayed.
		The image to be displayed is configurable.
	Loop	The clip is played in a loop until the operator manually triggers the start of the next clip.
		If the loop flag is activated for the last clip in a group, the whole group is played in a loop.
	Auto Cue (Cue Next)	The next clip is automatically prepared for playback, but the first frame stays displayed until the operator manually triggers the start of the next clip.

Flag icon Flag name	Description
Clean	The clip is played without graphics addons, even if graphics are assigned to it. This also applies to cases where graphics addons of the previous clip would normally extend beyond the regular end of the previous clip. Depending on how the duration of the graphics addon is set, graphics of the previous clip can stay displayed even after the next clip starts. But if the clean flag is activated for the next clip, graphics are not displayed.

#### Notice

Deactivated flags are displayed in grey, activated flags are highlighted in green.

# 6.3 Using playlists

# 6.3.1 Creating a new playlist

To create a new playlist, proceed as follows:

1. Open Makalu traffic via https://traffic.customer-identifier.makalu.live.

The Makalu Traffic user interface is opened.

🐼 MAKALU. Tra	affic										θ
PLAYLISTS		✓ PLAYLISTS								Υ /	•
SHOWS											an 🗌
Example						2021-03-22 00:00:00	0.00 00:30:4	0.00	00:05:51.11		•
Demo											
	<b>i</b> +								1-1 of 1		> >1
		✓ SHOWS								7 /	•
		Example	default	default	00:05:20.00	00:00.00.00					
		Demo	default	default	00:30:00.00	00:05:51.09					

Figure: Makalu Traffic user interface

2. In the left sidebar, select **Playlists** and click the **plus icon (Add playlist)**.

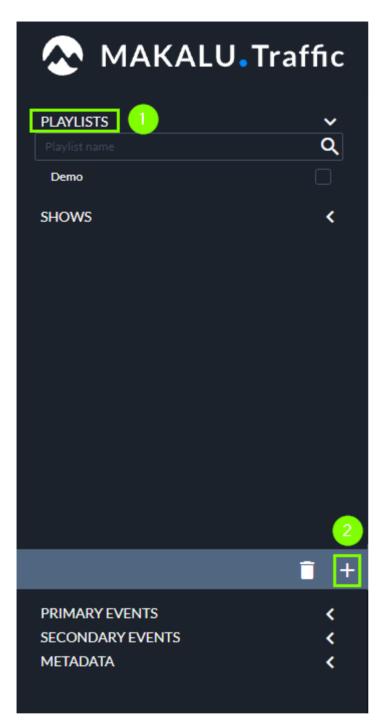


Figure: Makalu Traffic - Add playlist

A new tab is opened for editing the playlist details.

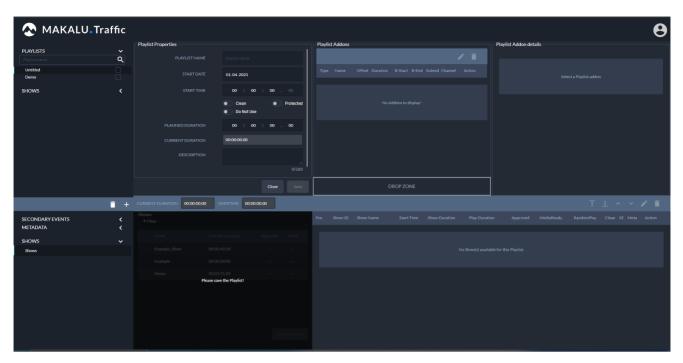


Figure: Makalu Traffic - Playlist details

3. In the Playlist properties area, edit the basic playlist properties.

🔊 MAKALU. Tra	ffic							Θ
		Playlist Properties			Playlist Addons		Playlist Addon details	
PLAYLISTS Playlist name	ě	PLAYLIST NAME	Example_Play	list		/ 1		
Example_Playlist Demo		START DATE	01.04.2021		Type Name Offset Duration B-Start B-End			
SHOWS		START TIME						
			<ul><li>Clean</li><li>Do Not</li></ul>	Protected Use	No Addons to display!			
		PLANNED DURATION	00 :	00 : 30 . 🔟				
		CURRENT DURATION						
		DESCRIPTION						
				0/260				
				Close Save	DROP ZONE			
	<b>î</b> +	CURRENT DURATION 00:00:00.00		0:00:30.00				
SECONDARY EVENTS METADATA					Pos Show-ID Show-Name Start-Time			
SHOWS								
Shows								
		Demo.	ease save the Playlist!					

Figure: Makalu Traffic - Edit playlist properties

4. Save the playlist by clicking Save below the playlist properties.

The playlist is saved, which is confirmed by a notification message. It is also added as first entry at the top of the Playlists area in the left sidebar.

#### 1 Notice

This step is required, otherwise you cannot add shows, secondary events, or metadata to the playlist.

- 5. Add one or more shows to the playlist.
  - a. In the left sidebar select **Shows**.

Available shows are displayed in the shows area to the right.

	<b>CALU</b> .Traffic							Θ
		Playlist Properties			Playlist Addons		Playlist Addon details	
PLAYLISTS Playlist name	<u> </u>		Example Playlist			/ 1		
Example_Playlist	<b></b>							
Demo			01.04.2021					
SHOWS				00.00				
			Clean Do Not Use	Protected				
				30.00				
			00.00.00.00					
		DESCRIPTION						
				4				
				Close Delete	DROP ZONE			
	<b>i</b> +	CURRENT DURATION 0000000	Send to Playout OVERTIME -00:00:30.0	_	DROP ZONE			ī ± ^ ∨ ≠ î
SECONDARYEVEN		CURRENT DURATION 00:00:0000 Snows + Filter		_	DROP ZONE Pros Show-ID Show-Name Start-Time Show-Duratic	in Play-Durati	on Approved MediaReady	
SECONDARY EVEN METADATA		Snows + Filter	OVERTIME -00:00:30.0			in Play-Durati	on Approved MediaResdy	
	птя <	Snows + Filter	OVERTIME -00:00:30.0	_		in Play-Durati	on Approved MediaReady	
METADATA	пз <b>с</b>	Snows + Filter Name C	OVERTIME -00:00:30.0				on Approved MediaReady ble for this Playfist.	
METADATA	пз <b>с</b>	Shows + Filter Name C Doample_Show 0	OVERTIME 000030.0	oo pproved Clean				
METADATA	пз <b>с</b>	Shows + Filter Name C Example,Show 0 Example 0	OVERTIME 00:00:300	pproved Clean				
METADATA	пз <b>с</b>	Shows + Filter Name C Example,Show 0 Example 0	OVERTIME 40000300	pproved Clean				
METADATA	пз <b>с</b>	Shows + Filter Name C Example,Show 0 Example 0	OVERTIME 40000300	pproved Clean				
METADATA	пз <b>с</b>	Shows + Filter Name C Example,Show 0 Example 0	OVERTIME 40000300	pproved Clean				
METADATA	пз <b>с</b>	Shows + Filter Name C Example,Show 0 Example 0	OVERTIME 40000300	pproved Clean				
METADATA	пз <b>с</b>	Shows + Filter Name C Example,Show 0 Example 0	OVERTIME 40000300	pproved Clean				

Figure: Makalu Traffic - Available shows

- b. To search for shows based on their name or other show properties, use the Filter section.
- c. Select one or more shows and click Add to playlist.

The shows are added to the playlist.

🐼 MAKALU. Tra	ffic													0
		Playlist Properties			Playlist Addor	s				Playlist Addon de	tails			
PLAYLISTS Playlist name	ě		Example_Playlist						1					
Example_Playlist Demo			01.04.2021											
SHOWS														
			Clean     Do Not Use	Protected										
			Send to Playout Close	Delete										
	î +	CURRENT DURATION 00:11:33.18	OVERTIME 00:11:03.18											
SECONDARY EVENTS METADATA	< <	Shows + Filter			Pos Show-I	) Show-Name	Start-Time	Show-Duration	Play-Durati	on Approved	MediaReady	RandomPlay		Action
		Name Curi			0 4	Example_Show	20:15:00.00	00:05:42.09	00:05:42.09					
SHOWS		Example_Show 00:0	05:42.09		1 2	Example	21:20:42.09	00:00:00.00	00:00:00.00					
Shows			00.00.00		2 1	Demo	22:20:42.09	00.05.51.09	00:05:51.09					
			05:51.09			×								
			$\sim$ _											
			bba	l to Playlist										

Figure: Makalu Traffic - Shows added to playlist

#### Notice

The fields Current duration and Overtime are updated accordingly.

#### Notice

In the playlist the displayed show duration corresponds to the actual duration of a show (field **Current Duration** in the show properties).

The start time of each added show is calculated based on the start time of the playlist (field **Start Time** in the playlist properties) and the duration of each added show.

The checkmarks **SE** and **Meta** indicate, if there are additional elements (graphics and/or metadata) assigned to the show.

d. (Optional) Repeat these steps to add more shows to the playlist.

#### 💧 Tip

To change the playlist order, proceed as follows:

1 - Select a show, by activating the corresponding Action checkbox in the playlist.

2 - Use one of the buttons **Move To Top, Move To Bottom, Move Up** or **Move Down** to move the show to the new position.

# 🜢 Tip

To open and edit a show directly from the playlist, proceed as follows:

1 - Select a show, by activating the corresponding Action checkbox in the playlist.

2 - Click the pencil icon (Edit show).

The show is opened in a new tab.

#### 💧 Tip

To delete an added show, proceed as follows:

- 1 Select one or more shows to be deleted, by activating the corresponding Action checkbox(es) in the playlist.
- 2 Click the recycle bin icon (Delete Show).
- 3 In the subsequently displayed dialog, click Confirm.
- 6. (Optional) Add secondary events to the playlist.
  - a. In the left sidebar select Secondary events and click on the type, e.g. Graphics.

Available secondary events of the selected type are displayed to the right.

🐼 MAKALU.	Traffic														8
		Playlist Properties				Play	list Addons					Playlist Addon de	tails		
PLAYLISTS Playlist name	č			Example_Playlist						/	' 🗊				
Example_Playlist Demo				01.04.2021											
SHOWS															
				<ul><li>Clean</li><li>Do Not Use</li></ul>	Protected										
				00 : 00 :											
				00:11:33.18											
						_									
				Send to Playout	Close Delete				DROP ZONE						
	<b>i</b> +	CURRENT DURATION	00:11:33.18	OVERTIME 00:11:03	18	_									
SECONDARY EVENTS	~	Graphics	Q		• =	Pos									
Graphics Stream Targets						•		Example_Show	20:15:00.00	00:05:42.09	00:05:42.09				
Recordings						1 2		Demo	21:20:42.09	00:00:00.00	00:00:00.00				
METADATA SHOWS	< <	Upper Left - 1 Line	Fullscreen - Now, Next,	Baseline - Manual	Full Screen - Now, Next,										
SHUWS	,	Full Screen - Social Media	Panel Right - Social Media	Ticker - Bug LIVE	Bug-Logo										
		Fullscreen - Welcome Page	Freeform Image 2	Fullscreen - Countdown	Baseline - RSS										

Figure: Makalu Traffic - Secondary events

b. (Optional) To search for secondary events based on the event name, use the  ${\bf Filter}$  search field.

Only secondary events are displayed that match the search term.

c. (Optional) To search for graphics based on the channel they are assigned to, select a channel in the dropdown menu right to the search field, which is by default set to **All Channels**.

Only graphics are displayed that are assigned to the selected channel.

#### 🔺 Warning

If you add multiple graphics to a playlist, only add graphics that are all assigned to the same channel. Otherwise, you cannot send the playlist to playout.

d. Select a secondary event and drag it onto the Drop Zone in the Playlist Addons area.

The secondary event is added to the playlist addons.

🐼 MAKALU.Tr	affic														9
		Playlist Properties				Play	list Addons					Playlist Addon de	atalle		
PLAYLISTS						1.09		_		_					
	۹		1E Exa	mple_Playlist							° 🗊				
Example_Playlist Demo				.04.2021			e Name			B- End ExtendChanne					
SHOWS				20 : 15 : 0						<ul> <li>DEV_C</li> <li>DEV_C</li> </ul>					
			•	Clean Do Not Use	Protected				<u>↑</u>						
				00 : 00 : 3											
			N 00:	11:33.18											
			Send	to Playout Clos	se Delete		1		DROP ZONE						
	i +	CURRENT DURATION 00:11:33	18 OVERT	TME 00:11:03.18		/									
SECONDARY EVENTS		Graphics			•/=	Pos									
Graphics Stream Targets								Example_Show	20:15:00.00	00:05:42.09	00:05:42.09				
Recordings								Example	21:20:42.09	00:00:00.00	00:00:00.00				
METADATA		Upper Left - 1 Fullson			Full Screen -			Demo	22:20:42.09	00:05:51.09	00:05:51.09				
SHOWS		Line Now,	vext,	Manual	Now, Next,										
		Full Screen - Social Media	light - Media	Ticker - Bug LIVE	Bug-Logo										
		Fullscreen - Welcome Page		Fullscreen - Countdown	Baseline - RSS										

Figure: Makalu Traffic - Secondary events added to playlist

- e. Repeat these steps to add more secondary events to the playlist.
- f. (Optional) Edit the properties of an added secondary event, by selecting it in the **Playlist Addons** list and clicking the **Edit Playlist Addons** button.

The playlist addon details are displayed to the right, where you can edit the available properties and save by clicking Update.

#### 💧 Tip

To delete an added secondary event, proceed as follows:

- 1 Select one or more secondary events to be deleted, by activating the corresponding **Action** checkbox(es) in the **Playlist Addons** area
- 2 Click the recycle bin icon (Delete Playlist Addons).
- 3 In the subsequently displayed dialog, click Confirm.

#### 7. In the Playlist properties area click Update.

The playlist is saved.

8. To close the tab with the playlist details, click **Close** below the playlist properties.

The tab is closed.

# 6.3.2 Sending a playlist to playout

To make a playlist available for a playout channel in the Makalu Automation, the Send to Playout function must be used.

If a playlist is sent to playout, it is by default added to the rundown of the selected channel using the start date and time that are set in the playlist properties.

# Notice

If the rundown of the selected channel already contains a different playlist at the selected date and time, the playlist cannot be sent to playout.

To send a playlist to playout, proceed as follows:

- 1. Open Makalu Traffic.
- 2. In the left sidebar, select Playlists and click on the name of the playlist that you want to send to playout.

The playlist details are opened in a new tab.

🐼 MAKALU.Tra	ffic														9
		Playlist Properties			- Pla	ylist Addons					Playlist Addon de	tails			
PLAYLISTS															
	Q		Example_Playlist												
Example_Playlist Demo			01.04.2021		Ту										
SHOWS									⊘ DEV_CH						
					GI	FX Full Scre	en - Naw00:00:00.0	000:00:00:00	O DEV_CH						
			<ul><li>Clean</li><li>Do Not Use</li></ul>	Protected											
			00 : 00												
			00:11:33.18												
		Send to F	layout Close	Delete Update											
	î +	CURRENT DURATION 00:11:33.18	OVERTIME 00:11	-03.18											
SECONDARY EVENTS	<	Shows													
METADATA	×.	+ Filter													
							Example_Show	20:15:00.00	00:05:42.09	00:05:42.09					
SHOWS			):05:42.09				Example	21:20:42.09	00:00:00.00	00:00:00.00					
Shows							Demo	22:20:42.09	00:05:51.09	00:05:51.09					
		Example 0	0.00.00.00												
		Demo 0	0:05:51.09												

Figure: Makalu Traffic - Playlist details

#### i Notice

A playlist can only be sent to playout if all included shows are approved. Otherwise, the **Send to playout** function is not available.

#### 3. Click Send to Playout.

The select playout channel dialog is displayed.

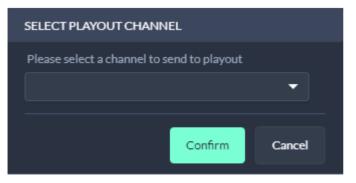


Figure: Makalu Traffic - Select playout channel

4. Select the playout channel that you want to send the playlist to.

#### 🛕 Warning

All graphics that you added to clips, shows and/or the playlist must be assigned to the selected channel. If you use graphics in the playlist that are assigned to a channel other than the selected, you cannot send the playlist to playout. In this case a corresponding error message is displayed after the next step.

#### 5. Click Confirm.

The playlist is made available for the selected channel in the Makalu Automation.

SUCCESS	
Playlist Example_Playlist pushed successful to	o Playout
	ок

Figure: Makalu Traffic - Successful send to playout

#### Notice

If you edit a playlist, that was already sent to playout and you use **Send to playout** again, the existing playlist is updated and can be used for the corresponding playout channel.

# 6.3.3 Editing a playlist

To edit a playlist, proceed as follows:

- 1. Open Makalu Traffic.
- 2. In the left sidebar, select Playlists and click on the name of the playlist to be edited.

The playlist details are opened in a new tab.

🛛 🐼 MAKALU. Tr	affic													
		Playlist Properties			- Plavli	ist Addons					Playlist Addon de	tails		<u> </u>
PLAYLISTS	~									-		cono.		
Playlist name	Q	PLAYLI	STNAME Example_Playlis	t						Î.				
Example_Playlist Demo			ART DATE 01.04.2021											
					GFX	Baseline	Manual 00:00:00.00	00.00:00	O DEV_CH					
SHOWS				5 : 00 . 00	GFX	Full Scree	n - Naw00:00:00.00	00:00:00	O DEV_CH					
			<ul> <li>Clean</li> <li>Do Not Us</li> </ul>	Protected										
			JRATION 00 : 0	0 : 30 . 00										
			URATION 00:11:33.18											
				1/260										
			Send to Playout Close	Delete Update			C	OROP ZONE						
	<b>i</b> +	CURRENT DURATION	00:11:33.18 OVERTIME 00:1	1:03.18										° 🗊
SECONDARY EVENTS		Shows + Filter												Action
METADATA							Example_Show	20:15:00.00	00:05:42.09	00:05:42.09				
SHOWS							Example	21:20:42.09	00.00.00.00	00:00:00.00				
Shows		Example_Show	00:05:42.09				Demo	22-20:42.09	00:05:51.09	00:05:51.09				
		Example	00:00:00.00											
		Demo	00:05:51.09											

Figure: Makalu Traffic - Playlist details

- 3. Edit playlist properties, primary events, secondary events and/or metadata as required.
- 4. In the Playlist Properties area click Update.

The playlist is saved.

# 6.3.4 Deleting a playlist

To delete a single playlist, proceed as follows:

- 1. Open Makalu Traffic.
- 2. In the left sidebar, select **Playlists** and click on the name of the playlist to be deleted.

The playlist details are opened in a new tab.

														•
🐼 MAKALU.T	rattic													9
PLAYLISTS	~	Playlist Properties			Playl	ist Addons					Playlist Addon d	etails		
Playlist name	Q		STNAME Example_Play	list										
Example_Playlist Demo			O1.04.2021			Name	Offset		B- End ExtendChannel					
SHOWS							en - Now00:00:00.0							
			<ul><li>Clean</li><li>Do Not L</li></ul>	Protected Jse	GrA	. ruiistre	en - Now		S - DEVICE	n 🔾				
				00 : 30 . 00										
			JRATION 00:11:33.18											
			Send to Playout Close	Delete				DROP ZONE						
	<b>i</b> +	CURRENT DURATION 00	11:33.18 OVERTIME 00	:11:03.18										
SECONDARY EVENTS METADATA	< <	Shows + Filter			Pos									
							Example_Show	20:15:00.00	00:05:42.09	00:05:42.05				
SHOWS Shows		Example_Show	00:05:42.09				Example	21:20:42.09	00.00.00.00	00.00.00.00				
		Example	00:00:00				Demo	22:20:42.09	00:05:51.09	00:05:51.05				
		Demo	00:05:51.09											

Figure: Makalu Traffic - Playlist details

- In the Playlist Properties area click Delete.
   A confirmation dialog is displayed.
- 4. To delete the playlist, click Confirm.

The playlist is deleted.

To delete multiple playlists, proceed as follows:

- 1. Open Makalu Traffic.
- 2. In the left sidebar, select **Playlists** and activate the checkbox to the right of each playlist to be deleted.

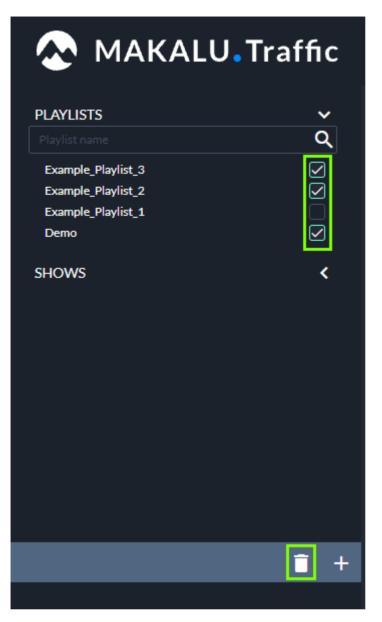


Figure: Makalu Traffic - Playlists selected for deletion

- Click the Recycle bin icon (Delete playlists).
   A confirmation dialog is displayed.
- To delete the selected playlists, click Confirm.
   The selected playlists are deleted.

# 6.3.5 Playlist properties

The following table provides an overview of all available playlist properties:

# i Notice

Time-related properties use a frame-accurate notation in the format hh:mm:ss.ff. The frame rate time base is part of the global system configuration. Makalu supports the frame rates 25, 30, 50 and 60 fps.

Property	Description
Playlist Name	Name of the playlist
Start Date	Planned on air date
Start Time	Planned airtime
Planned Duration	Planned target duration
Clean	If activated, graphics addons are not displayed when the playlist is played, even if graphics are assigned to the playlist or to included shows or clips. This also applies to cases where graphics addons of
	the previous playlist would normally extend beyond the regular end of the previous playlist. Depending on how the duration of the graphics addon is set, graphics of the previous playlist can stay displayed even after the next playlist starts. But if the clean flag is activated for the next playlist, graphics are not displayed.
	This is e.g. useful for a playlist, that only contains shows that consist exclusively of commercials.
Protected	If activated and automatic rundown mode is enabled, the playlist cannot be deleted automatically from the rundown (see section Rundown modes for more information).
	This is useful if you use automatic rundown mode and always want to keep a playlist in the rundown e.g. for emergency situations.
Do not use	If activated and automatic rundown mode is enabled, the playlist is not automatically added to the rundown (see section Rundown modes for more information).
Current Duration	Actual playlist duration, corresponds to the total combined duration of all assigned shows
Description	Text description for the playlist

# 6.4 Secondary events

When a secondary event is added to a clip, show or playlist, it is considered as an "addon". Each addon has common timerelated properties and optional content-related properties, that apply and can be edited within the context of the corresponding clip, show or playlist.

# Notice

Time-related properties use a frame-accurate notation in the format hh:mm:ss.ff. The frame rate time base is part of the global system configuration. Makalu supports the frame rates 25, 30, 50 and 60 fps.

# 6.4.1 Common properties

The following common and time-related properties are used by graphics and metadata secondary events:

Property	Description		
Addon name	Name of the addon		
Start offset	Offset until the addon is displayed (based on the start of the clip, show or playlist)		
Bind start offset to end	If activated, the start offset will be calculated based on the start of the clip, show or playlist		
End offset	Offset until the addon is removed (based on the end of the clip, show or playlist)		
Bind end offset to end	If activated, the end offset will be calculated based on the end of the clip, show or playlist		
Extend	If activated, the display duration of the addon can be extended beyond the regular end of the clip, show or playlist it is assigned to.		

# 6.4.2 Graphics properties

The following table provides an overview of available graphics secondary event properties:

Property	Description
Addon sub-type	Graphics sub type (e.g. Singular)
Use payload	If activated, a custom payload text can be entered. If deactivated, the default payload configured in Singular.Live is used instead. Input fields for custom payload text are only available for graphics that include dynamic text.
Graphics type-specific properties	Depending on the graphics type different properties are displayed (e.g. scale and position for images or input fields for the dynamic text payloads)

#### Examples for using time-related properties

The following table provides examples for using time-related addon properties:

Example	Start offset	Duration / end offset	Bind end offset to end
Display a graphics addon for the entire duration of a clip, show or playlist	00:00:00:00	00:00:00	Deactivated
Display a graphics addon 5 seconds after the clip, show or playlist starts and remove it 10 seconds later	00:00:05:00	00:00:10:00	Deactivated
Display a graphics addon 20 seconds before the clip, show or playlist ends and remove it 15 seconds later	00:00:20:00	00:00:15:00	Activated
Display a graphics addon 2 seconds before the clip, show or playlist ends and remove it 4 seconds later	00:00:02:00	00:00:04:00	Activated
In this case the addon would overlap two clips, shows or playlists. which is e.g. useful for displaying transition effects (wipe, fade, etc.).			

# 6.4.3 Splicing properties

# Notice

Splicing events are part of the Dynamic ad triggering (SCTE-35) feature that is available as optional Makalu addon. For more information see section Ad triggering.

The following table provides an overview of available splicing secondary event properties:

Property	Description
Event offset	Offset for the start time of the splicing event (if set to 00:00:00:00 the splicing event trigger is sent starting with the first I-Frame of the corresponding clip or show the event is assigned to)
Send duration	If activated, the splicing event duration is also included in the splicing event trigger
Splicing event id	Splicing event id (allows a downstream system to decide how the original content should be replaced or blanked)
UPID type	Splicing event type UPID (allows a downstream system to decide how the original content should be replaced or blanked)
UPID	Splicing event UPID (allows a downstream system to decide how the original content should be replaced or blanked)
Web delivery allowed	If activated, the "web delivery allowed" flag is set accordingly in the splicing event trigger, signaling a downstream system that web delivery is allowed for the corresponding content
Regional blackout	If activated, the "regional blackout" flag is set accordingly in the splicing event trigger, signaling a downstream system that regional blackout is enabled for the corresponding content
Archive allowed	If activated, the splicing event trigger includes information that signals a downstream system that archiving is allowed for the corresponding content
Device restrictions	Information about restrictions that apply to certain device groups
Use automatic	If activated, the end splicing event trigger is sent automatically when the event duration is completed
	If deactivated, the end splicing event trigger must be sent manually by the operator
Avail expected	Total number of avails to be expected
	Range: 0-255 (use 0 to disable feature)
	Only available for splicing secondary events of type "SCTE-35 Avail"

Property	Description
Avail num	Current avail number
	Range: 0-255 (use 0 to disable feature, must not be greater than "Avail expected" number)
	Only available for splicing secondary events of type "SCTE-35 Avail"
Auto return	Defines if downstream systems should automatically switch back to the original program content at the end of an avail
	If activated, downstream systems get the information to automatically switch back to the original program content when the avail duration ends (requires that "Send duration" is also activated)
	If deactivated, downstream systems get the information to not automatically switch back to the original program content. Instead they must wait until they receive the corresponding message, which is automatically sent by the splicer and triggers downstream systems to switch back to the original program content.
	Only available for splicing secondary events of type "SCTE-35 Avail"

# 6.4.4 Stream target properties

The following table provides an overview of available stream target secondary event properties:

Туре	Property	Description
YouTube	Title	Stream event title
YouTube	Description	Stream event content description
YouTube	Automatic	Time-related switch
YouTube	Start time	Start date and time of the streaming event
Generic	Source stream	Source to be streamed
Generic	Target type	Target type of the stream (e.g. YouTube, Facebook, LinkedIn, Twitch, RTMP, RTMPS)

Туре	Property	Description
Generic	Title	Stream event title
Generic	Description	Stream event content description
Generic	Stream URL	Target URL
Generic	Stream key	Stream key (used for authentication)
Generic	Username	Username (if required for authentication)
Generic	Password	Password (if required for authentication)
Generic	Start time	Start date and time of the streaming event

# 6.4.5 Recording properties

The following table provides an overview of available recording secondary event properties:

Property	Description		
Source stream	Source stream to be recorded		
Record channel	Encoder to be used for the recording		
Job name	Name of the recording job		
Dest path	Target folder for storing the recorded file		
Profile	File format/profile to be used for the recording (only available if a broadcast encoder is used)		

# 6.4.6 Metadata properties

The following table provides an overview of available metadata secondary event properties:

Туре	Property	Description
EPG	Short event descriptor	Short description of the content
EPG	Extended event descriptor	Detailed description of the content
EPG	Name	EPG name
EPG	FSK	Parental rating (based on German motion picture rating system organization FSK, e.g. 0, 6, 12, 16, 18)

Туре	Property	Description
EPG	DVB content	Content category (e.g. news, magazine, comedy, etc.)
EPG	Char code	Character encoding of the EPG information (default: Western European - ISO/IEC 8859)
EPG	Language	Language of the EPG information (e.g. German or English)
Moderator	Name	Moderator name
Now Next Later	Now	Now text
Now Next Later	Next	Next text
Now Next Later	Later	Later text
Online EPG	Title	Online EPG title
Online EPG	Short synopsis	Short content summary
Online EPG	Detail synopsis	Detailed content summary

# 7. Automation

Makalu Automation is the user interface for manually controlling the Makalu playout automation. Depending on the number of playout channels, it includes one or more individually controllable players, running on playout instances.

Each player seamlessly plays the video content of a linear playout channel based on a rundown, that consists of playlists, shows, clips. The playlists are created via the Makalu Traffic planning component.

# 7.1 Accessing Makalu Automation

1. Open Makalu Automation via https://automation.customer-identifier.makalu.live.

 WAKAUJAutomation
 Image: Control of the state of th

The channel status overview is opened.

Figure: Makalu Automation - Channel status overview

2. In the Channels sidebar on the left select a channel.

#### Notice

You can only select channels that are online. Online channels are highlighted with a green circle icon. Offline channels are highlighted with a red circle icon.

The Makalu Automation user interface for the selected channel is opened.

🐼 MAKALU.Automatic	n											θ
Rundown	Channel: Staging	g_CH1	Health: 🔘		•	Home Media						
C Õ Operational Mode: 💽 manual	End of Schedule 12.10.20	21 15:20:00				Channel: Staging_CH	H1   Resolutio	on: 1920x1080@25fps   0				Ð
Type Title								0.0 0.0				Current: 00:07:25.03
	12.10.2021 14:48:13.00		00:31:47.23				<b>\</b>	, Å			BUNKY	Remain: 00:03:09.09 In: 00:00:00.00
Example Show     Example Show     Demo_01	On Air	14:48:13.00	00:31:47.23 00:10:34.13	ت 24 <b>0%28</b>			0	-12		LCOP		Out: 00:10:34.13
Demo_02	Cue	14:58:47.13	00:14:47.06					-24			Demo_01	
Demo_04	Ready	15:13:34.19	00:01:30.00	<b>≈*</b> □¢2				-35				Next: 00:02:58.18
Demo_05	Ready	15:15:04.19	00:02:26.01			1.000	5.0	and the second				In: 00:00:00.00 Out: 00:14:47.06
Demo_06	Ready	15:17:30.20	00.02:30.03			ø □ ¤	K ∎	► >1		ON TIME	Demo_02	≅*□⇔≅
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						Playoutdata	· .	Title 1	Import 14 08.10.2021			hu Proxy Sub
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						<ul> <li>Secondary Events</li> </ul>		Demo	27.08.2021			
						> 🦲 Clips	_					
CUE PREV TAKE NEXT	CUE NEXT	STOP	SYNC	EJECT								
IK 🕨 🕨	ы	•		<b></b>								

Figure: Makalu Automation user interface

#### 🗴 Tip

From the Makalu Automation user interface, you can go back to the channel status overview, by clicking the white Makalu logo in the top left corner.

# 7.2 Starting and stopping a channel

### i Notice

Each playout instance can be started or stopped individually when deployed on AWS.

#### 🔺 Warning

If you stop a channel, the corresponding playout instance is shut down and distribution targets configured for this channel will not receive any content.

In Makalu Automation each playout instance can individually be started or stopped. To do this, open the channel status overview like described in section Accessing Makalu Automation and proceed as follows:

To start a playout instance, in the status list click Start for the channel to be started.

To stop a playout instance, in the status list click **Stop** for the channel to be stopped.

# 7.3 Makalu Automation user interface overview

The main user interface consists of the following elements:

Rundown	Channel: Stagin	g_CH1	2 Health:			Home Media Pla	ylist Graphics Stream Ta	rgets Transfer	Playlist Import	4	
🎖 🧿 Operational Mode: 💽 manual	End of Schedule 12.10.20	021 15:20:00	=+ =- ↑	^ ~ ± ⋳ ==	è≂ ï	Channel: Staging_CH1   Re	solution: 1920x1080@25fps   0	5			6
	Scheduled Time 210.2021 14.813.00 Ready Core 1 Ready Ready Ready	Actual Time	Scheduled Dur 00:31:47:23 00:10:34.13 00:10:34.13 00:10:447:06 00:01:30:00 00:02:28:01 00:02:28:01 00:02:29:03		лт ЛТ ЛТ		A Constraint of the second sec	II	LIVE	et Res FPS Meta  	
CUE PREV TAKE NEXT	CUE NEXT	STOP	SYNC	EJECT							

Figure: Makalu Automation user interface

- 1. Channel rundown
- 2. Channel health indicators
- 3. User account settings
- 4. Navigation tabs for accessing the "Home" area, media assets, playlists, graphics, recordings, stream targets, file transfers, Asset Uploader and playlist import
- 5. Channel information (channel name, resolution, framerate, and number of currently displayed graphics)
- 6. Restart player trigger
- 7. Channel preview including player controls and peak audio meter
- 8. Time-related rundown information
- 9. Information about the current clip
- 10. Information about the next clip
- 11. Media asset list (content varies depending on the selected navigation tab)
- 12. Rundown and player controls
- 7.3.1 Channel health



#### Figure: Channel health indicators

The health indicators display the current operating status of the most important internal system components (e.g. connection to backend components and player status).

To display the name of the corresponding component, hover over one of the indicators.

A green indicator means that the component runs normally, while a red indicator means that there was an error.

# 7.3.2 Channel rundown

Rund	own				Channe	el: Staging_C	H1	Health:	99	• •	
ΘŌ	Opera	ational Mode: 🔵 m	anual	End of	Schedule	12.10.2021	15:20:00	=+ =- ↑		± ∂ (	n= èn;
	Туре	Title		Status	Scheduled	Time	Actual Time	Scheduled Dur	Sub SE	Flags	Clean
		Documentation Demo		12.10.2021	14:48:13	00		00:31:47.23			ti 🔼
		Example Show		12.10.2021	14.40.10	.00		00:31:47.23			
		Demo_01		On Air			14:48:13.00	00:10:34.13		₩.	
		Demo_02		Cue			14:58:47.13	00:14:47.06		≅*□	54
		Demo_04		Ready			15:13:34.19	00:01:30.00		₩.	ср 2; С
	1000	Demo_05		Ready			15:15:04.19	00:02:26.01		₩.	ср 2:
		Demo_06		Ready			15:17:30.20	00:02:30.03		≅*□	50

#### Figure: Makalu Automation - Channel rundown

This area contains the rundown of the current channel. The rundown list contains all playlists, shows, and clips that are scheduled for playout. In this list each playlist and show can be expanded and collapsed. If a clip has assigned secondary events (e.g. graphics), it can also be expanded and closed, and the corresponding secondary events are listed.

Depending on the type of the currently selected element in the rundown, the toolbar at the top contains the following elements:

Icon/Element	Description
Operational mode switch	Switch between automatic and manual rundown operating mode
C	Reload the rundown
Ō	Automatically expand the rundown and jump to the current on air element every 15s (click to deactivate)
=+	Group the selected clips
=_	Ungroup the selected clips
↑	Move the selected clip to the top (set it as first clip of the show)
~	Move the selected clip one position up

lcon/Element	Description
~	Move the selected clip one position down
<u>+</u>	Move the selected clip to the bottom (set it as last clip of the show)
<u>6</u>	Remove the fixed scheduled start time from the selected element
	Add the default graphic to the selected playlist, show or clip
¢≦	Delete the default graphic from the selected playlist, show or clip
S	Add splicing event for selected clip
724	Delete from splicing event for selected clip
×	Delete the selected playlist or clip

The actual rundown list includes the following information:

Column	Description
Color indicator	Indicator for highlighting the element currently playing: • The element currently playing is highlighted in red
	<ul> <li>Grouped clips are highlighted in orange (if multiple groups are used, each group is highlighted in a different color)</li> </ul>
	<ul> <li>Other elements have a green indicator</li> </ul>
Туре	Playlist (icon), show (icon) or clip (thumbnail)
Title	Name of the playlist, show or clip
Status	Playlist scheduled date or clip status, possible values: • Cue (next clip to be played, prepared by the player)
	<ul> <li>Ready (clip is ready to be played)</li> </ul>
	• On Air (clip currently playing)
	<ul> <li>Placeholder (clip is a virtual placeholder)</li> </ul>
	<ul> <li>Pending (the file is currently being transferred from the ingest storage to the playout instance storage)</li> </ul>
	<ul> <li>Error (file cannot be played, e.g. because it does not exist, or the format is not supported)</li> </ul>
"S" icon	Clip has an assigned splicing event

Column	Description
Scheduled Time	Scheduled start time (highlighted in green if the time is fixed)
Actual Time	Actual start time
Scheduled Dur	Scheduled duration
Sub	Indicates if a subtitle file is available for the clip
SE	Indicates if there are secondary events assigned to the clip, show or playlist
Flags	Clip flags
Clean	Switch for hiding all graphics that are assigned to the playlist, show or clip

Secondary events assigned to a clip are listed with the following information:

Column	Description
Name	Name of the secondary event
Subtype	Subtype of the secondary event (e.g. Singular.Live graphics, Recording, Script)
Start-Offset	Offset until the secondary event is triggered (based on the start of the corresponding clip)
Duration	Duration of the secondary event
B-Start	Bind start offset to end (if activated, the start offset will be calculated based on the start of the clip)
B-End	Bind end offset to end (if activated, the end offset will be calculated based on the end of the clip)
Action	Delete button for removing the secondary event from the clip

# 7.3.3 Home

The Home tab includes the following areas:

- Channel information (channel name, resolution, framerate, and number of currently displayed graphics)
- Restart player trigger
- Channel preview
- Peak audio meter
- Time-related rundown information
- Clip information
- Media
- Playlist
- Graphics
- Stream targets

### **Channel preview**

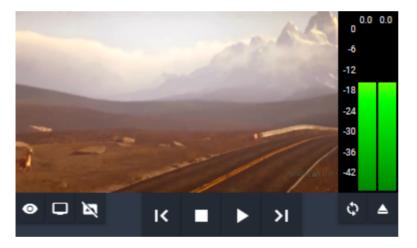
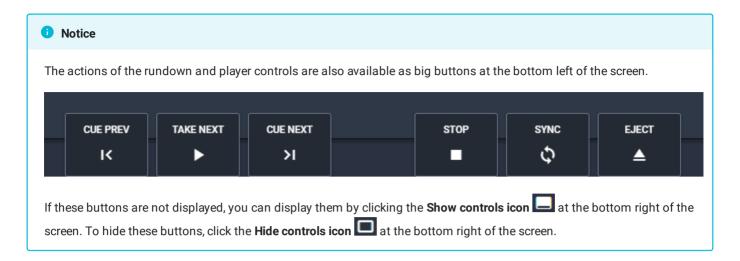


Figure: Makalu Automation - Channel preview

The channel preview displays a low-res version of the current player output in real-time. It also provides the following controls for preview, rundown, and player:

lcons	Name	Functions (from left to right)
	Preview control	<ul> <li>Toggle preview player on/off - enable/disable preview player</li> <li>Restart preview - restart preview mechanism</li> <li>Manually restarting the preview is</li> </ul>
		only necessary in case of an audio or video error. • Delete graphics - remove all currently displayed graphics secondary events
		Manually deleting graphics is only necessary if graphics are not automatically removed as expected.
I< ■ ► >I	Rundown control	<ul> <li>Cue previous clip - prepare the previous clip for playback</li> <li>Stop - stop the playback of the</li> </ul>
		currently playing clip • Next (play) - start the playback of the currently prepared/cued clip
		• Cue next clip - either prepare the first clip in the rundown for playback (if no clip is currently cued) or prepare the next clip after the currently cued clip for playback
\$ ▲	Player control	<ul> <li>Sync player</li> <li>Eject player</li> </ul>
		The player control is only to be used in case of an error, if the player is not working as expected.



#### Peak audio meter

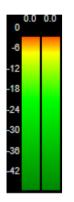


Figure: Makalu Automation - Peak audio meter

The Peak audio meter indicates the current audio signal level of the channel preview.

#### Time-related rundown information

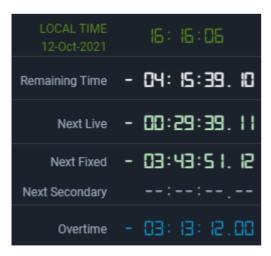


Figure: Makalu Automation - Time-related rundown information

This area provides the following information:

Element	Description
Local Time	Local client time
Remaining Time	<ul> <li>Remaining play time of all playlists currently in the rundown, or</li> <li>"LOOP" (the clip is played in a loop until the operator manually triggers the start of the next clip)</li> </ul>
Next Live	<ul> <li>Remaining time until the next live clip in the rundown, or</li> <li>"LIVE" (if a live clip is currently played)</li> </ul>
Next Fixed	Remaining time until the next element in the rundown with a fixed start time
Next Secondary	Remaining time until the next secondary event
Overtime	<ul> <li>"ON TIME" or time difference regarding the scheduled time of elements in the rundown</li> <li>Relevant if a live clip ran shorter or longer than originally planned</li> </ul>

#### **Clip information**

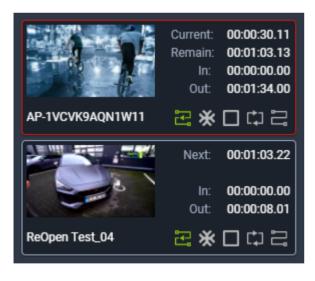


Figure: Makalu Automation - Clip information

This area includes the following information of the currently playing clip and the next clip:

- clip thumbnail image
- clip name
- clip remaining time
- clip mark in
- clip mark out
- clip flags

### 🗴 Tip

If the next clip is a live clip, you can start a preview of the live signal by clicking on the next clip thumbnail image.

# 7.3.4 Media

Home	Media	Playlist	Graphics	Stream T	argets	Transfer	Playlist Imp	ort								
							-	Common	1							
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N.C.	38.		6 V 13	5100		÷-+3			iration: Import:		0:34.13		:59.00			
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Position:	00:05:14.07				Remaining:	00:05:20.0			olution:		0x1080	)@60fp	os HD	)		
_			Demo_01						ct ratio: Bit rate:	16:9 4 00	) )Mb/s					
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Playoutdata Live Placet Secon Clips Clips Clips	a holder holder holder Semo Demo Documentation	α α -	Title Demo Demo Demo Demo	t₊ 	II resolution	Import <sup>†</sup> 4 12.10.2021 12.10.2021 12.10.2021 12.10.2021 12.10.2021	00:02:30.03 00:02:26.01 00:01:30.00 00:14:47.06	MP4 MP4 MP4 MP4	HD HD HD HD	24 24 24 25	0 0 0 0	0 0 0 0	0 0 0 0		• • •	
Playoutdata Live Placet Secon Clips Clips	a holder holder holder Semo Demo Documentation	( Q )	Title Demo Demo Demo Demo	t₊ 	II resolution	Import <sup>†</sup> 4 12.10.2021 12.10.2021 12.10.2021 12.10.2021 12.10.2021	00:02:30.03 00:02:26.01 00:01:30.00 00:14:47.06	MP4 MP4 MP4 MP4	HD HD HD HD	24 24 24 25	0 0 0 0	0 0 0 0	0 0 0 0		• • •	

Figure: Makalu Automation - Asset list and preview

The Media tab contains the following elements:

- 1. Media asset preview
- 2. Media asset metadata
- 3. Media asset list

The preview player provides the following controls:

lcon	Description
**	Fast rewind

lcon	Description
<	Previous frame
{⊷	Jump to mark in
{	Set mark in
	Stop
	Play
}	Set mark out
}	Jump to mark out
>	Next frame
>>>	Fast forward

Below the player controls the following time-related information is displayed:

Position:	00:05:14.07	Demo_01		Remaining:	00:05:20.07	
Mark In:	00:00:00.00	Duration:	00:10:34.12	Mark Out:	00:10:34.12	Ð

Figure: Makalu Automation - Preview (time-related information)

- Position (current playback timecode)
- Remaining (remaining duration)
- Mark In (mark in timecode)
- Duration (total duration)
- Mark Out (mark out timecode)
- Reset (reset mark in and mark out)
- Thumbnail with file name (draggable element for adding the clip to a show in the rundown **including the mark in and mark out timecodes**)

To the right of the player window, the metadata of the currently previewed file is listed. This section is divided into **Common**, **Video** and **Audio** metadata.

	Commo	n		
		Name:	Demo_01	
	D	uration:	00:10:34.13	
		Import:	12.10.2021 14:00:59	9.00
	Expi	ry date:	-	
		Size:	339.37 MB	
		Format:	MP4	
		Path:	Instruction of	an a
		Thumb:	No. ( description of the	Concerning
	L	owRes:	Sectore 10	il second
	ę	Subtitle:		
	Sec	quence:		
	Video	Audio		
		Codec:	AVC	
		olution:	1920x1080@60fps	HD
	Aspe	ct ratio:	16:9	
Ð		Bit rate:	4.00 Mb/s	

Figure: Makalu Automation - File metadata

Below the preview player and the time-related information the media asset list is displayed. Depending on the selected entry in the **Source** dropdown menu, this section either lists all files available on the ingest storage or on the playout instances that are assigned to the currently selected channel.

Search in Documentat 🗙 🍳	No filter 👻	All resolutions 🔻			<b>≣</b> ⊕ <b>±</b>
Playoutdata 🗸	Title ⁺₊	Import †	Duration 🛧 Format R	Res FPS Met	a Thu Proxy Sub
Live	Demo_06	12.10.2021	00:02:30.03 MP4 H	ID 24 🛇	⊘ ⊘ - ▶ 🗆
🔛 Placeholder	Demo_05	12.10.2021	00:02:26.01 MP4 H	ID 24 🔗	⊘ ⊘ ₋ ▶ 🗆
> E Secondary Events	Demo_04	12.10.2021	00:01:30.00 MP4 H	ID 24 🔗	⊘ ⊘ ₋ ▶ 🗆
🗸 🛅 Clips	Demo_02	12.10.2021	00:14:47.06 MP4 H	ID 25 🔗	⊘ ⊘ ₋ ▶ 🗆
🛅 Demo	Demo_01	12.10.2021	00:10:34.13 MP4 H	ID 60 🛇	⊘ ⊘ - ▶ 🗆
Documentation					
C) réname					
					l .

Figure: Makalu Automation - Media asset list

The toolbar of the media asset list contains the following elements:

lcon/Element	Name	Description
Playoutdata 🔻	Select source	The source of the media assets to be displayed in the media asset list
		Available options are:
		• ingest storage (e.g. "Playoutdata")
		• playout instance storage (e.g. "Player_Main")
Search in Clips 🗙	Title filter	Search media assets in the currently selected folder based on their title
Live sources 🔻	Live source filter	Filter the available live sources based on their type (only available if asset type <b>Live</b> is selected)
		Available options are:
		• All
		• Backchannel
		Live sources
No time filter 🔻	Time filter	Filter the displayed media assets based on the date they were imported into the system
		Available options are:
		• No filter
		• Today
		• Yesterday
		• Last week
		• Last month
HD 🔻	Resolution filter	Filter the displayed media assets based on their resolution
		Available options are:
		All resolutions
		• SD
		•HD
		•UHD

Icon/Element	Name	Description
	View switch	Switch between table view (default) and grid view
Ð	Reload assets	Refresh the media asset list
	Upload assets	Trigger a file transfer from the ingest storage to a playout instance storage (only available if the ingest storage is selected as source), see section File transfer for more information
G	Upload assets again	Re-trigger a file transfer from the ingest storage to a playout instance storage (only available if the playout storage is selected as source), see section File transfer for more information
×	Delete assets	Delete selected assets (only available if a playout instance storage is selected as source)

# 7.3.5 Playlist

	Home	Media <b>Playlist</b> Gra	aphics Strea	am Targets	Transfer	Playlis	t Import		
C		x	25 👻	All		-			+ 🗟 😏
		Title 📬	OnAir Date 🐧	OnAir Time	Fixed [	Duration 🐧	Created	Sched MD SE	ST Clean
-		Documentation Demo	12.10.2021	00:00:00.00		00:31:47.23	12.10.2021 14:28:57	✓	-
	M	Example Show				0:31:47.23	12.10.2021 14:28:57		
	<b>BORNS</b>	Demo_01			- 🔒 (	00:10:34.13	12.10.2021 14:28:57		
		Demo_02				0:14:47.06	12.10.2021 14:28:57		
	100.000	Demo_04				0:01:30.00	12.10.2021 14:28:57		
		Demo_05 Demo_06				00:02:26.01 00:02:30.03	12.10.2021 14:28:57 12.10.2021 14:28:57		_ •
		Demo_00				0.02.30.03	12.10.2021 14.20.37		
	_				0				
+		Demo_Live_2000_310821	31.08.2021	20:00:00.00		00:13:08.18	31.08.2021 11:37:34	<u> </u>	
+		Demo_Live_2000_310821	31.08.2021	20:00:00.00		00:13:08.18	31.08.2021 12:54:59	<u> </u>	
+	≣	H. (1994), A.	31.08.2021	20:00:00.00		0:49:04.12	31.08.2021 13:09:57		
+	≣	testes	08.09.2021	14:00:00.00	- 🔒 (	00:26:51.12	08.09.2021 15:57:31	🛛	
+		100.000	08.09.2021	14:00:00.00	- 🔒 (	0:26:51.12	09.09.2021 17:08:50	🛛	
+	≣	And the set of the set	09.09.2021	14:00:00.00	🔒 (	00:05:25.23	09.09.2021 17:19:28	□	
+	≣	Designed to define the	13.09.2021	14:00:00.00	<u></u>	)2:42:46.09	21.09.2021 12:01:40	□	
+	≣	1002033-0-027	21.09.2021	14:00:00.00	• •	)2:42:46.09	21.09.2021 12:14:07	0	
+	≣	THE ADDRESS OF	28.09.2021	14:00:00.00	_	00:12:08.18	28.09.2021 12:20:29	<u> </u>	
+	≣	An International Contractions	08.10.2021	20:15:00.00	-	01:27:40.17	08.10.2021 11:34:04	□	

### Figure: Makalu Automation - Playlist

The **Playlist** tab contains all available playlists of the current channel. Each playlist can be expanded to list all included components (shows, clips, secondary events, and metadata). See section Schedule for information about how to create playlists.

The toolbar at the top contains the following elements:

lcon	Description
Search	Search a playlist by title

lcon	Description
+	Add the selected playlist to the rundown The position/time where the playlist is added to the rundown depends on the following:
	<ul> <li>if the playlist does not have a fixed start time, it is appended to the rundown as last element (directly after the previously last playlist, without creating gaps)</li> </ul>
	<ul> <li>if the playlist does have a fixed start time but you leave the "Timed" checkbox unchecked, it is appended to the rundown as last element (directly after the previously last playlist, without creating gaps) ignoring the fixed start time</li> </ul>
	<ul> <li>if the playlist does have a fixed start time and you activate the "Timed" checkbox, it is appended to the rundown corresponding to the fixed start time</li> </ul>
×	Delete the selected playlist
<del>С</del>	Reload the list of available playlists

# 7.3.6 Graphics

Me	dia	Playl	ist Graphics							
	C first		3							:
8 Pl	aylist 🔍					Preview		🗖 Output		
	1			■ >> ≎	û +					
	Status		Page Name	Template	Timer					
	►	Ŀ	Wipe	Wipe						
	►		Baseline - Manual	Baseline - Manual					C	
	►		Bug - Countdown	Bug - Countdown						
		È	Freeform Image	Freeform Image						
	►	È	Freeform Image 2	Freeform Image 2		Active Graphics				^
		Ŀ	Freeform Text	Freeform Text		Background	Baseli	ne	Bug	
			Baseline - Manual	Baseline - Manual					Bug - Countdown	
	►	Ŀ	New Sub-Comp	New Sub-Comp		D 50				
			Full Screen - Now, Next,	Full Screen - Now, Next,		Page Editor				
	►		Full Screen - SAM + Ima	Full Screen - SAM + Ima						
			Full Screen - Social Media	Full Screen - Social Media						
			Full Screen - Social SAM	Full Screen - Social SAM						
			Fullscreen - Now, Next,	Fullscreen - Now, Next,						
			Fullscreen - Weather M	Fullscreen - Weather M						
			Fullscreen - Welcome P	Fullscreen - Welcome P						
			Bug-Logo	Bug-Logo						
	►		Bug - Countdown	Bug - Countdown						
_		-	UpperLeft 1Line	UpperLeft 1Line	0					

Figure: Makalu Automation - Singular.Live graphics dashboard

The **Graphics** tab includes an embedded version of the Singular.Live composition dashboard, allowing you to manually trigger Singular.Live graphics for the current channel directly from within Makalu Automation.

For more information about how to use graphics, see the Graphics section.

## 7.3.7 Recordings

	Graphics Recor	lings Stream					
Encoder 3	1) (Previev	o 🤇	2	Encoder 3		3	
V RODEDUTVELS	<b>B</b> , <b>C</b> , <b>1</b> ,	Encoder 1		Common Title*:			
		Encoder 2 (Br		Filename:			
In the second		Encoder 3		Folder:	Clips		Ð
		Encoder 4		Source:	Channel_1_Ma	aster.st 🗸 💿	Save As Default
				Profile:	As Source	🗸 Туре:	Single Shot 🛛 🔫
~ -	{} • • ×			Split:		Automatic Split:	off 🗸 🗸
				Loop:	• F	Retention Period:	
00:00:56.10 Current	00:02:56.     Total						Apply
00:00:00.00							
Next				Sched	ule		
Source: Channel_1_Maste	r.stream			Start:			Now
Profile: As Source				End:			
Status: Running Name: Example Recordin					open end		Add
Recordings All stat	tes 🔻 All chan	neis ▼ All t	types 🔻		10 <b>▼</b> 1 - 2 of 5	2  < <	
Recordings All stat	tes  All chan Source	neis   Ail t Type	types ▼ Status	Profile	10 ▼ 1 - 2 of :	2  < < Action	
			Status		10    1 − 2 of :	Action	
Channel	Source	Туре	Status	Profile As Source	10 ▼ 1 - 2 of : 021 14:43:19.19	Action	
Channel - Encoder 3	Source Channel_1 n /Clips	Type Crash Example Recordin Example Recording	Status Running In progress Completed	Profile As Source 28.07.2		Action	
Channel — ● Encoder 3 ● Example Recordin	Source Channel_1 n /Clips ng /Clips	Type Crash Example Recordin Example Recording	Status Running In progress	Profile As Source 28.07.2 28.07.2	021 14:43:19.19	Action	▶ <b>■ {} @ X</b> op 1h
Channel Channe	Source Channel_1 IClips ag /Clips ag /Clips ag /Clips	Type Crash Example Recordin Example Recording Example Recording	Status Running In progress Completed Completed Completed	Profile As Source 28.07.2 28.07.2 28.07.2 28.07.2	<b>021 14:43:19.19</b> 021 14:42:19.18 00:0 021 14:41:19.17 00:0 021 14:40:19.16 00:0	Action <b>1 min Low</b> 1:00 1 min Low 1:00 1 min Low 1:00 1 min Low	Image: Contract of the second secon
Channel  Encoder 3  Example Recordir  Example Recordir  Example Recordir  Example Recordir  Example Recordir  Example Recordir	Source Channel_1 /Clips ng /Clips ng /Clips ng /Clips ng /Clips	Type Crash Example Recordin Example Recording Example Recording Example Recording	Status Running In progress Completed Completed Completed Completed	Profile As Source 28.07.2 28.07.2 28.07.2 28.07.2 28.07.2 28.07.2	<b>021 14:43:19.19</b> 021 14:42:19.18 00:0 021 14:41:19.17 00:0 021 14:40:19.16 00:0 021 14:39:19.15 00:0	Action 1 min Loc 1:00 1 min Loc 1:00 1 min Loc 1:00 1 min Loc 1:00 1 min Loc	Image: Control of the second
Channel Channel Encoder 3 Example Recordin Example Recordir Example Recordir Example Recordir Example Recordir	Source Channel_1 /Clips ng /Clips ng /Clips ng /Clips ng /Clips	Type Crash Example Recordin Example Recording Example Recording	Status Running In progress Completed Completed Completed	Profile As Source 28.07.2 28.07.2 28.07.2 28.07.2 28.07.2 28.07.2	<b>021 14:43:19.19</b> 021 14:42:19.18 00:0 021 14:41:19.17 00:0 021 14:40:19.16 00:0	Action 1 min Loc 1:00 1 min Loc 1:00 1 min Loc 1:00 1 min Loc 1:00 1 min Loc	Image: Contract of the second secon

Figure: Makalu Automation - Recordings

In the **Recordings** tab you can record available (live) sources by using available encoders. For more information about how to create recordings, see section Recording.

The tab contains the following areas:

- 1. Preview Preview and controls of the currently selected encoder
- 2. Encoder list List of available encoders
- 3. Preferences Preferences for creating a new recording job for the currently selected encoder
- 4. Recordings List of existing recording jobs

The **Preview** area provides the following controls and information:

Element	Description
Ø4	Prepare a recording
	Start a recording
	Stop a recording
0	Split a recording
Ð	Cancel a recording
×	Delete a recording job
Current	Current recording duration of the selected recording job
Total	Total recording time of the selected recording job
Next	Time until the next scheduled recording job starts on the selected encoder
Source	Source of the selected recording job
Input	Input format of the selected source
Profile	Profile of the selected recording job
Status	Status of the selected encoder or recording job
Name	Title of the selected recording job

In the **Encoder list** area all available encoders are listed. Depending on their current status, encoders are highlighted in one of the following colors:

- Gray: Encoder is offline or has no active recording jobs
- Green: A recording job is currently prepared
- Red: A recording job is currently running

The **Preferences** area provides the following input options:

Name	Description
Title	Title of the recording job
Filename	Name of the file to be recorded (if no file name is provided, the title is used as file name)
Folder	Destination folder where to store the recorded file

Name	Description
Source	Source stream to be recorded
Save As Default	Set the currently selected source as default for the currently selected encoder
Profile	Format/recording profile of the file to be recorded
Туре	<ul> <li>Recording job type, available options:</li> <li>Single shot - to be used for single file recording jobs (after stopping the recording job it cannot be used again)</li> <li>Multi shot - to be used for multi-file recording jobs (the recording can be stopped; the recording job can be used again to record another file and each time another recording is started, a consecutive number is appended to the file name)</li> </ul>
Split	If enabled, a recorded file can be split either manually via the corresponding control or automatically based on the "Automatic Split" time setting
Automatic Split	Time interval for automatically splitting a recorded file (only available if "Split" is enabled)
Loop	Enable to enable the retention period field
Retention period	Select a duration (in hours) when a recorded file is automatically deleted
Apply	Create a recording job with the current settings
Schedule	Activate the checkbox to create a scheduled recording job
Start	Start time of the scheduled recording job
End	End time of the scheduled recording job
Now	Set start time to current time and end time to current time plus one hour
Add	Create a scheduled recording job with the current settings
Duration	Duration of the scheduled recording job (only available if "Schedule" and the toggle switch next to "End" are enabled)
Open end	Activate the checkbox to create a scheduled recording job without specifying an end time (the recording job must be stopped manually)

The **Recordings** list contains all current recording jobs and the following information:

Column	Description
Channel	Recording channel/encoder used for the recording
Source	Recorded source
Туре	Type of the recording job, available options: • Crash (started and stopped manually) • Schedule (scheduled start and stop)
Status	Status of the recording job, available states: • Idle - the recording job is not active • Created - the recording job is created
	Completed - the recording job is completed     Frror - an error has occurred
	<ul> <li>Prepared - the job is ready for recording</li> <li>Preparing - the recording job is in preparation</li> <li>Queued - the recording job is queued</li> </ul>
	<ul> <li>Running - the recording job is running</li> <li>Started - the recording job has started</li> <li>Starting - the recording job is starting</li> <li>Stopped - the recording job is stopped</li> </ul>
	<ul> <li>Stopping - the recording job is stopping</li> <li>Canceled - the recording job is canceled</li> </ul>
Profile	Format/recording profile of the recorded file
Action	The action column provides the following controls: • Prepare recording • Start recording • Stop recording • Split recording
	<ul> <li>Split recording</li> <li>Cancel recording</li> <li>Delete recording job</li> </ul>

# 7.3.8 Stream targets

Home Media	Playlist Graphics	Stream Targets	Transfer	Playlist Import		
Predefined Targets						Ð
Target Name	Account	Source		Platform	Description	
🚺 үт2	YT Test	Channel_1_	🗕 🖬	YouTube		+
Generic		Channel_1_	👻 🖪	Generic	Generic Target	+
Demo	Demo	Channel_1_	🗕 🖬	YouTube		+
Joblist All states	•					Ð
Platform t Event t	Target Name Account	Source	Sche	duled 📬 🛛 Stati	us 🗘 🛛 Edit Link	Action
🖬 araa		🐟 Channel	- 🖬 11:59		pleted 🛛 🥒 🖸 📄	CGOIX
Graphics 1	est RTMP	Channel	- 8 14:18	3:59.00 Stop	ped 🧪	

Figure: Makalu Automation - Stream targets

The **Stream Targets** tab lists existing streaming jobs/events. It also allows you to create new streaming jobs/events and to trigger them manually.

The list of **Predefined Targets** contains all available stream targets and the following information:

Column/element	Description
Target Name	lcon representing the target platform/type and name of the stream target
Account	Internal name of the corresponding target platform- specific account to be used by the stream target (if applicable)
Source	Name of the source stream
8	Save the selected source
Platform	Target platform
Description	Short description of the stream target
+	Create a new streaming job for the corresponding stream target

The Joblist contains all scheduled streaming jobs/events of the current channel and the following information:

Column	Description
Platform	lcon representing the target platform/type of the job
Event	Event title or category
Target Name	Name of the stream target
Account	Internal name of the corresponding target platform- specific account to be used by the stream target (if applicable)
Source	Name of the source stream
Scheduled	Scheduled start time
Status	Streaming event status, available states: • <b>Unknown</b> - the status of the event is unknown
	• Error - an error occurred
	• Queued - the event is queued
	<ul> <li>Preparing - the event is in preparation for the stream</li> </ul>
	• Prepared - the event is ready for streaming
	• Starting - the event is starting
	• Started - the event is started
	• Running - the event is running
	Completed - the event is completed
	• Stopping - the event is stopping
	Stopped - the event is stopped
Edit	Edit metadata of the stream job
Link	<ul> <li>Open stream event in a new tab</li> <li>Copy stream event link to clipboard</li> </ul>
Action	Actions for manually controlling the streaming job, available actions: • Queue - queue the streaming event • Prepare - prepare the streaming event
	<ul> <li>Go Live - start the streaming event</li> </ul>
	• Stop - stop the streaming event
	Delete - delete the streaming event

# Notice

You can only trigger actions that are highlighted with a white or green icon. Actions with a gray icon are not available.

For more information about streaming, see the Streaming section.

## 7.3.9 Transfer

In the **Transfer** tab all file transfers from ingest storage to playout instances are listed, that are currently running or were recently finished.

Home Med	lia Playlist	Graphics	Stream Targets	Transfer	Playlist Imj	port						
Player_Master (3)												
File Na	me	Target Fo	blder	Uploaded	Stat					Acti	on	
Demo_	01	Clips/Do	cumentation	13.10.2021 08:	54:47 Proce	essing	<b>24%</b> 83.00 M			11 @	OG	
Demo_	02	Clips/Do	cumentation	13.10.2021 08:	54:46 Proce	essing				11 @	)C	
Demo_(										11 0	O G	
Demo_(										11 0	O C	
Demo_	06	Clips/Do	cumentation	13.10.2021 08:	54:46 Proce	essing	81% 155.44 M	3 191.14		11 0	OG	
Disk space:												
Disk space.	-		8%				76.8	4 GB   9	53.87 (	ЗB		
Search in Docum	entat 🗙 Q	No filter	8% ▼ All resolut	tions 🔻			) 76.8	4 GB   9!	53.87 (	ЭB	<b></b> (	5 <b>1</b>
	entat 🗙 🍳	No filter Title 14		tions ╺	Duration 🗘	Format		4 GB   99				5 ±
Search in Docum			✓ All resolut		Duration 4 00:02:30.03	Format MP4						∍ <b>•</b>
Search in Docum		Title ↑	✓ All resolut	Import †			Res FPS	Meta	Thu ②	Proxy		
Search in Docum Playoutdata	•	Title 🖡 Demo_06	✓ All resolut	Import 1.	00:02:30.03	MP4	Res FPS HD 24	Meta	Thu ⊘	Proxy ©		
Search in Docum Playoutdata III Live III Placeholder	•	Title t <sub>4</sub> Demo_06 Demo_05	✓ All resolut	Import † 12.10.2021 12.10.2021	00:02:30.03	MP4 MP4	Res FPS HD 24 HD 24	Meta ©	Thu ②	Proxy ⊘ ⊘		
Search in Docum Playoutdata Playoutdata Live Placeholder Secondary Ev Clips Demo	<b>▼</b> ents	Title 1, Demo_06 Demo_05 Demo_04	All resolut	Import 1, 12.10.2021 12.10.2021 12.10.2021	00:02:30.03 00:02:26.01 00:01:30.00	MP4 MP4 MP4	Res FPS HD 24 HD 24 HD 24	Meta © ©	Thu ⊘ ⊘	Proxy © ©		
Search in Docum Playoutdata Live Placeholder Secondary Ev Clips Demo Docume	• ents	Title 1, Demo_06 Demo_05 Demo_04 Demo_02	All resolut	Import 1/4 12.10.2021 12.10.2021 12.10.2021 12.10.2021	00:02:30.03 00:02:26.01 00:01:30.00 00:14:47.06	MP4 MP4 MP4 MP4	Res FPS HD 24 HD 24 HD 24 HD 25	Meta © © © ©	Thu ② ③ ③	Proxy © © ©		
Search in Docum Playoutdata Playoutdata Playoutdata Placeholder Placeholder Secondary Ev Clips Demo Docume	• ents	Title 1, Demo_06 Demo_05 Demo_04 Demo_02	All resolut	Import 1/4 12.10.2021 12.10.2021 12.10.2021 12.10.2021	00:02:30.03 00:02:26.01 00:01:30.00 00:14:47.06	MP4 MP4 MP4 MP4	Res FPS HD 24 HD 24 HD 24 HD 25	Meta © © © ©	Thu ② ③ ③	Proxy © © ©		
Search in Docum Playoutdata Live Placeholder Secondary Ev Clips Demo Docume	• ents	Title 1, Demo_06 Demo_05 Demo_04 Demo_02	All resolut	Import 1/4 12.10.2021 12.10.2021 12.10.2021 12.10.2021	00:02:30.03 00:02:26.01 00:01:30.00 00:14:47.06	MP4 MP4 MP4 MP4	Res FPS HD 24 HD 24 HD 24 HD 25	Meta © © © ©	Thu ② ③ ③	Proxy © © ©		

Figure: Makalu Automation - File transfer list

The number in brackets beside the playout instance name indicates how many file transfers are currently running. The columns of the list provide details about each file and the transfer progress.

The action column provides the following elements:

Icon/Element	Description
	Pause file transfer

lcon/Element	Description
	Cancel file transfer
C	Retry/re-trigger file transfer

Below the transfer list in the **Disk space** area the available storage space of the selected playout instance is displayed.

At the bottom of the **Transfer** tab the media asset list is displayed. This is the same list and provides the same functionality as in the Media tab. For information about how to trigger a file transfer, see section File transfer.

## 7.3.10 Asset Uploader

The Asset Uploader tab integrates the functionality of the Asset Uploader into the Makalu Automation user interface.

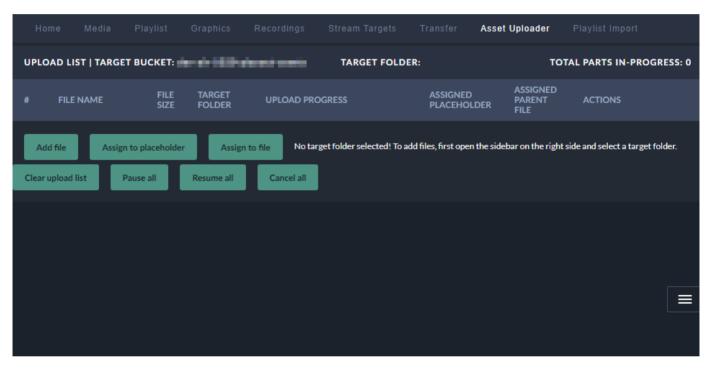


Figure: Makalu Automation - Asset Uploader

For information about how to use the Asset Uploader see section Ingest.

## 7.3.11 Playlist Import

The Playlist Import tab enables you to import playlists from third-party traffic systems.

Title       Missing Files       Revision       Channel       Process       Import         Demo_1800_3       0       13       Channel GPU       Ready for import       Import         Demo_1800_3       0       12       Channel GPU       Ready for import       Import         Demo_1800_3       0       11       Channel GPU       Ready for import       Import         Demo_1800_3       0       11       Channel GPU       Ready for import       Import         Demo_1800_3       0       10       Channel GPU       Ready for import       Import         Scripts1Live1S       0       1       Channel GPU       Ready for import       Import         Demo_1800_3       0       9       Channel GPU       Ready for import       Import         Demo_1800_3       0       1       Channel GPU       Ready for import       Import         Demo_1800_3       0       1       Channel GPU       Ready for import       Import         Demo_1800_3       0       1       Channel GPU       Ready for import       Import         Demo_1900_3       0       1       Channel GPU       Ready for import       Import         Demo_1900_3       0		Maria Pila					C D
Demo_1800_3       0       12       Channel GPU       Import         Demo_1800_3       0       11       Channel GPU       Import         Demo_1800_3       0       10       Channel GPU       Import         Demo_1800_3       0       10       Channel GPU       Import         Scripts1Live1S       0       1       Channel GPU       Import         Demo_1800_3       0       9       Channel GPU       Import         Demo_1800_3       0       1       Channel GPU       Import         Demo_1900_3       0       1       Channel GPU       Import         Meady for import       100%       Import       Import         Demo_1900_3       0       1       Channel GPU       Import         Ready for import       100%       Import       Import					]	100%	
Demo_1800_3       0       11       Channel GPU       Import         Demo_1800_3       0       10       Channel GPU       Import         Scripts1Live1S       0       1       Channel GPU       Import         Demo_1800_3       0       1       Channel GPU       Import         Demo_1800_3       0       1       Channel GPU       Import         Demo_1800_3       0       9       Channel GPU       Import         Demo_1800_3       0       1       Channel GPU       Import         Demo_1800_3       0       1       Channel GPU       Import         Import       100%       Import       Import         Demo_1900_3       0       1       Channel GPU       Import         Import       100%       Import       Import	Demo_1800_3	0	12	Channel GPU 🗧 👻		100%	Import
Import     Import       Scripts1Live1S     0       Demo_1800_3     0       Period_1800_3     0       Import	Demo_1800_3	0	11	Channel GPU 🔫		100%	Import
Import     Import       Import     Demo_1800_3       Import	Demo_1800_3	0	10	Channel GPU 🗸 🗸			Import
Demo_1900_3     0     1     Channel GPU     Ready for import     100%       Demo_1900_3     0     1     Channel GPU     Ready for import	Scripts1Live1S	0	1	Channel GPU <			Import
Demo_1900_3 0 I Channel GPO Ready for import	Demo_1800_3	0	9	Channel GPU 🔫	Ready for import		Import
	Demo_1900_3	0	1	Channel GPU 🔫	Ready for import		Import
	n 1000 n	^	•	-		100%	

# Figure: Makalu Automation - Playlist import

The list of imported playlists provides the following information:

Column	Description
Title	Name/title of the playlist
Missing Files	For each imported playlist a missing file list is created. This list includes all files that are used in the imported playlist but are not yet available on the ingest storage. Missing file lists can also be exported. For more information see section Exporting a missing file list.
Revision	Playlist revision number (each time a playlist with the same name/title is imported, the revision number is increased)
Channel	Target channel
Process	Progress/status of the playlist processing/import

Column	Description
Import	Button for starting the playlist import. For more information see section Importing a playlist.

# 7.4 Previewing file-based and live media

To preview media, proceed as follows:

- 1. On the right side, select the **Media** tab.
- 2. In the media list select the media type (live or clips).
- 3. (Optional) To filter the displayed media files, either use the **Search** field (to filter by file name) or the dropdown menus (to filter by modification date or by resolution).

The media list is filtered based on your filter settings.

4. To preview a file, click the **Play** icon at the right side of the corresponding list item or drag the item onto the preview player. *The file is loaded by the preview player.* 

Home	Media	Playlist	d Gra	phics	Stream	Targets	Transfer	Playlist Imp	ort								
Position:	< t-				}	- -		-	Commor Du Expir F La Seq Video	Name: uration Import y date Size	00:1 12:1  339 MP <sup>2</sup>  - - - - - - - - - - - - - - - - -	; ; ;0x1080	14:00	100			
_	00:07:02.09 00:00:00.00	Dur	Demo ration:	o_01 00:10:34	.12	Remaining: Mark Out:	00:03:32.0 00:10:34.1			ct ratio Bit rate:		) ) Mb/s					
Search in	Documentat 🕽	<b>८</b>	No filte	r	- /	All resolutio	ns 🔻								=	Ð	<b>1</b>
Playoutdata				Title 📬			Import 🗘	Duration ኁ	Format	Res	FPS	Meta	Thu	Proxy	Sub		
💵 Live				Demo_06		- I	12.10.2021	00:02:30.03	MP4	HD	24	$\oslash$	$\oslash$	$\oslash$		×	
🔛 Placeh	older		1 - Barrow	Demo_05		I	12.10.2021	00:02:26.01	MP4	HD	24	$\oslash$	$\oslash$	$\oslash$		×	
> 📄 Second	dary Events			Demo_04		I	12.10.2021	00:01:30.00	MP4	HD	24	$\otimes$	$\oslash$	$\oslash$		×	
🗸 🛅 Clips				Demo_02		<u> </u>	12.10.2021	00:14:47.06	MP4	HD	25	$\otimes$	$\otimes$	$\oslash$	-	×	
D	emo		読みが	Demo_01		<u> </u>	12.10.2021	00:10:34.13	MP4	HD	60	$\oslash$	$\oslash$	$\oslash$	-	•	<b>~</b>
	ocumentation																

Figure: Makalu Automation - File preview

5. Use the preview player controls to play the file.

## Notice

If you preview a live source:

- the player controls are disabled, except the stop button
- you can copy the stream URL to the clipboard by clicking the corresponding **Path** icon in the **Common** metadata section

# 7.5 Rundown operating modes

Makalu Automation provides the following rundown operating modes:

- manual
- automatic

Manual mode provides full manual control over the rundown. You must add and delete playlists manually as well as triggering cue and play for clips.

Automatic mode automates adding playlists to the rundown and triggering cue and play. Playlists created with a future start time in Makalu Traffic are automatically added to the rundown. The first clip of the playlist is automatically cued. When the start time is reached, play is automatically triggered. When the playlist is finished, it is automatically removed from the rundown (depending on how the playlist properties "Protected" and "Do not use" are set).

#### Notice

The time intervals that are used to select which playlist should automatically be added or removed from the rundown can be configured via pre roll and post roll settings. Both intervals are usually set between 4 to 8 hours.

To change the rundown operating mode, use the **Operational mode** toggle switch in the toolbar at the top of the rundown. If the switch is activated, manual mode is enabled. If the switch is deactivated, automatic mode is enabled.

	Rundo	own			Channel: Staging_C	:H1	Health:	9 9	۵ (	0	) (	۲
e	Ö	Opera	ational Mode: 🔵 manual	End o	f Schedule 13.10.2021	14:28:11						
		Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur	Sub SE	Flags		Cle	an
—			Documentation Demo	13.10.2021	13:56:23.03		00:31:47.23					
-			Example Show				00:31:47.23					
		的部分	Demo_01	On Air		13:56:23.03	00:10:34.13		₩		20	
			Demo_02	Cue		14:06:57.16	00:14:47.06		₴*	]¢22	: •	
			Demo_04	Ready		14:21:44.22	00:01:30.00		₩	]¢2	2.0	
		1000	Demo_05	Ready		14:23:14.22	00:02:26.01		₩	]¢22	20	
		-	Demo_06	Ready		14:25:40.23	00:02:30.03		₩.	ם¢נ	₹ ●	

Figure: Makalu Automation - Rundown operating mode toggle switch

# 7.6 Adding elements to a rundown

## 7.6.1 Adding a playlist to a rundown

To add a playlist to a rundown, proceed as follows:

1. On the right side, select the **Playlist** tab.

All available playlists for the current channel are listed.

🐼 MAKALU.Automation			Θ
Rundown	Channel: Staging_CH1	Health: 💿 💿 💿 💿 💿 💿	Home Media <b>Playlist</b> Graphics Stream Targets Transfer Playlist Import
C Ō Operational Mode: 💽 manual End			Search x Q, 25 - Past - + 🖥 🗘
Type Title Status			Title 5,         Oxide Cale 5,         Oxide Title 5,
DropZone:			

Figure: Makalu Automation - Available playlists

- 2. To add a playlist to a rundown, you can either:
  - a. drag a playlist and drop it onto the DropZone area on the bottom left, or
  - select a playlist by clicking the corresponding row in the
     Playlist tab (the row will be highlighted in blue) and click the Plus icon (Add playlist to rundown) at the top right.

🐼 MAKALU. Automation					Θ
Rundown Cha	annel: Staging_CH1 Health: 🔘 🥃	ome Media <b>Playlist</b> Grap			
C Ö Operational Mode: 💽 manual End of Schedu		arch x Q	25 🔻 Past		+ 🖻 🕂
Type Tile Starks School	Actual Time Scheduled Dur Sub 33	Title 1 DemoLine.2000.310821 DemoLine.2003.310821 DemoLine.2003.10821 DemoLine.2003.10	31.08.2021         20:00:00.00           31.08.2021         20:00:00.00           31.08.2021         20:00:00.00           06.09.2021         14:00:00.00           06.09.2021         14:00:00.00           09.09.2021         14:00:00.00           20.09.2021         14:00:00.00           21.09.2021         14:00:00.00           21.09.2021         14:00:00.00           28.09.2021         14:00:00.00           28.09.2021         14:00:00.00           28.09.2021         16:00:00.00	Duration         Q:restad           Q:01300         13         10         27.21           Q:01300         13         10         27.21         13.27.44           Q:01300         13         10         27.21         13.08.22         12.45.59           Q:0404.12         31.08.22         12.08.57         13.08.22         12.08.57         12.08.57         12.08.27	Second M0     SE     ST     Clean       Image: Second M0     SE     ST     SE       Image: Second M0     SE     SE     <

Figure: Makalu Automation - Adding a playlist to the rundown

The playlist is added to the rundown as last element and the start date/time are dynamically calculated without creating gaps.

📀 MAKALU.Automation	n		e
Rundown	Channel: Staging_CH1	Health:	Home Media Playlist Graphics Stream Targets Transfer Playlist Import
C Ō Operational Mode: 💽 manual			Search X Q 25 • Past • + 0
Type Title S			
	13.10.2021 15:46:53.00 0	0:31:47.23	+
- D Example Show		0:31:47.23	+ = 31.08.2021 20:00:00.00   00:13:08:18 31:08:2021 12:09:57
Demo_01		0:10:34.13 🔤 🔆 口口 🖯 💿	+ = 08.09.2021 14:00:00.00 🔒 00:26:51.12 08.09.2021 15:57:31 🔲
Demo_02		0:14:47.06	+ 🗏 🔲 08.09.2021 14:00:00.00 🔒 00:26:51.12 09.09.2021 17:08:50 🔲 💿
Demo_04		0:01:30.00 産米口中之 💿	+ 🗏 🔤 09.09.2021 14:00:00.00 🔓 00:05:25:23 09.09.2021 17:19:28 🔲 💿
Demo_05	Ready	0.02:26.01 建米口口云 • • •	+ = 13.09.2021 14:00.00.00 🔒 02:42:46.09 21.09.2021 12:01:40 🔲 •
Demo_06	Ready 0	0.02:30.03	+
			+
			+ ■ Documentation Demo 12.10.2021 00.00.00.00
DropZone:			

Figure: Makalu Automation - Playlist added to the rundown

#### 💧 Tip

To add a playlist to a rundown at a specified start date/time, activate the checkbox in the **Sched (Scheduled) column** before you drag the playlist onto the **DropZone** area or click the **Add playlist to rundown** button.

If the playlist already has a specified start date/time, this will be applied. If the playlist has no specified start date/ time, a dialog is displayed where you can select the start date/time.

#### Notice

You cannot add a playlist with a specific scheduled start date/time to a rundown if there is already a playlist in the rundown scheduled for the same date/time.

#### Notice

Playlists with a fixed start date/time can only be added to a rundown if the start date/time is in the future.

## Notice

If the added playlist includes files that are not available on the channel's playout instances, file transfers are automatically started. As a result all corresponding files are copied from the ingest storage to all playout instances that are assigned to the channel. See section File transfer for more information.

## 7.6.2 Adding media to a rundown

In addition to playlists you can also add media assets (video files, secondary events, live sources, or placeholders) to a rundown, by adding them to a show in a playlist.

#### Notice

If you want to add a video file to a rundown, its resolution and framerate should usually match the channel output properties exactly. For example, if you use a channel that is configured to 1080p and 25 fps output, you should use files with a resolution of 1920x1080 px and a framerate of 25 fps.

Video files with properties that differ from the current channel output properties are highlighted in the media list (the resolution and/or the framerate are highlighted in red):

Search in Example_Fc 🗙 🍳	No ti	me filter 🔻	HD	•									<b>#</b> 43
🚺 Live		Title ⁺₊		Import †	Duration $\uparrow_{\downarrow}$	Format	Res	FPS	Meta	Thu	Proxy	Sub	
Placeholder		Example_02		31.03.2021	00:01:56.08	MP4	HD	25	$\oslash$	$\oslash$	$\oslash$		•
Example_Folder_1		Example_01		31.03.2021	00:00:42.14	MP4	HD	25	$\oslash$	$\oslash$	$\oslash$		•
Example_Folder_2		Example_10		01.04.2021	00:00:42.14	MP4	HD	25	$\oslash$	$\oslash$	$\oslash$		•
Example_Folder_3		Example_08		01.04.2021	00:00:56.17	MP4	HD	25	$\oslash$	$\oslash$	$\oslash$		•
	2					MP4	HD	25	$\oslash$	$\oslash$	$\oslash$		•
						MP4	HD	30	$\oslash$	$\oslash$	$\oslash$		•

Figure: Makalu Automation - Video files with resolutions and framerates that do not match the channel output properties

By default, you cannot add video files that use other resolutions or framerates than the current channel properties Depending on the channel configuration it may be possible to add files to a rundown, that do not match the channel properties.

To do this, proceed as follows:

1. In the rundown select the playlist to which you want to add media.

The playlist is expanded, and all included shows are listed.

2. On the right side, either select the **Home** or **Media** tab.

All available media is listed in the media list.

📀 MAKALU. Automati	on		Θ
Rundown	Channel: Staging_CH1	Health: 💿 💿 💿 💿 💿 💿	Home Media Playlist Graphics Stream Targets Transfer Playlist Import
🥑 🤠 Operational Mode: 🔵 manual	End of Schedule 13.10.2021 17:06:20		Channel: Staging_CH1   Resolution: 1920x1080@25fps   0
Type Title			00011722
Documentation Demo     Documentation Demo     Example Show	13.10.2021 16:34:33.00	00:31:47.23	
Example show     Demo_01	On Air 16:34:33.00	00:10:34.13	0ut: 00:10:34.13
Demo_02	Cue 16:45:07.13	00:10:34.13 존중급대로 · · · · · · · · · · · · · · · · · · ·	24 Next Live: Demo_01
Demo_04	Ready 16:59:54.19	00:01:30.00 温米口口品 •	Next 00.09:13.10
Demo_05	Ready 17:01:24.19	00:02:26.01 🔤 🔆 🗌 🛱 🐑	
Demo_06	Ready 17:03:50.20	00:02:30.03	
			Overtime ON TIME Demo_02 2 2 3 ★ □ C 2
			Media         Play Ista         Oraphica         Stream Targets           Search in Documentation         •         Infection 10         Infectio

Figure: Makalu Automation - Playlist expanded, and home tab opened

3. Select one or more video files, live sources, or placeholders from the media list on the right side and drop them onto a show in a playlist in the rundown on the left side.

MAKALU.Automation			Θ
Rundown	Channel: Staging_CH1	Health: 💿 💿 💿 💿 💿 💿	Home Media Playlist Graphics Stream Targets Transfer Playlist Import
C O Operational Mode: 💽 manual E	End of Schedule 13.10.2021 17:06:20		Channel: Staging_CH1   Resolution: 1920x1080@25fps   0
Type Title Status		Scheduled Dur Sub SE Flags Clean	4 <sup>41</sup> 41 LOOAL TIME 16:36:44   Big Days 13:04:2021 16:36:44   Big Days 0002204 Remain: 0002204
- D Example Show	2021 16:34:33.00	00:31:47.23	12 Remaining Time - CD:29:33. 11 Out: 001034.13
Demo_01 01	Att 16:34:33.00 Ue 16:45:07.13	00:10:34.13 군※미다금 • · · · · · · · · · · · · · · · · · ·	4 30 Next Live: Demo_01 겯 ※ 그 다 귿
Demo_04 Res		00.01:30.00	
Demo_05 Rea	ady 17:01:24.19 ady 17:03:50.20	00.0220.01	Image: Second and the secon
			Overtime ON TIPE Demo_02 겯 ※ [] 다 ㄹ
	+		Media Playlist Graphics Stream Targets
			Search in Security All resolutions -
			Playoutdata Tille 1; Import 1; Duration 1; Format Res FPS Meta Thu Proxy Sub
			Image: Placeholder         Demo_u         12.10.2021         00.02.26.01         MP4         HD         24         ⊘         ⊘         _         ✓
			> in Secondary Events         Demo_04         12.10.2021         00.013.000         MP4         HD         24         ○         ○         -         ✓           ∨ in Clips         Demo_02         12.10.2021         00.1447.06         MP4         HD         25         ○         ○         -         ✓
			Cups         Demo_02         12.10.2021         00.1144/100         Mm4         HD         20         0         -         Cal           Demo         Bass         Demo_01         12.10.2021         00.1144/100         MM4         HD         60         O         -         V
			0=

Figure: Makalu Automation - Adding video files to a show

The selected video file, live source, or placeholder is added to the rundown as last clip of the selected show.

indown	Channel: Stag	ing_CH1	Health:		Home Media Playli						
🙆 Operational Mode: 🔵 manual	End of Schedule 13.10.	2021 17:38:08			Channel: Staging_CH1   Reso	ilution: 1920x1080@25fps   0					Ð
Documentation Demo	13.10.2021 16:34:33.00		01:03:35.21				LOCAL TIME 13-Oct-2021		BURK	Remain:	00:02:29.12
Documentation Demo     Example Show	13.10.2021 16:34:33.00		01:03:35.21			-12		01:01:06.07	BUNNY		00:00:00.00
Demo_01	On Air	16:34:33.00	00:10:34.13	2000		-18	Remaining Time -	01.01.00.01	Demo_01		
 Demo_02	Cue	16:45:07.13	00:14:47.06		A NUMBER OF THE OWNER OF	-24			Demo_U1	<u>د</u> * ۱	002
 	Ready	16:59:54.19	00:01:30.00		Contraction of the local division of the loc	36	Next Fixed				00:08:04.24
 Demo_05	Ready	17:01:24.19	00:02:26.01			42	Next Secondary				00:00:00.00
Demo_06	Ready	17:03:50.20	00.02:30.03							Out	00:14:47.06
Demo_06	Ready	17:06:20.23	00:02:30.03					ON TIME	Demo_02	2 * 🖾	다리
Demo_05	Ready	17:08:51.01	00:02:26.01								
 Demo_04	Ready	17:11:17.02	00:01:30.00		Media Playlist Gra						
 Demo 02	Ready	17:12:47.02	00:14:47.06								<b>=</b> -9 - 1
	Ready	17:27:34.08	00:10:34.13		Search in Documentat 🗙 🔍	No filter 👻 🖌	All resolutions 🔻				- ~ -
					Playoutdata 👻						
					Ive	Demo_06	12.10.2021	00:02:30.03 MP4			
					9 Placeholder	Demo_05	12.10.2021	00:02:26.01 MP4	HD 24 🕑		
					> Condary Events	Demo_04	12.10.2021	00:01:30.00 MP4			
					🗸 🛅 Clips	Demo_02	12.10.2021	00:14:47.06 MP4	HD 25 📀		
					🛅 Demo	Demo_01	12.10.202	00:10:34.13 MP4	HD 60 🔗		
					Documentation						
					<b>D</b> ==						

Figure: Makalu Automation - Video files added to a show

#### 💧 Tip

Instead of adding a clip at the end of a show you can also replace an individual clip in a show by dragging and dropping the new media asset directly on the clip to be replaced while holding **[Shift]**. In this case a confirmation dialog is displayed that also informs you if the rundown duration will be shortened or extended by this replacement. For more information see section Replacing a clip.

### 1 Notice

If the added file is not available on the channel's playout instances, file transfers are automatically started. As a result the corresponding file is copied from the ingest storage to all playout instances that are assigned to the channel.

4. (Optional) Change the show's clip list order to move the added clip to a specific position within the selected show.

## 7.6.3 Adding trimmed media to a rundown

To add only a specific subsection of a video file to a rundown, proceed as follows:

#### Notice

Trimming is only possible for media assets that represent actual video files. In the media list these files are usually listed under **Clips** in the folder tree. Live and placeholder media assets cannot be trimmed.

1. In the rundown select the playlist to which you want to add trimmed media.

The playlist is expanded, and all included shows are listed.

2. On the right side, select the **Media** tab.

All available media is listed in the media list.

3. In the media list select the media asset to be trimmed and click the Play icon on the right side.

#### **b** Tip

You can also open a media asset in the preview player by dragging it from the media list and dropping it onto the preview player.

icon.

The media asset is opened in the preview player.

- 4. Use the preview player controls to select the timecode for the mark in.
- 5.

To set the selected timecode as mark in, click the Set Mark In

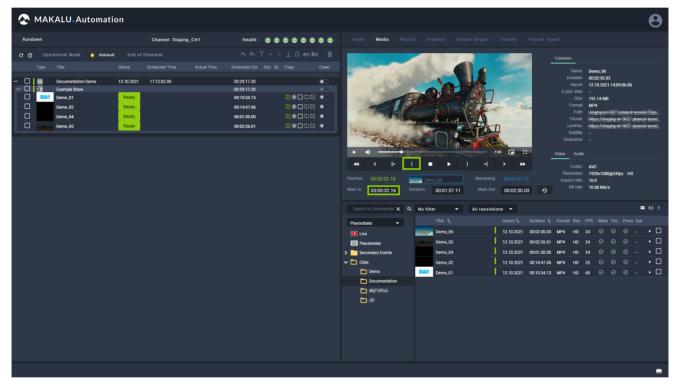


Figure: Makalu Automation - Trimmed media - Mark in set

- 6. Use the preview player controls to select the timecode for the mark out.
- 7.

To set the selected timecode as mark out, click the Set Mark Out



S MAKALU.Automation	n		Θ
Rundown	Channel: Staging_CH1	Health: 🔿 🔿 🔿 🔿 🔿 🔿	Home <b>Media</b> Playlist Graphics Stream Targets Transfer Playlist Import
C Ö Operational Mode: 💽 manual			Common
	Ready Ready Ready Ready Ready Ready	Scheduled Dar Sub SE Flags Clean 00291720 · · · · · · · · · · · · · · · · · · ·	At a constraint of the second se
			•0         •0<
			Search in Documentati X Q No filter  All resolutions  All resolutions  Title 1, Import 1, Duration 1, Format Res FPS Meta Thu Proxy Sub
			Persoudata         Import %         Durition %, remme test in %         Mail Interview in %

Figure: Makalu Automation - Trimmed media - Mark out set

8. Use the draggable element below the preview player (consisting of thumbnail and file name, located between "Position", and "Remaining") and drag it onto the show to which you want to add it.

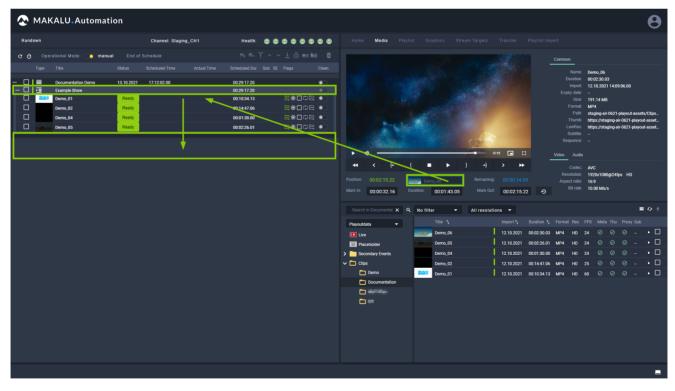


Figure: Makalu Automation - Adding trimmed media to a show

The selected video file is added to the rundown as last clip of the selected show.

MAKALU.Automation			Θ
Rundown	Channel: Staging_CH1	Health: 🔘 🕲 🕲 🕲 🕲 🕲 🕲	Home Media Playlist Graphics Stream Targets Transfer Playlist Import
C Ö Operational Mode: 💽 manual End			Common
Type Title Status			Name: Deno,06 Duration: 00023003
− □ □	1 17:12:02.00	00:31:01.00	Import: 12.10.2021 14.09.06.00
Demo_01 Ready		00:10:34.13 温米口中品 • 〇	Expiry date: - Size: 191,14 MB
Demo_02 Ready		00:14:47.06 콜※□다금 •	Format: MP4
Demo_04 Ready		00:01:30.00 💐 🗮 💭	Palh: staging-air-0621-playout-assets/Clips Thumb: https://staging-air-0621-playout-assets_
Demo_05 Ready		00:02:26.01 겉米口다는 •	LowRes: https://staging-air-0621-playout-asset_
Demo_06 Ready		00:01:43.05	Subtle: - Sequence: -
			▶ • • Video Audio
			←         ←         ←         →         >         >         Codec:         AVC
			Position: 00:02:15.22 Demo_06 Remaining: 00:00:14.05 Aspect ratio: 16:9
			Mark In: 00:00:32.16 Duration: 00:01:43.05 Mark Out: 00:02:15.22 🔗 Bit rate: 10.00 Mb/s
			Search in Documentat X Q No filter  All resolutions
			Playoutdata  Title 1, Import 1, Duration 1, Format Res FPS Meta Thu Proxy Sub
			💶 Live Demo_06   12.10.2021 00:02:30.03 MP4 HD 24 0 0 0 - 🕨 🗌
			💷 Placeholder Demo_05 12.10.2021 00.02.26.01 MP4 HD 24 🛛 🖓 🖓 - 🕨 🗖
			> Secondary Events Demo_04 12.10.2021 00:01:30.00 MP4 HD 24 🖉 🥥 🖉 - 🕨 🗌
			✓ Clips     Demo_02     I 12.10.2021 00:14:47.06 MP4 HD 25 ∅ ∅ − ▶ □
			🖿 Demo Demo_01 12.10.2021 00:10:34.13 MP4 HD 60 🛛 🖓 📿 🕨 🗖
			Documentation

Figure: Makalu Automation - Trimmed media added to a show

#### 💧 Tip

Instead of adding a trimmed clip at the end of a show you can also replace an individual clip in a show by dropping the draggable element directly on the clip to be replaced while holding **[Shift]**. In this case a confirmation dialog is displayed that also informs you if the rundown duration will be shortened or extended by this replacement. For more information see section Replacing a clip.

#### Notice

Trimmed files in the rundown are recognizable by their color. The scheduled duration (displayed in the "Scheduled dur" column) of trimmed files is highlighted in yellow.

#### Notice

If the added file is not available on the channel's playout instances, file transfers are automatically started. As a result the corresponding file is copied from the ingest storage to all playout instances that are assigned to the channel.

9. (Optional) Change the show's clip list order to move the added clip to a specific position within the selected show.

## 7.6.4 Adding secondary events to a rundown

To add a secondary event to a rundown, proceed as follows:

## Notice

Secondary events can only be added to clips.

1. In the rundown select the show that includes the clip to which you want to assign the secondary event.

The show is expanded, and all included clips are listed.

2. On the right side, select the Home or Media tab.

All available media is listed in the media list.

🐼 MAKALU.Automatio	n		Θ	
Rundown	Channel: Staging_CH1	Health: 💿 💿 💿 💿 💿 💿	Home Media Playlist Graphics Stream Targets Transfer Playlist Import	
C Ō Operational Mode: 💽 manual	End of Schedule 13.10.2021 18:12:59		Channel: Staging_CH1   Resolution: 1920x1080@25tps   0	
Type Title	End of Schedul         13,10,202         10,12,203           Status         Scheduled Time         Actual Time           13,10,202         17,41,12,00         17,41,12,00           Cua         1,75,14,0,13         15,54,63,13           Ready         1,81,26,24,03         18,62,63,19           Ready         1,81,26,24,03         18,62,62,19           Ready         1,81,26,24,03         18,62,62,19           Ready         1,81,26,24,03         18,16,26,24,03	Image: Section 1         Image: Section 1 <th 1<<="" image:="" section="" th=""><th>Channet: Staging_CH1   Resolution: 1920x109029251p   0         Image: Channet: Staging_Ch1   Resolution: 1920x200029250002925000292500009250000000000</th></th>	<th>Channet: Staging_CH1   Resolution: 1920x109029251p   0         Image: Channet: Staging_Ch1   Resolution: 1920x200029250002925000292500009250000000000</th>	Channet: Staging_CH1   Resolution: 1920x109029251p   0         Image: Channet: Staging_Ch1   Resolution: 1920x200029250002925000292500009250000000000

Figure: Makalu Automation - Show expanded, and media tab opened

- 3. In the media list click Secondary Events and select the type of secondary event you want to add.
- 4. Select one or more secondary events and drag them onto a clip in the rundown.

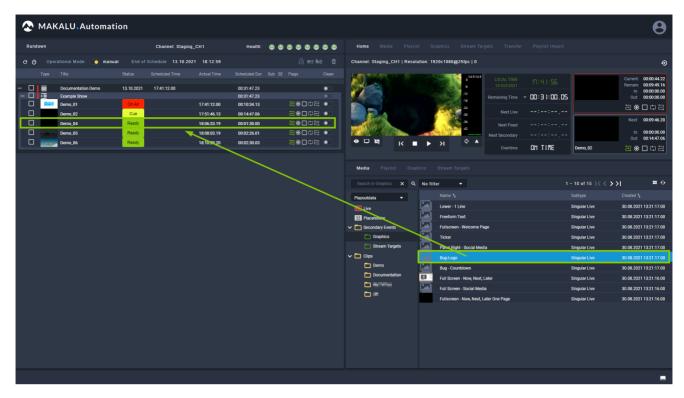


Figure: Makalu Automation - Secondary event selected

The selected secondary event is added to the clip.

intermediation       intermediatintermediatintermediation       intermediatio	C O Operational Mode: O manual End of Schedule 13.10.2021 18:12:59 C B = b € Channel Staging_CH1   Resolution: 1920x1080@25fps   0 Type Title Status Scheduled Time Actual Time Scheduled Dur Sub SE Flags Clean	
Tpr       Titls       Statul       Scheduled Time       Adulat Time       Scheduled Time       Bug       Scheduled Time       Scheduled Time <th>Type Title Status Scheduled Time Actual Time Scheduled Dur Sub SE Flags Clean</th> <th></th>	Type Title Status Scheduled Time Actual Time Scheduled Dur Sub SE Flags Clean	
Decontraction Domo       13 10.221       17.4112.00       00314/23       0000000       0000000       00000000       00000000       00000000       00000000       00000000       00000000       00000000       0000000000       000000000       000000000       000000000       0000000000       000000000       000000000       000000000       0000000000       0000000000       0000000000       0000000000       0000000000       00000000000       000000000000000000000000000000000000		Ð
-	0       000130221       7/41.12.00       001302303       001302303       001302303 </th <th>000916.19 0000000 0000000 0000000 00144706 00146706 00146700</th>	000916.19 0000000 0000000 0000000 00144706 00146706 00146700

Figure: Makalu Automation - Secondary event added to a clip

# 7.7 Editing the rundown

# 7.7.1 Editing the start time or duration of a clip

To edit the start time of a clip, proceed as follows:

1 Notice	
You can only edit the start time of a clip if the clip is not currently on air.	

- 1. In the rundown click on a playlist to expand it.
- 2. Click on a show in the selected playlist to expand it.
- 3. To edit the scheduled start time of a clip, click on the Scheduled Time field of the corresponding clip.

AKALU. Automation									
Rundown	Channel: Staging_CH1	Health: 🔘 🔘 (		edia <b>Playlist</b> Grapl					
C Ō Operational Mode: 💽 manual End of Sc				X Q	25 👻	Past			
	11.5236.00 00 00 00 00 00 00 00 00 00	0:31:47.23 0:31:47.23 0:10:34.13 0:14:47.06 0:01:30.00 0:02:26.01	1992 (Junit で、日本2 で 「 「 「 「 「 「 「 「 「 「 「 「 「	Demo_Live_2000_310821 Demo_Live_2000_310821	31.08.2021 31.08.2021 31.08.2021 08.09.2021 09.09.2021 13.09.2021 21.09.2021 28.09.2021 08.10.2021	20:00:00:00 20:00:00:00 20:00:00:00 14:00:00:00 14:00:00:00 14:00:00:00 14:00:00:00 14:00:00:00 14:00:00:00 20:15:00:00	00:13:08.18 00:13:08.18 00:49:04.12 00:26:51.12 00:26:51.12 00:05:25.23 02:42:46.09 02:42:46.09 00:12:08.18 01:27:40.17	21.00.2021 11.27.34 31.00.2021 11.25.43 31.00.2021 12.54.59 31.00.2021 12.54.59 40.00.2021 15.57.31 40.00.2021 12.57.31 40.00.2021 17.92.33 21.00.2021 17.92.33 21.00.2021 12.01.04 21.00.2021 12.01.04 21.00.2021 12.04.04 12.10.2021 11.34.04 12.10.2021 11.34.04 12.10.2021 11.34.04	
	KT STOP		EJECT						
CUE PREV TAKE NEXT CUE NE)	KI STOP	SYNC ¢	≜ EJECT						

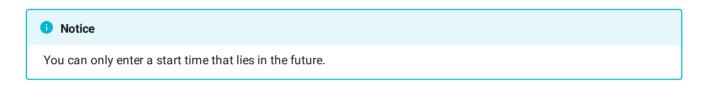
Figure: Makalu Automation - Editing a clip start time

A dialog is displayed where you can enter the start date and time.

CONFIGURE START TIME											
Enter a fixed start time for the clip											
DATE		TIME									
10/14/2021		12 :	00 :	00.	00	Now					
				Ca	ncel	Apply					

Figure: Makalu Automation - Entering a clip start time

4. Enter the start date and time (format hh:mm:ss:ff).



5. To confirm the new value, click **Apply**.

The edited scheduled start time is applied and highlighted in green.

NAKALU. Automation				Θ
Rundown	Channel: Staging_CH1	Health: 💿 💿 💿 💿 💿 💿	Home Media Playlist Graphics Stream Targets Transfer Playlist Import	
C Ō Operational Mode: 💽 manual End o	f Schedule 14.10.2021 12:31:47		Search X Q 25 Y Past Y	+ 🗟 😏
Type Title Status				ched MD SE ST Clean
Image: Decomentation Demo       14.10.2021         Image: Demo.01       Ready         Image: Demo.04       Ready         Image: Demo.05       Ready         Image: Demo.06       Ready	1200000 1200000 1200000 12103413 12253119 12265119 122651720 122761720	00314723 유 00314723 유 0019413 문왕니다는 이 0019413 문왕니다는 이 0014076 문왕니다는 이 00228 01 문왕니다는 이 00228 01 문왕니다는 이 00228 02 문왕니다는 이 00228 03 문왕니다는 이 0028 문왕님다는 이 0028 문왕님아 (1) 문왕님아 (1) 문양 0028	+         E         Demo_Live_2000_310121         31.08.2021         20000.00         A         0.013.08.18         31.08.2021 1254.59           +         =         -         0.099.001         10.08.2021 1254.59         10.08.2021 1254.59           +         =         -         0.099.001         C         0.094.94.12         31.08.2021 1359.57           +         =         -         0.099.021         14000.00         C         0.095.251.2         0.099.2021 17.058.50           +         =         -         0.099.021         14000.00         C         0.052.52.3         0.099.2021 17.018.50           +         =         -         13.09.9221         14000.00         C         0.252.51.62         0.199.2021 17.018.50           +         =         -         13.09.9221         14000.00         C         0.252.45.92         10.99.2021 17.018.50           +         =         21.99.9221         14000.000         C         0.242.46.69         21.99.2021 12.014.01           +         =         0.010.2021         21.99.3021         14000.000         C         0.022.18.18         21.99.2021 12.014.01           +         =         0.010.2021         21.99.0021         140000.000         C	
Dropi	NEXT STOP	SYNC EJECT		
к 🕨	>	۵ 🔺		

Figure: Makalu Automation - Scheduled clip start time edited

#### Notice

If you change the scheduled start time of a clip, the scheduled start times of all following clips are updated accordingly.

### i Notice

If changing the scheduled start time of a clip causes a gap in the rundown, it is highlighted by warning symbols that are displayed for the corresponding playlist, show, and clip.

Rundown			Channel: Stagi	ng_CH1	Health:	9		0
C Ō Operational I	lode: 💽 manual	End of	Schedule 14.10.2	2021 13:02:30			<b>d</b> == <b>b</b>	₹ <b>1</b>
Type Title		Status	Scheduled Time	Actual Time	Scheduled Dur	Sub SE	Flags	Clean
Docum	ntation Demo	14.10.2021	12:06:34.00		00:54:06.00		£	
– 🗆 🗾 Exampl	Show				00:54:06.00		ê	
Demo_(	1	On Air		12:05:54.00	00:10:34.13		20 <b>0%5</b>	
Demo_	2	Cue		12:16:28.13	00:14:47.06		20 <b>0*2</b>	
Demo_(	4	Ready		12:31:15.19	00:01:30.00		50 <b>0*5</b>	
Demo_	5	Ready		<u> </u>	00:02:26.01		20 <b>0%5</b>	
Demo_	6	Ready	13:00:00.00	13:00:00.00	00:02:30.03		50 <b>0*5</b>	

To edit the duration of a clip, proceed as follows:

1. To edit the duration of a clip, in the selected show, click on the Scheduled Dur (Duration) field to be edited.

🐼 MAKALU.Automatio	n		Θ
Rundown	Channel: Staging_CH1	Health: • • • • • • • • •	Home Media Playlist Graphics Stream Targets Transfer Playlist Import
C Č Operational Mode: 💽 manual	End of Schedule 14.10.2021 17:01:24		Channel: Staging_CH1   Resolution: 1920x1080@25fps   0
	Status         Scheduled Time         Actual Time           14.10.202         16/29/37.00         1           Cua         1.6/29/37.00         1           Cua         1.6/29/37.00         1           Rady         1.6/2	Schedule Dir         Sub St         Flagt         Clain           003147/23         -	Image: Construction of the second of the
CUE PREV TAKE NEXT	CUE NEXT STOP	SYNC EJECT	
IK 🕨	>I 🗖	Q 🔺	

A dialog is displayed where you can enter the duration.

CONFIGURE DURATION										
Enter a new duration of the clip										
DURATION										
00 : 02 : 00 . 00	Reset									
Cancel	Apply									

2. Enter the new duration (format hh:mm:ss:ff).

#### i Notice

If you enter a scheduled duration that is longer than the original duration, the clip playback is looped. When the original duration ends, the clip playback starts from the beginning and plays until the entered scheduled duration is reached.

If you enter a scheduled duration that is shorter than the original duration, the clip playback stops when the entered scheduled duration is reached.

3. To confirm the new value, click **Apply**.

The edited duration is highlighted in yellow.

S MAKALU.Automation	n		Θ
Rundown	Channel: Staging_CH1	Health: 💿 💿 💿 💿 💿 💿	Home Media Playlist Graphics Stream Targets Transfer Playlist Import
C 🗿 Operational Mode: 💽 manual	End of Schedule 14.10.2021 17:01:54		Channel: Staging_CH1   Resolution: 1920x1080@25fps   0
	tatus         Scheduled Time         Actual Time           4.10.2021         16/29.37.00         16/29.37.00           Curr         16/29.37.00         16/40.11.33           Raidy         16/55.58.119         16/55.56.119           Raidy         16/59.24.20         16/59.24.20	Scheduled Dur Sub SE Flags Clean 002217.23 00102413 (米日本日 - 0011447.06 元米日本日 - 001447.06 元米日本日 - 00022000 元米日本日 - 00022000 元米日本日 - 00022000 元米日本日 -	Image: Control of the contr
			Media         Playlis1         Oraphics         Stream Targets           Search in Documental X         Q         No filter         All resolutions         = 5 *           Perpoddata         Title 1:         import 1:         Duration 1:         First Mids Thu: Proor Sub           Dir low         Demo.06         121032021         000225001         MP4         HD         24         O         O         -           Miscendar         Demo.05         1121032021         000235001         MP4         HD         24         O         O         -           Search archarder         Demo.05         1121032021         000235001         MP4         HD         24         O         O         -         -
			C tips:       Demo.02       12:10:2021       00:14:47:56       MiP4       H0       25       0       0       -       □         Demo.       Demo.01       12:10:2021       00:10:34:13       MiP4       H0       60       0       0       -       □         Demo.       Demo.01       12:10:2021       00:10:34:13       MiP4       H0       60       0       0       -       □
CUE PREV TAKE NEXT	CUE NEXT STOP	SYNC EJECT ¢ ≜	

# 7.7.2 Editing the start time or duration of a secondary event

To edit the start time or duration of a secondary event, proceed as follows:

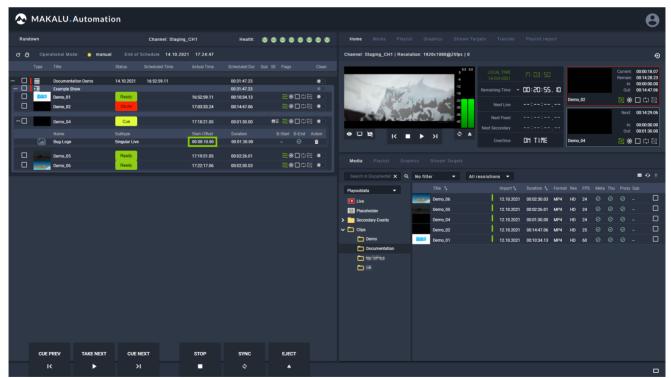
- 1. In the rundown click on a playlist to expand it.
- 2. Click on a show in the selected playlist to expand it.
- 3. Click on a clip that has an assigned secondary event (which is recognizable by a **plus** icon on the left side) to expand it.
- 4. Depending on what property you want to edit, either click on the **Start-Offset** or **Duration** field of the corresponding secondary event.

🐼 MAKALU.Automation	1		Θ
Rundown	Channel: Staging_CH1	Health: 🔿 🔿 🔿 🔿 🔿 🔿 🔿	Home Media Playlist Graphics Stream Targets Transfer Playlist Import
C Ō Operational Mode: 💽 manual	End of Schedule 14.10.2021 17:24:47		Channel: Staging_CH1   Resolution: 1920x1080@25fps   0
Documentation Demo     Documentation Demo     Demo	iatas Scheduled Time Actual Time 410.2021 1652:59.11 Cue Control 120323 Ready Control 120323 Ready Control 120333 Ready Control 120333	Scheduled Dur Sub SE Flags         Clean           00314723         ●           0001041735         ●           001024130         ●           001044706         ●           000104700         ●           00010400         ●           000114700         ●           00012400         ●           00013000         ●           00022601         ●           000223003         ●	Image: Play list Charge Control (Control (Co
QUE PREV TAKE NEXT	CUE NEXT STOP	SYNC EJECT	Dipis         Demo.02         1 210 2021         00 1447.06         MP4         H0         25         0         0         -         -           D Demo         Demo.01         1 210 2021         00 1034.13         MP4         H0         60         0         0         0         -         -           D Demo         Demo.01         1 210 2021         00 1034.13         MP4         H0         60         0         0         0         -         -
К 🕨	×I ■	¢ ≜	

Edit the start-offset of a secondary event

- 5. Enter the new duration (format hh:mm:ss:ff).
- 6. Press [Enter].

The entered value is applied.



Start-offset of a secondary event edited

## 7.7.3 Using groups

The group feature allows you to assign multiple clips within a show to a group. Each group is highlighted in a different color to facilitate the differentiation of groups.

#### 🗴 Tip

You can play a group of clips in a loop, by activating the loop flag for the last clip in a group. When the playback of the last clip in the group is finished, the playback of the first clip in the group starts again.

To add clips to a group, proceed as follows:

- 1. In the rundown click on a playlist to expand it.
- 2. Click on a show in the selected playlist to expand it.
- 3. In the selected show, select multiple consecutive clips to be grouped.
- 4. In the top right corner of the rundown, click the **Create group** icon.

Q Q	Opera	ational Mode: 🔵 manual	End of	Schedule		=, ₹ ∧ ∨	<u>†</u> ê ∎≡ ès	
	Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur Sub SE	Flags	Clean
- 0		Documentation Demo	14.10.2021	16:52:59.11		00:31:47.23		
$-\Box$		Example Show				00:31:47.23		
		Demo_01	Ready		16:52:59.11	00:10:34.13	50 <b>0*5</b>	
		Demo_02	Ready		17:03:33.00	00:14:47.06	20 <b>0%5</b>	
		Demo_04	Ready		17:18:20.06	00:01:30.00	20 <b>0%5</b>	
	-	Demo_05	Ready		17:19:50.06	00:02:26.01	50 <b>0%5</b>	
	-	Demo_06	Ready		17:22:16.07	00:02:30.03	20 <b>0*5</b>	

#### Figure: Makalu Automation - Rundown - Create group

The selected clips are assigned to a new group and are highlighted in the same color (orange in the example below).

(	зŌ	opera	itional mode: 💽	manual En	d of Schedule		≡+≡_ ↑ ∧	·	■≡ èn; 5 12	Ø
		Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur	Sub SE ST	Flags	Clean
—			Example_Playlist_1	07.04.2021	13:05:20.00		00:18:39.15	<b>Z</b> E	C.)	
			Example_Show				00:07:56.19		¢,	
			Example_01	Ready			00:00:42.14		2400×2	
			Example_02	Ready			00:01:56.08		2 <b>00%</b>	
		Contraction of the	Example _03	Ready			00:01:35.01		2 <b>*0</b> ¢2	
		-	Example_04	Ready			00:01:28.09	⊠Ξ	≅*□¢2	
			Example_05	Ready			00:02:14.12		50 <b>0*5</b>	

Figure: Makalu Automation - Rundown - Group created

To remove clips from a group, proceed as follows:

- 1. In the rundown click on a playlist to expand it.
- 2. Click on a show in the selected playlist to expand it.
- 3. In the selected show, select the clips to be removed from the group.

4. In the top right corner of the rundown, click the **Delete group** icon.

Rundown	Channel: Staging_CH1	Health: 🔘 🔵 🔵 🔘 🔘	9 9
C Ō Operational Mode: 💽 manual	End of Schedule 15.10.2021 08:58:33	≡₁≣_ ┬ ^ ヾ ⊥ 🖯 ब≡ 🏍	×
Type Title	Status Scheduled Time Actual Time	Scheduled Dur Sub SE Flags (	Clean
	15.10.2021 08:26:46.01	00:31:47.23 00:31:47.23	
Demo_01	On Air 08:26:46.01	00:10:34.13 00:14:47.06 ご※日はこ(	
Demo_04	Ready 08:52:07.20	00:01:30.00 <b>겉※</b> □다르	_
Demo_05	Ready         08:53:37.20           Ready         08:56:03.21	00:02:26.01       군※□라급         00:02:30.03       군※□라급	

Figure: Makalu Automation - Remove clips from group

The selected clips are removed from the group. If all clips are removed from a group, the group is removed.

Rundown	Channel: Staging_CH1	Health: 💿 💿 💿 💿 💿 🔘
🧭 Ō Operational Mode: 💽 manu	al End of Schedule 15.10.2021 08:58:33	╕ <u>╸</u> ╴ ┬ ∧ ╭ ⊥ ᠿ @≡ <b>≥</b> ╤   ┇
Type Title	Status Scheduled Time Actual Time	Scheduled Dur Sub SE Flags Clean
— 🗌 📄 Documentation Demo	15.10.2021 08:26:46.01	00:31:47.23
— 🔲 🗾 Example Show		00:31:47.23
Demo_01	On Air 08:26:46.01	00:10:34.13 🛛 🔁 🔆 🗌 🛱 🔁 💽
Demo_02	Cue 08:37:20.14	00:14:47.06 🛛 🔁 🗮 💭
Demo_04	Ready 08:52:07.20	00:01:30.00 🔄 🔆 🗋 🛱 💽
Demo_05	Ready 08:53:37.20	00:02:26.01 🛛 🔁 🗮 🗖
Demo_06	Ready 08:56:03.21	00:02:30.03 '겉 ※ 🗋 다 귿 💿

Figure: Makalu Automation - Clips removed from group

#### 7.7.4 Moving clips

To change the clip order in a show, proceed as follows:

- 1. In the rundown click on a playlist to expand it.
- 2. Click on a show in the selected playlist to expand it.
- 3. In the selected show, select one or more clips to be moved.
- 4. Depending on where you want to move the clips, select the corresponding function:
  - <sup>a.</sup> To move the clips one position up in the list, click the  $\frown$  File up icon.
  - b. To move the clips one position down in the list, click the **File down** icon.
  - <sup>c.</sup> To move the clips to the beginning of the selected show's clip list, click the **1** First file icon.
  - d. To move the clips to the end of the selected show's clip list, click the **Last file** icon. The clips are moved to the selected position.

## 7.7.5 Replacing a clip

#### Notice

This function must be used to replace virtual placeholder assets with other media assets that represent actual video files. In addition it can be used to replace any clip in the rundown (regardless of the type) with any other available media asset (regardless of the type).

To replace a clip in a rundown, proceed as follows:

- 1. In the rundown click on a playlist to expand it.
- 2. Click on a show in the selected playlist to expand it.
- 3. On the right side select the Home or Media tab.
- 4. In the media list select the type of the media asset (video file, live source, or placeholder).
- 5. Hold **[Shift]** and drag an item from the media list on the right side and drop it onto the clip to be replaced in the rundown on the left side.

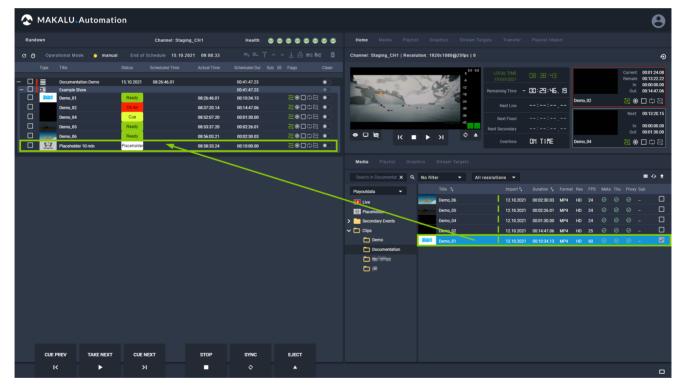


Figure: Makalu Automation - Replace clip

A confirmation dialog is displayed that also informs you if the rundown duration will be shortened or extended by this replacement.

6. To confirm the replacement, click Yes in the confirmation dialog.

#### Notice

If the new item is a live source, you additionally must select the duration of the live clip and click Apply.

🐼 MAKALU.Automatio	'n		Θ
Rundown	Channel: Staging_CH1	Health: 💿 💿 💿 💿 💿 💿	Home Media Playlist Graphics Stream Targets Transfer Playlist Import
C Ō Operational Mode: 💽 manual	End of Schedule 15.10.2021 09:09:08		Channel: Staging_CH1   Resolution: 1920x1080@25fps   0
Type Title	Ready         Concurrent         Actual Time           10.02021         08:26:46:01         -           Ready         06:26:46:01         -           Cue         06:26:20:20         -           Ready         06:26:20:20         -           Ready         06:26:37:20         -           Ready         06:26:37:20         -           Ready         06:26:30:24         -           Ready         06:26:30:24         -	Schedwick Dir Sub SE Flags Cean 00-42-2211	Image: product in the product in th
CUE PREV TAKE NEXT	CUE NEXT STOP	SYNC EJECT	
		Q ▲	

The original rundown item is replaced by the new item.

Figure: Makalu Automation - Clip replaced

# Notice If the new file is not available on the channel's playout instances, file transfers are automatically started. As a result the corresponding file is copied from the ingest storage to all playout instances that are assigned to the channel.

#### 7.7.6 Assigning or deleting a default graphic

To assign a default graphic to a playlist, show, or clip, proceed as follows:

- 1. In the rundown select a playlist, show, or clip.
- 2. Click the Add default graphic = icon.

ΘŌ	Opera	ational Mode: 🔵 manual	End of	f Schedule 15.10.2021	09:09:08		=+ =- 🖯 💷 🏍
	Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur Sub SE	Flags Clean
<u>- д</u>		Documentation Demo	15.10.2021	08:26:46.01		00:42:22.11	
- 🗹		Example Show				00:42:22.11	
	訪問時	Demo_01	Ready		08:26:46.01	00:10:34.13	
		Demo_02	On Air		08:37:20.14	00:14:47.06	
		Demo_04	Cue		08:52:07.20	00:01:30.00	⊇ 200*5
	and a	Demo_05	Ready		08:53:37.20	00:02:26.01	━ ≌\$□\$
	-	Demo_06	Ready		08:56:03.21	00:02:30.03	≝*□⇔⊇ ●
		Demo_01	Ready		08:58:33.24	00:10:34.13	

Figure: Makalu Automation - Assign default graphic

The default graphic is assigned to the selected element(s), which is recognizable by the corresponding icon in the SE (Secondary events) column.

G	Ō	Opera	ational Mode: 🔵 🖷	nanual	End of	Schedule 15.10.202	1 09:09:08			≡+ ≡- ∂	83 <b>6</b> 3
		Туре	Title		Status	Scheduled Time	Actual Time	Scheduled Dur	Sub SE	Flags	Clean
- (			Documentation Demo		15.10.2021	08:26:46.01		00:42:22.11			
— (			Example Show					00:42:22.11			
(		的科学	Demo_01		Ready		08:26:46.01	00:10:34.13	•	50 <b>0*5</b>	
(			Demo_02		On Air		08:37:20.14	00:14:47.06	•	≝ <mark>≈*0</mark> ¢2	
C			Demo_04		Cue		08:52:07.20	00:01:30.00	•	50 <b>0*5</b> ∎	
(		-	Demo_05		Ready		08:53:37.20	00:02:26.01	•	50 <b>0%5</b> ∎	
(			Demo_06		Ready		08:56:03.21	00:02:30.03	•	5¢ <b>0×5</b> ∎	
(			Demo_01		Ready		08:58:33.24	00:10:34.13		≣ <mark>2%0</mark> ¢2	

Figure: Makalu Automation - Default graphic assigned

To delete a default graphic from a playlist, show, or clip, proceed as follows:

- 1. In the rundown select a playlist, show, or clip.
- 2. Click the **Delete default graphic** icon.

G	Ō	Opera	ational Mode: 💽 manual	End of	Schedule 15.10.2021	09:09:08			≡₊ ≡₋ 🔒	∎≣ <b>è</b> ≅
		Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur Su		Flags	Clean
-			Documentation Demo	15.10.2021	08:26:46.01		00:42:22.11			
_	$\checkmark$		Example Show				00:42:22.11			
			Demo_01	Ready		08:26:46.01	00:10:34.13	۵E	240 <b>0%5</b>	
			Demo_02	On Air		08:37:20.14	00:14:47.06	BΞ	20 <b>0%5</b>	
			Demo_04	Cue		08:52:07.20	00:01:30.00	⊠∃	50 <b>0%5</b>	
		-	Demo_05	Ready		08:53:37.20	00:02:26.01	⊠∃	50 <b>0%5</b>	
			Demo_06	Ready		08:56:03.21	00:02:30.03	BΞ	50 <b>0%5</b>	
		的副的	Demo_01	Ready		08:58:33.24	00:10:34.13	⊠∃	20 <b>0%5</b>	

Figure: Makalu Automation - Delete default graphic

The default graphic is deleted from the selected element(s).

(	Ō	Opera	ational Mode: 🔵 manual	End of	Schedule 15.10.2021	09:09:08			≡+ ≡- ∂	83 <b>9</b> 2
		Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur Su	ıb SE	Flags	Clean
_			Documentation Demo	15.10.2021	08:26:46.01		00:42:22.11			
-		NE I	Example Show				00:42:22.11			
			Demo_01	Ready		08:26:46.01	00:10:34.13		20 <b>0*5</b>	
			Demo_02	On Air		08:37:20.14	00:14:47.06		말라 <b>미米판</b>	
			Demo_04	Cue		08:52:07.20	00:01:30.00		말라 <b>미米판</b>	
		1 march	Demo_05	Ready		08:53:37.20	00:02:26.01		20 <b>0%5</b>	
		-	Demo_06	Ready		08:56:03.21	00:02:30.03		20 <b>0%5</b>	
			Demo_01	Ready		08:58:33.24	00:10:34.13		20 <b>0%5</b>	

Figure: Makalu Automation - Default graphic deleted

#### 7.7.7 Adding or deleting a splicing event

For information about how to use splicing events, see section Ad triggering:

- Adding a splicing event via Makalu Automation
- · Removing a splicing event from the rundown

#### 7.7.8 Deleting a clip or a playlist

#### i Notice

You can only delete a clip if it is in status Ready or if it is a placeholder. You cannot delete a clip if it is cued or on air.

The same applies to playlists. You can only delete a playlist if no clip in the playlist is cued or on air.

To delete a clip from the rundown, proceed as follows:

<sup>1.</sup> Select the clip to be deleted and in the toolbar at the top of the rundown click the **Delete**  $\boxed{\mathbf{x}}$  icon.

© ©	) Opera	ational Mode: 🜔 manual	End of	Schedule 15.10.2021	09:39:47	≡₊≡ ┬^^⊻	🔒 📾 🏹 🗵
	Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur Sub SE Flag	s Clean
- 0		Documentation Demo	15.10.2021	08:57:25.00		00:42:22.11	
$-\Box$	<u>)</u>	Example Show				00:42:22.11	
	<b>BORNA</b>	Demo_01	On Air		08:57:25.00	00:10:34.13 🔁	*□⇔≌ ●
		Demo_02	Cue		09:07:59.13	00:14:47.06 🔁	
		Demo_04	Ready		09:22:46.19	00:01:30.00 🔁	*□⇔≥ ●
	1000	Demo_05	Ready		09:24:16.19	00:02:26.01	
		Demo_06	Ready		09:26:42.20	00:02:30.03 🔁	
	<b>BORN</b> A	Demo_01	Ready		09:29:12.23	00:10:34.13 🔄	€002

Figure: Makalu Automation - Delete a clip

2. Confirm the displayed dialog by clicking Yes.

The clip is deleted.

To delete a playlist from the rundown, proceed as follows:

<sup>1.</sup> Select the playlist to be deleted and in the toolbar at the top of the rundown click the **Delete**  $\boxed{\mathbf{x}}$  icon.

e	Ō	Opera	ational Mode: 🜔 manual	End of	f Schedule 15.10.2021	09:29:12		:	≅ 🔻
		Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur Sub S	E Flags	Clean
_			Documentation Demo	15.10.2021	08:57:25.00		00:31:47.23		
—		M	Example Show				00:31:47.23		
			Demo_01	On Air		08:57:25.00	00:10:34.13	<b>≅*□</b> ¢≿	
			Demo_02	Cue		09:07:59.13	00:14:47.06	347 <b>0%5</b>	
			Demo_04	Ready		09:22:46.19	00:01:30.00	≓¢⊅ <b>□%≌</b>	
		1 aller	Demo_05	Ready		09:24:16.19	00:02:26.01	<b>≧*□</b> ¢≥	
		-	Demo_06	Ready		09:26:42.20	00:02:30.03	2400×5	

Figure: Makalu Automation - Delete a playlist

Confirm the displayed dialog by clicking Yes.
 The playlist is deleted.

#### 7.7.9 Deleting a fix start time

To delete a fix start time from an element in a rundown, proceed as follows:

- 1. In the rundown either select a playlist, show, or clip with a fixed start time.
- 2. Click the Delete fix start time icon.

οŌ	Opera	ational Mode: 🔵 manual	End of	Schedule 15.10.2021	12:31:47	≡+ ≡- ↑ ^ ヾ	±∂∎≡è≪	; 🗵
	Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur Sub SE	Flags	Clean
- 0		Documentation Demo	15.10.2021	12:00:00.00		00:31:47.23	Ê	
	M	Example Show				00:31:47.23	ê	
		Demo_01	Ready	12:00:00.00	12:00:00.00	00:10:34.13	20 <b>0%5</b>	
		Demo_02	Ready		12:10:34.13	00:14:47.06	20 <b>0%5</b>	
		Demo_04	Ready		12:25:21.19	00:01:30.00	20 <b>0%5</b>	
	Leans	Demo_05	Ready		12:26:51.19	00:02:26.01	20 <b>0%5</b>	
	-	Demo_06	Ready		12:29:17.20	00:02:30.03	20 <b>0%5</b>	

Figure: Makalu Automation - Delete fix start time

The fix start time is removed from the selected element.

# 7.7.10 Reloading the rundown

Notice
Manually reloading the rundown is only necessary in case of an error, e.g. if the clip status is displayed as "Unknown".

To manually reload the rundown, click the C Reload rundown icon in the top left corner of the rundown.

# 7.8 Controlling the rundown playback

The rundown playback can either be triggered automatically (based on the scheduled playlist start time) or manually by using the rundown control either below the channel preview or via the big buttons at the bottom left of the screen.

To manually start the playback, proceed as follows:

- 1. In the rundown cue a clip to prepare it for playback, by either:
  - a. clicking the Cue next clip/Cue next icon in the rundown control, or
  - b. by clicking on the clip status of a clip that is in "Ready" status.

#### i Notice

If you use the first method, this either cues the first clip in the rundown (if previously no clip was cued) or the next clip after the previously cued clip.

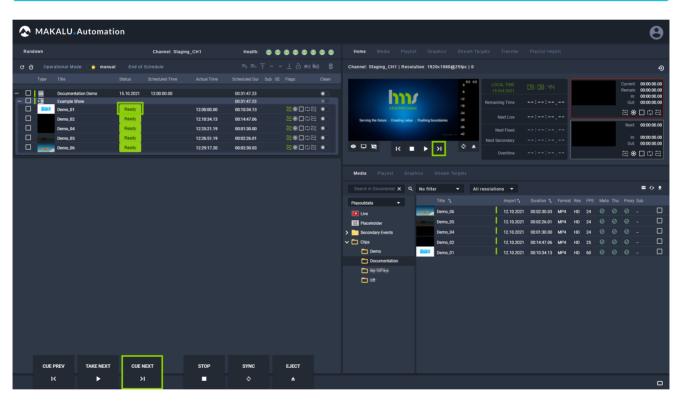


Figure: Makalu Automation - Cueing a clip

The clips status changes to "Cue".

📀 MAKALU.Automatic	on		8
Rundown	Channel: Staging_CH1	Health: 🔘 🔘 🕲 🕲 🕲 🕲 🕲	Home Media Playlist Graphics Stream Targets Transfer Playlist Import
C Ō Operational Mode: 💽 manual			Channel: Staging_CH1   Resolution: 1920x1080@25fps   0
Type Title			00 00 LOCALTIME np. in
	15.10.2021 12:00:00.00	00:31:47.23	-6 15-0ct-2021 US - 10 - 3 1 Remain: 00000000
-		00:31:47.23	12 Remaining Time: Out: 00.000000
Demo_01	Cue 12:00:00.00	00:10:34.13         문※□□□금         ●           00:14:47.06         문※□□□금         ●	
Demo_02 Demo_04	Ready 12:10:34.13 Ready 12:25:21.19	00:14:47.06	-00 Next: 00:00:00.00
Demo_04	Ready 12:25:21.19	00:02:26.01 결종급대문 ·	Next Fixed:
Demo_06	Ready 12:29:17.20		● □ ▷ IC ■ ► >I ↓ ↓ ▲ Next Secondary: Out: 00:10:34.13
			Overtime:: Demo_01
			Media         Playtet         Oraphics         Steam Targets           Payoutata         No filter         All resolutions         = 9 \$           Payoutata         Title \$         Import %         Duraton %         Format Pay Payoutata           Import %         Duraton %         Format Payoutata         Title %         Import %         Duraton %         Format Pay Payoutata           Import %         Duraton %         Format Payoutata         Import %         Duraton %         Format Payoutata         -         -           Import %         Duraton %         Format Payoutata         0         -
CUE PREV TAKE NEXT	CUE NEXT STOP >1 ■	SYNC EJECT	

Figure: Makalu Automation - Cued clip

2. To start playback, click the Next / Take next icon.

NAKALU. Automation			Θ
Rundown	Channel: Staging_CH1	Health: 🕥 😋 😋 😋 😂 😂 😂	Home Media Playlist Graphics Stream Targets Transfer Playlist Import
C Ō Operational Mode: 💽 manual End			Channel: Staging_CH1   Resolution: 1920x1080@25fps   0
Type Title Status			0 <sup>00</sup> 00 LOCAL TIME 09: 10:3 1 Current 00000000
Decumentation Demo     15/10/202     Demo     Demo	1200:00.00 12:10:34.13 12:25:21.19 12:26:51.19	0031-07-22 (***********************************	Budd 2021       Promising True       Promising True       Promising True         Budd 2021       Promising True       Promising True       Promising True       Promosing True
	ENEXT STOP >I ■	SYNC EJECT O A	*       Gene,04       12102021       06013000       M44       H0       24       0       0       0       -       -         *       Geps       Demo,02       12102021       0611407.06       M44       H0       25       0       0       0       -       -       -         *       Demo,02       12102021       0611347.06       M44       H0       26       0       0       0       -       -       -         *       Demo,01       12102021       061134.13       M44       H0       60       0       0       0       -       -       -         *       Demo,01       12102021       061134.13       M44       H0       60       0       0       0       -       -       -         *       Demo,01       12102021       061134.13       M44       H0       60       0       0       0       -       -       -         *       *       Demo,01       *       12102021       061134.13       M44       H0       60       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0

Figure: Makalu Automation - Playing a clip

The clip is played. The clips status changes to "On Air".

🕭 MAKALU.A	Automation													Θ
Rundown		Channel: Staging_	СН1	Health: 🕥 🕥			Home Media P							
C Ö Operational Mode	e: 💽 manual Endol	l Schedule 15.10.2021	09:42:51				Channel: Staging_CH1   F	Resolution:	1920x1080@25fps   0					Ð
Type Title									0.0 0.0	LOCAL TIME			Current:	00:00:13.04
- 🗌 🗮 Documentati		09:11:04.00		00:31:47.23			-	A					Remain: In:	00:10:21.08 00:00:00.00
	w On Air		09:11:04.00	00:31:47.23 00:10:34.13	。 24日本名	-			-12		- 00:31:33.06			00:00:00.00
Demo_01	Cue		09:11:04:00	00:10:34.13			454	the state	-24	Next Live			≥ *	002
Demo_04	Ready		09:36:25.19	00:01:30.00			the second se	-	-36	Next Fixed			Next	00:10:19.21
Demo_05	Ready		09:37:55.19	00:02:26.01	<b>≥*</b> 0¢2 (	•	Contraction of Contra	1000	42	Next Secondary				00:00:00.00
Demo_06	Ready		09:40:21.20	00:02:30.03	<b>≥*</b> 0¢≥ (		● □ ¤ K	•••	► >I 🔍 🖕	Overtime	ON TIME	Demo_02		00:14:47.06
													<b>4</b> %	
							Media Playlist							
							Search in Documentat 🗙	Q No	filter 👻 All	resolutions 👻				≡ ↔ ±
							Playoutdata 👻							Sub
							Live		Demo_06	12.10.202	1 00:02:30.03 MP4	HD 24 ⊘		- 0
							🔛 Placeholder	100	Demo_05	12.10.202	1 00:02:26.01 MP4	HD 24 🕑		- 🗆
							> is Secondary Events		Demo_04	12.10.202	1 00:01:30.00 MP4	HD 24 🕑		- 🗆
							🗸 🛅 Clips		Demo_02	12.10.202	1 00:14:47.06 MP4			
							Demo	-	Demo_01	12.10.202	1 00:10:34.13 MP4	HD 60 🛛		- 0
							Documentation							
CUE PREV	TAKE NEXT CUE	NEXT	STOP	SYNC	EJECT									
K	▶ >	×	•		<b></b>									

Figure: Makalu Automation - Clip is playing

- 3. To manually stop playback, click the Stop icon.
- 4. Confirm the confirmation dialog by clicking Yes.

The playback is stopped. The clips status changes to "Ready".

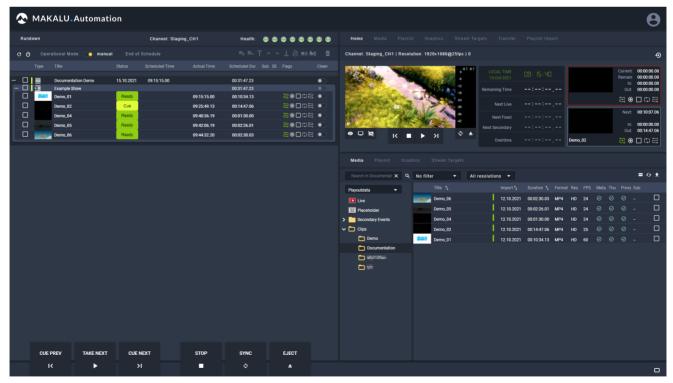


Figure: Makalu Automation - Playback stopped

#### Notice

If you manually stop playback, the previously cued clip remains cued. To completely reset the player and clip status

(setting all available clips to status "Ready"), click the **Eject player** icon below the channel preview and confirm the following dialog by clicking **Yes**.

# 7.9 File transfer

As described in section Ingest, all files are initially uploaded to the ingest storage. Afterwards each file, that is used in a rundown, must be copied to all playout instances (e.g. main and backup playout instance) that are assigned to the corresponding channel. The file transfer between ingest and playout storage can be triggered in the following ways:

- add a new playlist to the rundown, which automatically triggers transfers for all used files that are not yet available on the playout instances
- add a file to an existing show in a playlist in the rundown, which automatically triggers transfers for all used files that are not yet available on the playout instances
- trigger a file transfer manually via the media asset list (either via the Media tab or Transfer tab)

The file transfer status (that indicates if a file is already available on all related playout instances) is recognizable by colored bars in the media asset list:

Search in Documentat 🗙 🔍	۹ No	filter 👻	All resolution	is 🔻								<b></b> •	€ ﴿
Playoutdata 🗸		Title ⁺₊		Import 🖡	Duration ኁ	Format	Res	FPS	Meta	Thu	Proxy	y Sub	
III Live		Demo_06		12.10.2021	00:02:30.03	MP4	HD	24	$\oslash$	$\oslash$	$\otimes$		
22 Placeholder	100	Demo_05		12.10.2021	00:02:26.01	MP4	HD	24	$\oslash$	$\oslash$	$\oslash$		
> 🦲 Secondary Events		Demo_04		12.10.2021	00:01:30.00	MP4	HD	24	$\oslash$	$\oslash$	$\oslash$		
🗸 🛅 Clips		Demo_02	2	12.10.2021	00:14:47.06	MP4	HD	25	$\oslash$	$\otimes$	$\otimes$		
🛅 Demo		Demo_01		12.10.2021	00:10:34.13	MP4	HD	60	$\oslash$	$\oslash$	$\otimes$		
Documentation													

Figure: Makalu Automation - File transfer status

- 1. Green bar the file transfer is completed, the file is already available on the playout instances
- 2. Black bar the file is not available on the playout instances

A list of all currently running and recent file transfers is available in the Transfer tab.

#### i Notice

The number of file transfers running at the same time is configurable and by default set to 5 parallel file transfers.

#### 7.9.1 Triggering a file transfer manually

To trigger a file transfer from ingest storage to playout instances manually, proceed as follows:

- 1. Select the Media tab or the Transfer tab.
- 2. In the Source dropdown menu select the ingest storage (e.g. "Playoutdata").
- 3. Select a folder that contains files that are not available on playout instances (indicated by a black bar to the left of the file import date).
- 4. Select one or more files to be transferred.
- 5. In the toolbar at the top right of the media asset list click the **Upload assets** icon  $\triangle$ .

Search in Documentat 🗙 🔍	No filte	er 🔻	All resolution	is 🔻									6 ±
Playoutdata 🗸		Title 1↓		Import 🖡	Duration ኁ	Format	Res	FPS	Meta	Thu	Proxy	y Sub	
Live	-	Demo_06	I	12.10.2021	00:02:30.03	MP4	HD	24	$\oslash$	$\oslash$			<b>~</b>
2 Placeholder	1000	Demo_05		12.10.2021	00:02:26.01	MP4	HD	24	$\oslash$	$\oslash$			$\checkmark$
> Events		Demo_04	<u> </u>	12.10.2021	00:01:30.00	MP4	HD	24					$\checkmark$
🗸 🛅 Clips		Demo_02	I	12.10.2021	00:14:47.06	MP4	HD	25		$\oslash$	$\oslash$		$\checkmark$
🛅 Demo		Demo_01	I	12.10.2021	00:10:34.13	MP4	HD	60	$\oslash$	$\oslash$			~
Documentation													

Figure: Makalu Automation - Start file transfer

6. Confirm the dialog by clicking Yes.

The transfer of the selected file(s) starts.

7. Select the Transfer tab to view the file transfer progress.

Hom	ne Media P	Playlist	Graphics	Stream Targets	Tra	insfer	Playlist Imp	ort							
Playe	er_Master (4)														
	File Name		Target F	older	Uplo	aded	Statu	IS					Acti	on	
	Demo_02		Clips/De	ocumentation	13.1	0.2021 09:4	6:19 Proce	ssing	11	<b>%</b> 116.88 N			11 @		
BUNK	Demo_01		Clips/De	ocumentation	13.1	0.2021 09:4	6:17 Proce	ssing					11 @		
	Demo_04						6:15 <sub>Comp</sub>	leted						O G	
1	Demo_05		Clips/De	ocumentation	13.1	0.2021 09:4	6:17 Proce	ssing					11 0		
	Demo_06		Clips/Do	ocumentation	13.1	0.2021 09:4	6:17 Proce	ssing		3 0.80 MB			11 @	OG	
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100 L	ive		Demo_0	6	-	2.10.2021	00:02:30.03	MP4	HD	24	0	0			
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>s ~ c	Secondary Events Clips		Demo_0 Demo_0			2.10.2021	00:01:30.00	MP4 MP4	HD HD	24 25	© ⊘	Ø	Ø		
	Demo		Demo_0		-	2.10.2021		MP4	HD	60	0	Ø	Ø		
(	Documentation														

Figure: Makalu Automation - File transfer started

The file transfer to the playout instances is completed. This is also indicated by a green bar to the left of the file import date.

				Transfer									
Player	er_Master (0)												
	File Name	Target Folder		Uploaded	Statu	IS				A	ctior		
	Demo_02											G	
<b>BORIS</b>	Demo_01											G	
	Demo_04											G	
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(same)	Demo_06									, II		G	
L													
Disk spa	ace:		8%					77.95 G	B   953	3.87 GB			
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□ u □ P > □ S ~ □ C 0 0 0 0 0 0 0 0 0 0 0 0 0	utdata  ive Placeholder Secondary Events Clips Demo Documentation	Title 14 Demo_06 Demo_05 Demo_04 Demo_02	All resolut	Import 1 12.10.2021 12.10.2021 12.10.2021 12.10.2021	00:02:30.03 00:02:26.01 00:01:30.00 00:14:47.06	MP4 MP4 MP4 MP4	HD HD HD HD	24 ( 24 ( 24 ( 25 (	Aeta T 2 6 2 6 2 6 2 6	Thu Pr ව ල ව ල ව ල ව ල		Sub - -	
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Figure: Makalu Automation - File transfer completed

## 7.9.2 Deleting transferred files manually

# Notice

You can only delete files from a playout instance, that are not currently used in the rundown.

To manually delete files from a playout instance, proceed as follows:

- 1. Select the Media tab or the Transfer tab.
- 2. In the Source dropdown menu select the playout instance (e.g. "Player\_Master").
- 3. Select the folder that contains the files to be deleted.
- 4. Select one or more files to be deleted.
- 5. In the toolbar at the top right of the media asset list click the **Delete assets** icon  $\overline{\mathbf{s}}$ .

Search in Documentat 🗙 🍳	No filte	r 🔻 All resoluti	ions 🔻					<b>=</b> 6	9 E
Player_Master ▼		Title 1↓	Transfer	Duration ኁ	Format	Res	FPS	Aging date	
🗸 🛅 Clips	and a	Demo_06	13.10.2021	00:02:30.03	MP4	HD	24	14.10.2021 09:46:13.00	
🛅 Demo	10000	Demo_05	13.10.2021	00:02:26.01	MP4	HD	24	14.10.2021 09:46:13.00	$\checkmark$
Documentation		Demo_04	13.10.2021	00:01:30.00	MP4	HD	24	14.10.2021 09:46:13.00	
		Demo_02	13.10.2021	00:14:47.06	MP4	HD	25	14.10.2021 09:46:17.00	<b>~</b>
	調整な	Demo_01	13.10.2021	00:10:34.13	MP4	HD	60	14.10.2021 09:46:13.00	<b>~</b>

Figure: Makalu Automation - Delete files

6. Confirm the dialog by clicking Yes.

The selected files are deleted from the playout instance storage. This is also indicated by a black bar to the left of the file import date.

# 7.10 Importing a playlist

#### Ontice

Makalu supports the import of XML-based playlists. For further information please contact support@hms-dev.com.

To import a playlist, proceed as follows:

- 1. Select the Playlist Import tab.
- 2. To add a playlist, either:
  - a. drag the playlist file on the drop zone area, or
  - b. click select and select the playlist file.
- 3. Select the target channel to which the playlist should be assigned.
- 4. To confirm your selection, click Apply.
- 5. Click Process.

The content of the playlist file is checked and processed.

6. Click Import.

The playlist is imported.

# 7.11 Exporting a missing file list

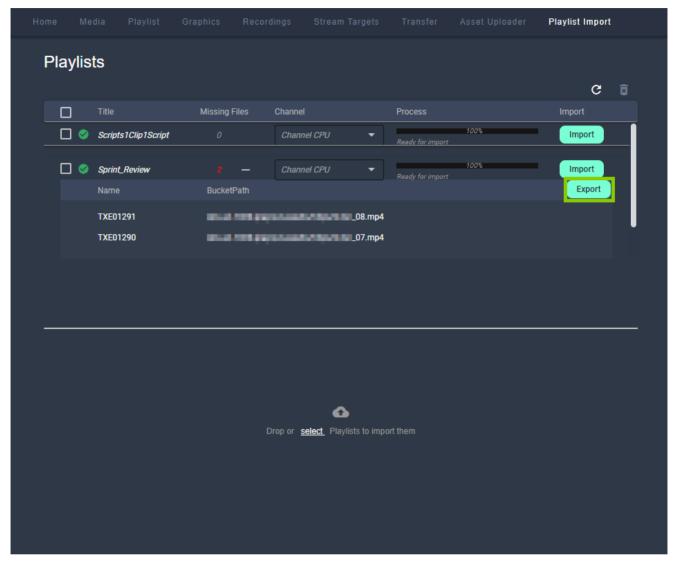
To export a missing file list, proceed as follows:

1. Select the Playlist Import tab.

 $_{\rm 2.}$  Click the **plus icon** of an imported playlist that has missing files.

The missing file list expands, and all missing files are listed.

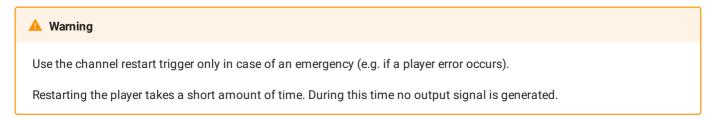
3. Click Export.



The missing file list is downloaded.



# 7.12 Restarting the player



To manually restart the player, proceed as follows:

- 1. Select the **Home** tab.
- At the top right click the Restart player icon.
   A confirmation dialog is displayed.
- Confirm the dialog, by clicking Yes.
   The player is restarted.

# 8. Live sources and stream targets

Each incoming live stream received by Makalu is referred to as a **live source**. Live sources are used by multiple Makalu applications, e.g. to preview incoming streams or to schedule them in a rundown. Each playout output signal can also be routed internally and used again as a live source. Every live source is defined by a set of configuration properties (metadata), like e.g. the used protocol, the URL used to receive the stream or (if required) stream credentials. These configuration properties can e.g. be used to set up an external device or software that provides an incoming source stream to Makalu.

The target for each outgoing live stream is referred to as a **stream target**. Like a live source each stream target is defined by a set of configuration properties (metadata), like e.g. the used protocol, the target URL or (if required) stream credentials. Stream targets can be used by multiple Makalu applications, e.g. to schedule them in a rundown and defining which parts of the scheduled program should be streamed to downstream service providers or video platforms.

To manage, preview, monitor and route incoming and outgoing live streams (and in addition to the streaming capabilities described in section Social media Streaming), Makalu includes the Stream Control application.

# 8.1 Accessing Makalu Stream Control

1. Open Makalu Stream Control via https://live-ui.customer-identifier.makalu.live.

The Stream Control user interface is opened.

#### 8.2 Manage live sources

#### 8.2.1 Using the live sources overview

To access the live sources overview, in the navigation sidebar on the left select Live Sources > Overview.

The live sources overview is displayed.

MAKALU.StreamControl	E Live Sources Overview				Create Live Source
LIVE SOURCES V	NAME FILTER Search				🔀 Clear All
STREAM TARGETS V	LIVE SOURCES				<b>⊞</b> & ∎
Social Media	NAME ↓ Channel_1_Masterstream	PROTOCOL	UPTIME 10 days, 18:16:43	LIVE BITRATE	Action
der Herrording					
V Static Routing					
Eve Source Limit 1 of Ainuse 25% BUILD v0.154.0					

Figure: Live source overview

In the **Live Sources** area all currently available live sources are listed with basic information (e.g. name, protocol, status, uptime, live bitrate, and alerts). You can customize the columns to be displayed and manually trigger a list update, by using the corresponding buttons above the list.

To display only specific live sources, use the **Filter** area above the list. There you can e.g. search live sources by name, by status flags (connected, verified, etc.) or by protocol (RTMP, SRT, etc.).

#### 8.2.2 Creating a live source

To create a live source, proceed as follows:

- 1. In the navigation sidebar on the left select Live Sources > Overview.
- 2. In the upper right, click Create Live Source.

The Create A Live Source dialog is displayed.

3. Enter a name for the live source and select the protocol to be used.

#### Notice

The name of the live source must be unique.

CREATE A LIVE SOURCE		
LIVE SOURCE NAME		
PROTOCOL		
RTMPS -		
	Cancel	Confirm

Figure: Create live source

4. (Optional) Depending on the selected protocol, additional configuration properties may be displayed. Set the values as required.

#### Notice

If you select e.g. protocol **RTMP** the additional property **On connect Authenticate** is available. If you enable it the URL of the created live source (which must be used to provide the source stream to Makalu) will include username and password for authentication.

#### 5. Click Confirm.

The live source is created and added to the live sources list. It is also available in Makalu Traffic as primary event and can be added to shows. In Makalu Automation it is available under Media > Live, can be previewed and added to a rundown.

#### Notice

You can now configure your device/software/encoder that provides the actual source stream by using the configuration properties of the live source you created. To do this, select the newly created live source, copy the values of the corresponding configuration properties to the clipboard and paste them into your device/software settings. Afterwards start the stream. If everything is configured properly and the incoming stream is received correctly, the live source status changes from red (disconnected) to green (connected) and the preview can be started.

#### 8.2.3 Previewing a live source

To preview a live source, proceed as follows:

- 1. In the navigation sidebar on the left select Live Sources > Overview.
- 2. In the live sources list click the name of the live source to be previewed.

A preview player and detailed information about the live source are displayed at the top of the page.

3. In the preview player click the **Play** icon.

The preview starts.

MAKALU.StreamControl					•	Create Live Source
LIVE SOURCES V	7	Name	Channel_1_Master.stream			
STREAM TARGETS		Protocol Preview URL				
Overview						
<ul> <li>Social Media</li> <li>Recording</li> </ul>	0					
♥ Static Routing						
	NAME FILTER Search					🗙 Clear All
	LIVE SOURCES					<b>₽</b>
						Action
	Channel_1_Master.stream	RTMP	00:12:11	7.00 Mbps 🕣 🔹		
Live Source Limit 1 of 4 in use						
25% BUILD v0.154.0						
®						

Figure: Live source preview

4. Use the player controls to e.g. trigger pause, play or full screen view.

#### 8.2.4 Editing a live source

Notice
You can only edit the name of a live source. All other settings cannot be changed as they are automatically generated.

To edit a live source, proceed as follows:

- 1. In the navigation sidebar on the left select Live Sources > Overview.
- 2. In the live sources list click the name of the live source to be edited.

A preview player and detailed information about the live source are displayed at the top of the page.

- 3. Edit the name of the live source.
- 4. Click Save.

The changed live source configuration is saved.

#### 8.2.5 Deleting a live source

To delete a live source, proceed as follows:

1. In the navigation sidebar on the left select Live Sources > Overview.

- 2. In the live sources list in the Action column activate the checkbox of the live source to be deleted.
- 3. Click the Delete selected live source icon above the live sources list.
- Confirm the displayed dialog by clicking Confirm.
   The live source is deleted and removed from the live source list.

# 8.3 Manage stream targets

#### 8.3.1 Using the stream targets overview

To access the stream target overview, in the navigation sidebar on the left select Stream Targets > Overview.

The stream target overview is displayed.

🔊 MAKALU.StreamControl	≡ Stream Targets • Overview				
LIVE SOURCES V	NAME TYPE FILTER Cearch	ACTIVE			🔀 Clear All
STREAM TARGETS V	STREAM TARGETS				፼ 殳 ≣
Overview					Action
Social Media	Demo Event	SOCIAL MEDIA	CHANNEL_1_MASTER_STREAM	•	
بل Recording	Scheduled example	SOCIAL MEDIA	CHANNEL_1_MASTER.STREAM	•	
♀ Static Routing	Generic Demo	SOCIAL MEDIA	CHANNEL_1_MASTER_STREAM	۲	
	Encoder 1 (Standard)	RECORDING	CHANNEL_1_MASTER.STREAM	•	
RURLD vo.134.0					

Figure: Stream target overview

In the **Stream Targets** area all currently available stream targets and jobs are listed with basic information (e.g. name, type, source, and status). You can customize the columns to be displayed and manually trigger a list update, by using the corresponding buttons above the list.

To display only specific stream targets, use the **Filter** area above the list. There you can e.g. search stream targets by name, by type (YouTube, Generic, etc.) or active status.

You can display and edit the details of each stream target, by clicking on the corresponding stream target name.

#### 8.3.2 Creating a static routing stream target

A static routing stream target enables you to permanently stream any live source to any valid target, without having to schedule it in a rundown.

To create a static routing stream target, proceed as follows:

- 1. In the navigation sidebar on the left select **Stream Targets > Static Routing**.
- 2. In the upper right, click Add.

The Create A Stream Target dialog is displayed.

3. Select the protocol to be used.

Depending on the selected protocol, different configuration properties are displayed.

4. Set all configuration properties as required.

CREATE A STREAM TARGET		
PROTOCOL		
RTMP		•
NAME		
URL		
STREAM KEY		
		0
USER NAME		
PASSWORD		
		0
	Cancel	Confirm

Figure: Static routing stream target properties

5. Click Confirm.

The static routing stream target is created and added to the stream targets list with status inactive (red).

NAME: STATIC RO	υτι	ING DEMO			۲
NO	SOL	JRCE SELEC	TED		
SOURC	:E:			•	B×
TARGET TYP	PE:	ROUTING			
STATU	JS:	INACTIVE			
PROFIL	E:	RTMP			
Ξ					Î

Figure: Static routing stream target created

6. Select the live source to be used via the **Source** dropdown menu.

If the source stream is valid and running, preview playback starts automatically.

7. Right next to Source click the **Save source stream** icon.

The source of the static routing stream target is saved. If source and target are valid and the stream is running the status changes to active (green).

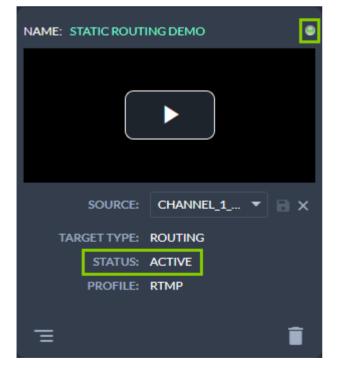


Figure: Active static routing stream target

#### Notice

To preview the live source, in the preview player click the **Play** icon and use the player controls to e.g. trigger a full screen preview.

#### 8.3.3 Editing a static routing stream target

To edit a static routing stream target, proceed as follows:

- 1. In the navigation sidebar on the left select **Stream Targets > Static Routing**.
- 2. Look for the target to be edited and in the bottom left of the corresponding tile click the **View and edit configuration data** icon.

NAME: STATIC ROUT	ING DEMO
SOURCE:	CHANNEL_1 🔻 📄 🗙
TARGET TYPE:	ROUTING
STATUS:	ACTIVE
PROFILE:	RTMP
Ξ	Î

Figure: Open static routing stream target settings The target settings are displayed.

3. Change the settings as required.

UPDATE STREAM TARGET			
NAME			
Static Routing Demo			
URL			
rtmp://strea	mlock.net:1935/live		
STREAM KEY			
•••••			۲
Protected			
USERNAME			
Qair			
PASSWORD			
			۲
INFO			
STREAM NAME	Qair-Demo		
APPLICATION	Live		
PROFILE	Rtmp		
		Cancel	Update

Figure: Update static routing stream target settings

4. Confirm your changes, by clicking Update.

The changed static routing stream target settings are saved.

#### 8.3.4 Editing a social media or generic stream job

In the following a YouTube stream job is used as example for managing stream jobs. The same approach applies to generic stream jobs.

To edit a stream job, proceed as follows:

- To get an overview of all available YouTube stream jobs, in the navigation sidebar on the left select Stream Targets > Social Media.
- 2. Look for the stream job to be edited and in the bottom left of the corresponding tile click the **View and edit configuration data** icon.

NAME: DEMO EVENT	r 🗢
SOURCE:	CHANNEL_1_MA 🔻 📄
CHANNEL:	
JOB NAME:	DEMO EVENT
JOB TYPE:	INDEPENDENT
STATUS:	QUEUED
TYPE:	YOUTUBE
Ξ	Î

Figure: Open stream job settings The target settings are displayed.

3. Change the settings as required.

UPDATE YOUTUBE STREAM		
TITLE		
Demo Event		
START DATE		
04/08/2021		
START TIME		
16 : 00	: 00 .	00
DESCRIPTION		
INFO		
STATUS	INACTIVE	
SOURCE	CHANNEL_1_MASTER.STREAM	
STREAMING CHANNEL NAME	YOUTUBE	
CHANNEL NAME		
	Cancel	Update

Figure: Update stream job settings

4. Confirm your changes, by clicking **Update**.

The stream job settings are updated.

## 8.3.5 Deleting a stream target

To delete a stream target, proceed as follows:

- 1. In the navigation sidebar on the left select **Stream Targets > Overview**.
- 2. In the stream targets list in the Action column activate the checkbox of the stream target to be deleted.
- 3. Click the Delete selected stream target icon above the live sources list.
- 4. Confirm the displayed dialog by clicking Confirm.

The stream target is deleted and removed from the stream targets list.

#### 8.3.6 Synchronizing stream targets between Wowza and Makalu

Under certain conditions (e.g. because of special customer requirements regarding the stream format or certain stream properties) it may not be possible to create a stream target via the default mechanism provided by Makalu Stream Control. In this case the corresponding stream target must be created manually via the Wowza Manager UI. Afterwards it can be synchronized with Makalu via Stream Control and can then be used like a "regular" stream target.

To synchronize stream targets, proceed as follows:

- 1. In the navigation sidebar on the left select Stream Targets > Static Routing.
- 2. In the upper right, click Sync.

All stream targets that were created via the Wowza Manager UI and can be synchronized are listed.

3. Select one or more stream targets to be synchronized.

STREAM TARGETS SYNC	:					
STREAM TARGET	SOURCE STREAM	PROFILE	APPLICATION NAME	ACTIVE		
Qa_Recording	QA_Stream_1.stre	SRT	QA_Channel_1_PGM	Ø		
					Cancel	,

Figure: Synchronize stream targets

4. Click Confirm.

The selected stream targets are synchronized with Makalu and can afterwards be used like "regular" stream targets.

# 9. Social media streaming

Social media streaming is a Makalu module that allows you to distribute the output of each Makalu Automation playout channel as a stream to social media, video platforms and service providers.

# 9.1 Supported stream targets

Makalu supports the following target platforms/protocols:

- YouTube
- Facebook
- LinkedIn
- Twitch
- Generic RTMP (any target that supports RTMP streams)
- · Generic RTMPS (any target that supports RTMPS streams)

#### 🜢 Tip

Makalu also supports static routing stream targets that enable you to permanently stream any live source to any valid target, without having to schedule it in a rundown. These stream targets are managed via Makalu Stream Control and are described in section Live sources and stream targets.

# 9.2 Types of stream jobs

Makalu differentiates between the following types of stream jobs, that can both be created via Makalu Automation:

Туре	Description
Independent	<ul> <li>must be created manually</li> <li>is independent of the rundown</li> </ul>
	<ul> <li>does not have a time reference</li> </ul>
Scheduled	<ul> <li>is created automatically when a playlist with an assigned stream target is added to the rundown</li> </ul>
	<ul> <li>is assigned to a playlist, show or clip in the rundown</li> </ul>
	<ul> <li>has a time reference</li> </ul>
	<ul> <li>is recognizable by a small clock icon in the Platform column in the job list</li> </ul>

# 9.3 Stream job metadata

Depending on the stream job type, different metadata must be provided when creating a new stream job. These differences are described in the following.

#### 9.3.1 YouTube metadata

YouTube stream jobs allow you to provide the following metadata:

Metadata element	Mandatory	Description
Account	Yes	The YouTube account to be used as target (as configured via Makalu Configuration).
Source	Yes	The stream that is used as source and streamed to the target.
Event	Yes	The name/title of the YouTube event, that will be displayed for viewers on YouTube.
Description	No	The description of the YouTube event, that will be displayed for viewers on YouTube.
Starttime	Yes	The planned start date and time of the YouTube event.

#### 9.3.2 Generic metadata

Generic stream jobs allow you to provide the following metadata:

Metadata element	Mandatory	Description
Target	Yes	The target platform/protocol to be used. Available options: • YouTube
		• Facebook
		• LinkedIn
		• Twitch
		• RTMP
		• RTMPS
Source	Yes	The stream that is used as source and streamed to the target.
Title	Yes	The title of the stream event.

Metadata element	Mandatory	Description
Description	No	The description of the stream event.
Stream Url	Yes	The target stream URL.
Stream Key	Yes	The stream key to be used.
Credentials	No	Enable to provide additional user credentials for authentication. Disable to send the stream without additional user credentials.
Username	No	The username to be used as part of the credentials (only available if the <b>Credentials</b> checkbox is activated).
Password	No	The password to be used as part of the credentials (only available if the <b>Credentials</b> checkbox is activated).
Starttime	Yes	The planned start date and time of the stream event.

# 9.4 Streaming workflow

#### 9.4.1 Overview

To stream content, in summary the following steps are required:

1. Create a stream target via Makalu Configuration.

#### Notice

This is only required once for YouTube stream targets. If you want to stream to a single YouTube channel, you must create a stream target for the corresponding YouTube account. If you want to stream to multiple YouTube channels, you must create a stream target for each of your accounts.

Generic stream targets do not have to be created manually, as they are already created during the system provisioning.

- 2. Create an independent or scheduled stream job for the stream target via Makalu Traffic and/or Automation.
- 3. Manually prepare, start, and stop the stream via Makalu Automation.

#### 9.4.2 Creating an independent YouTube stream job

To create an independent YouTube stream job, proceed as follows:

- 1. Open Makalu Automation.
- 2. On the right side select the Stream Targets tab.
- 3. In the **Predefined Targets** section, click the "+" icon of the YouTube stream target to be used.

	Stream Targets				
					Ð
Account	Source		Platform	Description	
YouTube	Channel_1_Master.str 🔻	8	Youtube		+
	Channel_1_Master.str ▼	8	Generic		+
	Account	Account Source YouTube Channel_1_Master.str ▼	Account Source YouTube Channel_1_Master.str	Account Source Platform YouTube Channel_1_Master.str  Youtube	Account Source Platform Description YouTube Channel_1_Master.str

Figure: Makalu Automation - Create independent YouTube stream job

The metadata input screen is displayed.

CREATE AN INDEPENDENT YOUTUBE STREAM TARGET JOB									
Enter the data of the independent youtube stream target job									
Account*	YouTube	-							
Source*	Channel_1_Master.stream	-							
Event*									
Description									
Starttime	04/08/2021 🔲 00 : 00 : 00 . 00	Now							
hours minutes seconds frames									
	Cancel	Apply							

Figure: Makalu Automation - Create independent YouTube stream job - Metadata input screen

4. Enter the metadata of the stream target.

#### Notice

You can only apply the changes if all mandatory fields are filled in and the selected start time lies in the future.

#### 5. Click Apply.

The stream job is created and added to the job list.

Joblist	All states	-											Ð
Platform 🕇	Event ⁺₊	Target Name	Account	Source		Scheduled 1	Status 📬	Edit	Link	Action			
YouTube	Demo Sport		YouTube	Channel_1_Ma 🔻	٦	14:00:00.00	Queued	/		Ce		×	
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٨	15:00:00.00	Queued	1		Ce		x	
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٦	16:00:00.00	Queued	1		Ge		×	

Figure: Makalu Automation - Independent YouTube stream job created

# 9.4.3 Creating an independent generic stream job

To create an independent generic stream job, proceed as follows:

- 1. Open Makalu Automation.
- 2. On the right side select the Stream Targets tab.
- 3. In the **Predefined Targets** section, click the "+" icon of the generic stream target to be used.

					Stream Targets				
P	redefined	Fargets							G
	T+ N/								
	Target Nam	ne	Accou	nt	Source		Platform	Description	
	YouTube		YouTu	be	Channel_1_Master.str 🔻	8	Youtube		+
	Generic				Channel_1_Master.str 🔻	8	Generic		+

Figure: Makalu Automation - Create independent generic stream job

The metadata input screen is displayed.

CREATE AN INDEPENDENT GENERIC STREAM TARGET JOB									
Enter the data of the independent generic stream target job									
Target*	RTMP			-					
Source*	Channel_1_Master.stre	am		-					
Title*									
Description									
Stream Url*									
Stream Key*				\$					
Credentials									
Username									
Password									
▶									
Starttime	04/08/2021	00 : 00 :	00 . 00	Now					
* This indicates mandatory fields, which must be filled in.									
			Cancel	Apply					

Figure: Makalu Automation - Create independent generic stream job - Metadata input screen

4. Enter the metadata of the stream target.

#### Notice

You can only apply the changes if all mandatory fields are filled in and the selected start time lies in the future.

#### 🜢 Tip

If you want to use the generic stream job for streaming to YouTube, you can retrieve the required values for **streamurl** and **streamkey** as follows:

a. Log in to your YouTube account.

b. In the upper right area click **Create > Go Live**.

The required information is displayed in the Stream Settings section.

c. Copy the stream key and the stream URL and paste them into the required mandatory fields.

#### 5. Click Apply.

The stream job is created and added to the job list.

Joblist	All states	-									Ģ
Platform 🕇	Event ↑	Target Name	Account	Source		Scheduled 1	Status ↑	Edit	Link	Action	
YouTube	Demo Sport		YouTube	Channel_1_Ma 🔻	٦	14:00:00.00	Queued	1		6 € ●	×
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٦	15:00:00.00	Queued	1		C & •	×
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٦	16:00:00.00	Queued	1		000	×
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Queued	1		C 🗞	×

Figure: Makalu Automation - Independent generic stream job created

#### 9.4.4 Creating a scheduled stream job

In summary, creating a scheduled stream job requires the following steps:

- 1. Use Makalu Traffic to assign a stream target to a clip, playlist or show.
- 2. Send the corresponding playlist (that includes the show or clip you assigned the stream target to) to playout.
- 3. Use Makalu Automation to add the corresponding playlist to the rundown.

These steps are described in detail below, based on the example of adding a YouTube stream target to a clip. They apply to any type of stream target and the mechanism is the same for clips, shows and playlists.

#### Use Makalu Traffic to assign a stream target to a clip

- 1. Open Makalu Traffic.
- 2. In the left sidebar, select Shows.

The available shows are displayed.

3. Select the show that contains the clip to which you want to add a stream target.

A new tab is opened for editing the clip details.

- 4. Select the clip to which you want to assign the stream target to in the lower right corner, by activating the corresponding **Action** checkbox.
- 5. Click the Edit Clip button.

🐼 MAKALU. Tr	affic											8
		Show Properties		Show Addo	ns					Show Addon details		
PLAYLISTS			DW NAME Example_Show						î			
SHOWS + Filter			ATEGORY default	Type Nai					tion			
Example_Show		SUB-CA	ATEGORY default		G 00:00:00.00	00:00:00						
Example Demo				roved								
			OC:05:42.07									
			Duplicate Close	Delete		DR	OP ZONE					
	î +	CURRENT DURATION	00:05:42.07 OVERTIME 00:05:12.07									2
PRIMARY EVENTS		Example_Folder_1	Filter Q Today									Action
File		Example_Folder_2			• 🖻	MP4	Example_01	00:00:00.00	00:00:4	2.14	음비미※달	
Live		Example_Folder_3			1 💾	MP4	Example_02	00:00:42.14	00:01:5	6.08	24 <b>0*</b> 2	
Placeholder					2 💾	MP4	Example_03	00:02:38.22	00:01:3	5.01	₩□₽2	
SECONDARY EVENTS					3 💾	MP4	Example_04	00:04:13.23	00:01:2	8.09 ⊘	200 <b>%5</b>	
METADATA												
										DROP ZONE		
										DROP ZONE		

Figure: Makalu Traffic - Select Clip

A new tab is opened for editing the clip details.

6. In the left sidebar of the newly opened clip tab select Secondary events and click Stream Targets.

Available stream targets of the selected type are displayed in the Stream Targets area to the right.

🐼 MAKALU. Traffic			θ
PLAYLISTS ( SHOW5   +Fiter Domple, Show Example Domp	Clip Properties	Clip Addons:	Clip Addon details
	Close	DROP ZONE	
<b>î</b> +	Stream Targets		
SECONDARY EVENTS  Graphics			ର୍ 🔳
Stream Targets			
Splicing Recordings	Generic	УюлТире	
METADATA <			

Figure: Makalu Traffic - Secondary events

7. Select a stream target and drag it onto the Drop Zone in the Clip Addons area.

🐼 MAKALU. Traf	fic							9
PLAYLISTS	۲	o Properties			Clip Addons	0 / î	Clip Addon details	
SHOWS + Filter Example_Show	ř.		S. 1.2		Type Name Offset	3-End Extend Channel Action		
Loangle Damp Demo		Image: second	-	>I     Duration: 00:01:56:10				
				Close				
í a la chuir	i +							
SECONDARY EVENTS	<ul><li>✓</li></ul>	eam Targets						ୟ ≣
Graphics			~					
Stream Targets Splicing		ſ	► ),					
Recordings		ـــــــــــــــــــــــــــــــــــــ	Generic		YouTube			
METADATA	<							
METADATA	Ì.							

Figure: Makalu Traffic - Stream target added to clip addons

Edit the properties of an added stream target, by selecting it in the Clip Addons list and click the Edit Addon button.
 The clip addon details are displayed to the right.

🐼 MAKALU. Traffic			θ
PLAYLISTS ( SHOWS ~ +Filter Dample Show Dample Show Dample Show Demno	CIp Properties		Clip Addon details TITLE DESCRIPTION AUTOMATIC STARTTIME 04/09/2021 10 : 05 : 23 . 00
		Close DROP ZONE	Update
<b>i</b> +	Stream Targets		
SECONDARY EVENTS 🗸	Filter		Q =
Graphics Stream Targets Splicing Recordings	Gereric	VouTube	
METADATA K			

Figure: Makalu Traffic - Edit clip addon details

- 9. Change the addon details as required.
- 10. To save the addon settings, in the Clip Addon details area click Update.

The clip and its stream targets are saved.

 $_{11.}\,$  To close the tab with the clip details, click Close in the Clip Properties area.

The tab is closed.

🐼 MAKALU. Traffic			θ
PLAYLISTS <	Clip Properties	Clip Addons	Clip Addon details
		0. 🗡 â	TITLE Scheduled example
SHOWS  + Filter Example_Show	S. E. E.	Type         Name         Offset         Duration         B-Start         B-End         Extend         Channel         Action           ST         YouTube         00:00:00:00         00:00:00:00	DESCRIPTION An example for adding a scheduled YouTube stream target to a clip
Example	が 一般 深境 しょう		
Demo			STARTTIME 04/09/2021
	Pos: 00:00:02:04 Duration: 00:01:56:10 NAME: Example_02		
	Close	DROP ZONE	Update
<b>i</b> +	Stream Targets		
SECONDARY EVENTS 🗸	Filter		Q =
Graphics			
Stream Targets Splicing			
Recordings	Generic	YouTube	
METADATA 🔇			

Figure: Makalu Traffic - Update and close

### Send the corresponding playlist to playout

1. In the left sidebar, select Playlists.

The available playlists are displayed.

- Select the Playlist that contains the clip to which you added the stream target.
   A new tab is opened for editing the playlist details.
- 3. In the Playlist Properties area click Send to Playout.

🔊 MAKALU. Tra	ffic															9
		Playlist Properties					- Play	list Addons					Playlist Addon det	ails		
PLAYLISTS												-				
	Q	PLAYL		Example_Pla	/list_1							Î				
Example_Playlist_3 Example_Playlist_2				04/01/2021												
Example_Playlist_1 Demo																
SHOWS				<ul><li>Clean</li><li>Do Not</li></ul>		Protected										
			Send to Playout	Close	Delete	Update										
	î +	CURRENT DURATION	0:15:39.17 0		0:04:20.08											
		Shows					Pos					Play-Dura				
SECONDARY EVENTS		+ Filter														
METADATA									Example_Show	20:15:00.00	00:05:42.09	00:05:42.0	)9			
SHOWS		Example Show	00:05:4						Example	21:20:42.09	00:04:18.05	00:04:18.0	D5			
Shows		Example_Show	00:05:4						Demo	22:25:00.14	00:05:39.03	00:05:39.0	)3			
		Demo	00:05:3													

### Figure: Makalu Traffic - Send to playout

The select playout channel dialog is displayed.

SELECT PLAYOUT CHAN	NEL	
Please select a channel to	send to playout	
Standard_CH1		-
	Confirm	Cancel

Figure: Makalu Traffic - Select playout channel

- 4. Select the playout channel that you want to send the playlist to.
- 5. Click Confirm.

The playlist with the assigned stream target is made available for the selected channel in Makalu Automation.

### Use Makalu Automation to add the corresponding playlist to the rundown

- 1. Open Makalu Automation.
- 2. Add the corresponding playlist to the rundown.

Based on the stream target that is used in the playlist, a stream job is automatically added to the job list. It is recognizable by a clock icon in the "Platform" column

Joblist All s	states 🔻									Ð
Platform 🗘 Eve	ent 📬 🛛 Target Name	Account S	Source		Scheduled 🕇	Status ⁺₊	Edit	Link	Action	
Generic Ge	neric Demo	RTMP	Channel_1_Ma 💌 🗖	a	17:00:00.00	Stopped	1		CØ	
<sub>O</sub> YouTube Sch	heduled ex YouTube	YouTube	Channel_1_Ma 🔻 📘	8	12:00:00.00	Queued	1	C I	•••5	
YouTube De	mo Event	YouTube	Channel_1_Ma 🔻 📘	8	16:00:00.00	Queued	1	C I	000	
YouTube De	mo Music	YouTube	Channel_1_Ma 🔻 📘	8	15:00:00.00	Queued	1	Ø	000	

Figure: Makalu Automation - Scheduled stream job added to job list

### 9.4.5 Starting a YouTube stream

To start a YouTube stream, proceed as follows:

- 1. Open Makalu Automation.
- 2. Select the Stream Targets tab.
- 3. If the corresponding stream job in the Joblist is in status Unknown, wait until it changes to Queued.

Notice

If the corresponding stream job was added to the job list shortly before, this may take a few seconds.

Joblist	All states	•											G
Platform 🗘	Event 🖡	Target Name	Account	Source		Scheduled 1	Status ⁺₊	Edit	Link	Ac	tion		
				Channel_1_Ma 🔻	٦			1	Ø	۱C	6		
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٨	15:00:00.00	Queued	1	Ø	Ì C	<b>@</b>		]
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٦	16:00:00.00	Queued	1	Ø	I C	<b>@</b>		
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Queued	1		C	6	(	

Figure: Makalu Automation - YouTube stream job in status "Queued"

4. If the stream job is in status **Queued**, in the **Action** column click the **Prepare** icon.

Joblist	All states	-									Ð
Platform 🕯	. Event †₊	Target Name	Account	Source		Scheduled 1+	Status ⁺₊	Edit	Link	Action	
YouTube				Channel_1_Ma 🔻	۸			1	C P	000	
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٨	15:00:00.00	Queued			C & •	
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٨	16:00:00.00	Queued	1		000	
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٨	17:00:00.00	Queued	1		C	

Figure: Makalu Automation - Prepare YouTube stream job

The stream job status first changes to "Preparing" and after a few seconds to "Prepared".

Joblist	All states	-										Ð
Platform 🗗	Event 1	Target Name	Account	Source		Scheduled 1	Status 🕇	Edit	Link	Action		
YouTube	Demo Sport E	- argot Hanno	YouTube		8	14:03:02.00	Completed			C	×	
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	8	15:00:00.00	Queued	1	2	C®	I X	
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٦	16:00:00.00	Prepared	1	2	CØ	X	
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Queued	1		C	X	

Figure: Makalu Automation - Prepared YouTube stream job

<ul> <li>Tip</li> <li>When the stream job changes the status to Prepared, the correspondin</li> <li>To access the event, click the Open YouTube in new tab icon.</li> <li>The YouTube event opens in a new tab.</li> </ul>	g event b	ecomes	s availat	ole on	YouTı	ıbe.
≡ ► YouTube <sup>DE</sup> Search	٩	Ŷ	Ŧ		Ļ	۲
<image/>						
Chat is disabled for this live strear	n.					
Demo Event © Unlisted Scheduled for Apr 8, 2021	ı <b>f</b> 0	<b>#1</b> o	A SHA	RE ≡	=+ SAVE	•••

 $_{\rm 5.}$  To start the stream, click the Go live icon.

In balance											-
Joblist	All states	<b>•</b>									Ð
Platform 🗘	Event 🗘	Target Name	Account	Source		Scheduled 🗘	Status 📬	Edit	Link	Action	
				Channel_1_Ma 🔻	٦			1	2	€ 🖗 🔵	
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٦	15:00:00.00	Queued	1	2	€ @ ●	
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٦	16:00:00.00	Prepared	1	2	0@0	
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Queued	1		C	

Figure: Makalu Automation - Go live on YouTube

The stream job status changes to "Starting" and then to "Running". From this point on the actual stream can be viewed on YouTube.

Joblist	All states	-											Ģ
Platform ⁺₊	Event ⁺₊	Target Name	Account	Source		Scheduled 1	Status ⁺₊	Edit	Link	Action			
				Channel_1_Ma 🔻	8			1	2	C		×	
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٨	15:00:00.00	Queued	1	2	Ge		×	
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٦	16:00:00.00	Running	1	C 🗅	Ce		×	
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Queued	1		G@	£	×	

Figure: Makalu Automation - Running YouTube stream job

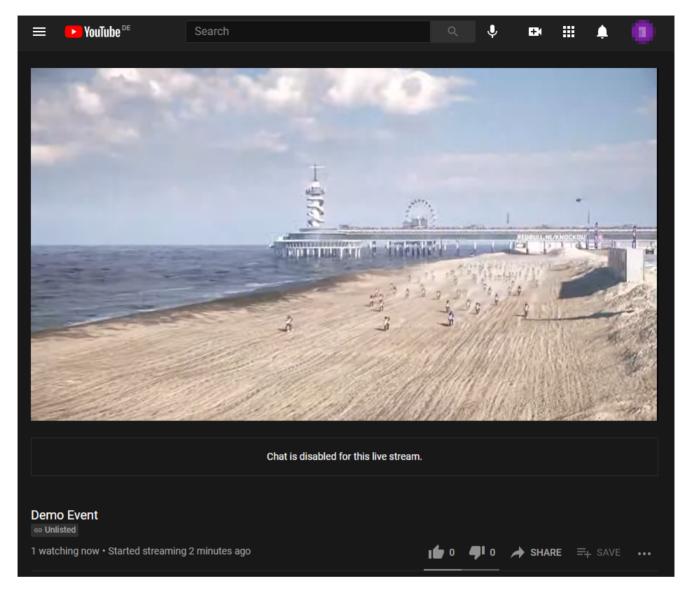


Figure: Makalu Automation - Viewing the stream on YouTube

## 9.4.6 Stopping a YouTube stream

To stop a YouTube stream, proceed as follows:

- 1. Open Makalu Automation.
- 2. Select the Stream Targets tab.
- 3. Click the **Stop** icon of the stream job to be stopped.

Joblist	All states	•									Ģ
Platform 🕇	. Event ⁴₊	Target Name	Account	Source		Scheduled 1	Status ⁺₊	Edit	Link	Action	
				Channel_1_Ma 🔻	٦			1	C È	€≪●■×	٢
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	۸	15:00:00.00	Queued	1		€≪●■×	<
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	8	16:00:00.00	Running	1	2	C & <b> </b>   ×	<
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	8	17:00:00.00	Queued	1		C 🖉 🔳 🗙	<

#### Figure: Makalu Automation - Stopping a YouTube stream job

The stream job status changes from "Running" to "Stopping" to "Completed". The stream event on YouTube is finished.

Joblist	All states	-									Ð
Platform 🕇	Event ⁺₊	Target Name	Account	Source		Scheduled 1	Status ⁺₊	Edit	Link	Action	
				Channel_1_Ma 🔻	٦			1	C 🗅	€∢●	
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٦	15:00:00.00	Queued	1	2	6€●	
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٦	16:00:00.00	Completed	1	ßÈ	€≪●	
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Queued	1		C	

Figure: Makalu Automation - Completed YouTube stream job

### 9.4.7 Restarting a completed YouTube stream

To restart a completed YouTube stream, proceed as follows:

- 1. Open Makalu Automation.
- 2. Select the Stream Targets tab.
- 3. Click the **Queue** icon of the completed YouTube stream to be restarted.

Joblist	All states	-										G
Platform †	. Event †₊	Target Name	Account	Source		Scheduled 🕇	Status ⁺₊	Edit	Link	Action		
YouTube				Channel_1_Ma 🔻	٨			1	ľ ì	C	×	
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٨	15:00:00.00	Queued	1	2	C &	×	
YouTube				Channel_1_Ma 🔻	٨			1	C P	G	×	
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٨	17:00:00.00	Queued	1		<b>C</b> 🔇	×	

Figure: Makalu Automation - Restart completed YouTube stream job

- 4. Repeat steps 3-5 described in section Starting a YouTube stream
- 9.4.8 Accessing a YouTube stream and sharing the stream link

#### Notice

A YouTube stream event is not available until the status of the corresponding stream job changes to Prepared.

#### Notice

Privacy settings and access permissions affect who can access a YouTube stream.

To access a YouTube stream, proceed as follows:

1. Open Makalu Automation.

### 2. Select the Stream Targets tab.

3. In the Joblist click the Open YouTube in new tab icon of the corresponding stream job.

Platform 1, Event 1, Target Name       Account       Source       Scheduled 1, Status 1, Edit Link       Edit Link       Action         YouTube       Demo Sport E       YouTube       Channel_1_Ma • • 14:03:02:00       Completed       • • • • • • • • • • • • • • • • • • •	Joblist	All states	•										Ð
YouTube       Demo Music       YouTube       Channel_1_Ma ▼       15:00:00.00       Queued       ✓       C <thc< th="">       C       <thc< th="">       C<th>Platform †</th><th>Event †</th><th>Target Name</th><th>Account</th><th>Source</th><th></th><th>Scheduled 1+</th><th>Status ↑<sub>∔</sub></th><th>Edit</th><th>Link</th><th>Action</th><th></th><th></th></thc<></thc<>	Platform †	Event †	Target Name	Account	Source		Scheduled 1+	Status ↑ <sub>∔</sub>	Edit	Link	Action		
YouTube     Demo Event     YouTube     Channel_1_Ma     Image: Channel_1_Ma	YouTube				Channel_1_Ma 🔻	٦			1		660	×	
	YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٦	15:00:00.00	Queued	1	2	660	×	
	YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٦	16:00:00.00	Prepared	1		C @ 이 I	×	
Generic Generic Demo RTMP Channel_1_Ma C 17:00:00.00 Queued C C C	Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Queued	1		C	×	

Figure: Makalu Automation - Accessing a YouTube stream

The YouTube stream opens in a new tab.

To share the stream link, proceed as follows:

1. In the Joblist click the Copy to clipboard icon of the corresponding stream job.

Joblist	All states	•									Ð
Platform 🖡	Event 1	Target Name	Account	Source		Scheduled 1	Status ⁺₊	Edit	Link	Action	
				Channel_1_Ma 🔻	٦			1	2	6 ⊗ ●	×
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٦	15:00:00.00	Queued	1		€ @ ●	×
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٦	16:00:00.00	Prepared	1	2	000	×
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Queued	1		€ 🔄	×

Figure: Makalu Automation - Sharing a YouTube stream link

2. Share the copied link, e.g. by sending it via email or sharing it via social media.

### 9.4.9 Starting a generic stream

To start a generic stream, proceed as follows:

- 1. Open Makalu Automation.
- 2. Select the Stream Targets tab.



The generic stream job to be started should be in status Queued.

3. In the Action column click the Prepare icon of the generic stream job to be started.

Platform 1, Event 1, Target Name       Account       Source       Scheduled 1, Status 1, Edit Link       Edit Link       Action         Generic Generic Demo       RTMP       Channel_1_Ma Interval       17:00:00.00       Queued       Interval       Interva	Joblist	All states	•										Ð
YouTube Demo Event YouTube Channel_1_Ma  Channel_1_Ma Ch	Platform †₊	Event †₊	Target Name	Account	Source		Scheduled 1	Status ⁺₊	Edit	Link	Action		
	Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٨	17:00:00.00	Queued	1		C	×	
	YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٨	16:00:00.00	Queued	1	Ø			
YouTube Demo Music YouTube Channel T_Ma YouTube	YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٨	15:00:00.00	Queued	1	Ø			
YouTube Demo Sport E YouTube Channel_1_Ma 🔻 🖬 14:00:00.00 Completed 🖍 🗹 🖿 📿 🚱 🔳 🗙	YouTube				Channel_1_Ma 🔻	٨			1	Ø			

Figure: Makalu Automation - Prepare generic stream job

The status of the generic stream job changes to "Preparing" and then to "Prepared".

Platform 1, Event 1, Target Name Account       Source       Scheduled 1, Status 1, Edit Link Action         Generic       Generic Demo       RTMP       Channel_1_Ma *       17:00:00.00       Prepared	Joblist	All states	•										Ð
YouTube     Demo Event     YouTube     Channel_1_Ma     Image: Control of the control	Platform ↑	Event ⁴₊	Target Name	Account	Source		Scheduled 1+	Status ⁺₊	Edit	Link	Action		
	Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Prepared	1		CØ	X	
YouTube Demo Music YouTube Channel_1_Ma 🔻 🖬 15:00:00.00 Queued 🖌 🖸 💽 🥝 🗉 🗙	YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٨	16:00:00.00	Queued	1		G&	×	
	YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٨	15:00:00.00	Queued	1		C @	×	
YouTube Demo Sport E YouTube Channel_1_Ma 🔻 🖬 14:00:00.00 Completed 🖌 🖸 🗋 📿 🚱 🔳 🗙					Channel_1_Ma 🔻	٨			1	C `	C	×	

Figure: Makalu Automation - Prepared generic stream job

4. To start the stream, click the **Start** icon.

Joblist All states	-			G
Platform † Event † Target	Name Account Source	Scheduled 1	. Status †₊ Edit Link	Action
Generic Generic Demo	RTMP Channel	_1_Ma 🔻 🖻 17:00:00.00	Prepared 🖍	C & IX
YouTube Demo Event	YouTube Channel	_1_Ma 🔻 🔒 16:00:00.00	Queued 🖍 🔀	CĞ●■×
YouTube Demo Music	YouTube Channel	_1_Ma 🔻 🔒 15:00:00.00	Queued 🖌 🖸	
YouTube Demo Sport E	YouTube Channel	_1_Ma ▼ 🔒 14:00:00.00	Completed 🖌 🗹	

Figure: Makalu Automation - Start generic stream

The stream job status changes to "Started" and then to "Running".

Joblist /	All states	•										Ð
Platform †₊	Event ⁺₊	Target Name	Account	Source		Scheduled 1+	Status †₊	Edit	Link	Action		
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٨	17:00:00.00	Running	1		CØ		
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٨	16:00:00.00	Queued	1		G@		
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٦	15:00:00.00	Queued	1		G@	×	
				Channel_1_Ma 🔻	8			1	C È	C	×	

Figure: Makalu Automation - Generic stream job started

From this point on the stream is running and sent to the selected stream URL.

#### Notice

How you can access the stream depends on the selected target. If you stream to platforms like YouTube, Facebook, LinkedIn, or Twitch, you can access the stream directly via the corresponding target platform.

If you stream via RTMP or RTMPS to a streaming server (e.g. Wowza), you can access the stream based on the options the server provides. This could for example be an HLS preview of the stream. In this case you can access the stream via the corresponding URL.

#### Notice

Not all web stream formats can be played directly in Google Chrome. Depending on the format of the provided web stream, playback may only be possible via additional browser add-ons.

This e.g. applies to HLS streams that are provided as M3U8 playlist files. To open these streams in Chrome, you must install an appropriate add-on, like Play HLS M3u8. If the add-on is installed, the stream is opened and played automatically. Otherwise only the corresponding M3U8 file is downloaded.

#### 9.4.10 Stopping a generic stream

To stop a generic stream, proceed as follows:

- 1. Open Makalu Automation.
- 2. Select the Stream Targets tab.

#### Notice

The generic stream job to be stopped should be in status Started.

#### 3. To stop a generic stream, click the Stop icon.

Joblist	All states	•											Ð
Platform †	Event ↑	Target Name	Account	Source		Scheduled 🖡	Status ⁺₊	Edit	Link	Action			
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Running	1		C	•	×	
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٨	16:00:00.00	Queued	1	2	Ge	• ا	x	
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٨	15:00:00.00	Queued	1	2	Ge	•	×	
YouTube				Channel_1_Ma 🔻	٨			1	2	C	¥ 🔵	×	

Figure: Makalu Automation - Stop generic stream

The generic stream is stopped and the status changes from "Started" to "Stopped".

Joblist /	All states	•								Ð
Platform †₊	Event †	Target Name	Account	Source		Scheduled †	Status †₊	Edit Link	Action	
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	٦	17:00:00.00	Stopped	1	C & 🔳 🗙	
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	8	16:00:00.00	Queued	/ 🗆	C & • • ×	]
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٦	15:00:00.00	Queued	/ 2	CGOEX	
				Channel_1_Ma 🔻	8			/ 🗷 🗅	CIIX	

Figure: Makalu Automation - Generic stream stopped

### 9.4.11 Restarting a completed generic stream

To restart a completed generic stream, proceed as follows:

- 1. Open Makalu Automation.
- 2. Select the Stream Targets tab.

1 Notice

The generic stream job to be stopped should be in status Stopped.

3. Click the Start icon of the generic stream job to be restarted.

Joblist	All states	-									Ð
Platform 1	. Event †₊	Target Name	Account	Source		Scheduled 1+	Status ↑	Edit	Link	Action	
Generic	Generic Demo		RTMP	Channel_1_Ma 🔻	8	17:00:00.00	Stopped	1		୍ଦ୍	×
YouTube	Demo Event		YouTube	Channel_1_Ma 🔻	٨	16:00:00.00	Queued	/	2 🗈	₿@	×
YouTube	Demo Music		YouTube	Channel_1_Ma 🔻	٨	15:00:00.00	Queued	/	Z 🖻	₿ 🖉 🖉	×
YouTube				Channel_1_Ma 🔻	٦			/	Z 🗅	€ 🧐 ●	×

Figure: Makalu Automation - Restart generic stream

The stream is restarted and the status changes from "Stopped" to "Started" and then to "Running".

Joblist	All states 🔻									Ð
Platform 🕇	Event †₊ Target Na	ime Account	Source		Scheduled 1	Status ↑	Edit	Link	Action	
Generic	Generic Demo	RTMP	Channel_1_Ma 🔻	٨	17:00:00.00	Running	1		C	
YouTube	Demo Event	YouTube	Channel_1_Ma 🔻	۸	16:00:00.00	Queued	1	2	C & •	
YouTube	Demo Music	YouTube	Channel_1_Ma 🔻	٦	15:00:00.00	Queued	1	2	000	
			Channel_1_Ma 🔻	٨			1	C 🗅	€ @●	

Figure: Makalu Automation - Generic stream restarted

# 10. Recording

Recording is an optional Makalu module that enables you to record multiple source/input streams at the same time in different formats (profile-based). It can be used e.g. for live recordings or compliance recording.

## 10.1 Encoder types

The modules that are used for creating recordings are internally referred to as "encoders". Makalu provides the following types of encoders:

Encoder type	Features
Standard	Stream recording (in/out) with MP4 file output
Broadcast	Stream recording (in/out) with broadcast file format output (e.g. XDCAM-HD422, AVC-Intra or XAVC) and growing file support

## 10.2 Recording job types

Recordings are internally managed based on recording jobs. For each recording a corresponding recording job is created. Makalu provides the following types of recording jobs:

Job type	Description
Crash	The recording can be started immediately using Makalu Automation (manual start and stop).
Schedule	The recording can be scheduled for a fixed time and period (automatic start and stop or automatic start and manual stop). Scheduled recording jobs can be created via Makalu Automation and Makalu Traffic.

### Notice

The decision which application to use for creating a recording job depends on the workflow.

Makalu Automation is designed for editing the rundown at short notice. It enables you to create recording jobs immediately and independent of the used playlists and shows.

Makalu Traffic is designed for creating reusable templates for shows and playlists. It enables you to automatically create recording jobs whenever a specific show template or playlist is used in the rundown.

## 10.3 Creating a recording job via Makalu Traffic

#### i Notice

In the following it is assumed that you already have created a show and want to add a recording job to this existing show. For information about how to create a new show, see section Schedule (Creating a show).

You can also add recording jobs to playlists in a similar way. For more information about how to edit a playlist, see section Schedule (Editing a playlist).

To add a recording job to a show, proceed as follows:

- 1. Open Makalu Traffic.
- 2. Either use the Shows area in the sidebar on the left or the list of shows on the right to search for the show to be edited.
- 3. Click on the name of the show to be edited.

The show details are opened in a new tab.

4. In the sidebar on the left select **Secondary Events > Recordings**.

The list of available encoders is displayed.

- 5. Select the encoder type to be added and drag it onto the Drop Zone in the Show Addons area.
- 6. Edit the recording properties, by selecting the corresponding **Recording** event in the **Show Addons** list and click the **Edit Addon** icon.

The recording details are displayed to the right.

Show Addon details	
SOURCESTREAM	•
RECORDCHANNEL	Encoder 1 (Broadcast) 🔹
JOBNAME	Example
DESTPATH	Clips
PROFILE	MP4 <b>•</b>
	Update

Figure: Makalu Traffic - Recording properties

- 7. Edit the properties as required.
- 8. To save your changes, click Update.

The show is saved. Whenever you add the show to the rundown, a recording job is automatically created with the properties you selected. You can control it via Makalu Automation in the Recordings area.

## 10.4 Creating a recording job via Makalu Automation

## 10.4.1 Creating a crash recording job

To create a crash recording job, proceed as follows:

- 1. Open Makalu Automation.
- $2. \quad \text{On the right side select the } \textbf{Recordings} \text{ tab}.$

The recording controls are displayed.

Media	Playlist	Graphics	Recordings	Stream Targets	Tr	ransfer				
Encoder 3						Encoder 3				
Current Current Next Source: C Input: H Profile: A	thannel_1_Master	Total	×	Encoder 2 (Broadcast) Encoder 3	•	Common Title*: Filename: Folder: Source: Profile: Split: Loop: Cop: Start: End:	As Source	.1_Master.st ▼ ▼ Type: Automatic Split: Retention Period: 07/29/2021 07/29/2021	Single St off 0	
Recordings	All stat	es 🔻	All channels	✓ All types	•					Ð
Cha	annel	Source	Туре	Status	P	Profile		Actic		

Figure: Makalu Automation - Recordings

- 3. In the encoder list select the encoder to be used for the recording.
- 4. In the **Preferences** area edit the recording settings.

#### Notice

To create a recording job you must enter at least the title.

- 5. Select the Folder where to save the recording.
- 6. Select the **Source** to be recorded.

### 💧 Tip

To watch a preview of the selected source, click the Play icon in the Preview area of the selected encoder.

- 7. Optional: If you want to reuse the recording job and create multiple recordings, select **Type Multi Shot**. To create only a single recording, leave the default **Type Single Shot**.
- 8. Optional: If you want to split the recording automatically, enable **Split** and select an **Automatic Split** interval. To split a recording manually, select **Automatic Split off**.
- 9. Optional: If you want to delete the recording automatically after a predefined time, enable **Loop** and select a **Retention Period**.

Media Playlist Graphics <b>Reco</b> r	<b>dings</b> Stream Targets			
Encoder 3 (Preview		Encoder 3		
Image: Source:       Channel 1 Master.stream         Input:       H.264         Profile:       As Source	Encoder 2 (Broadcast)	Common Title*: E Filename: F Folder: C Source: Profile: A Split: 0 Loop: 0	xample Recording Itename Itips Channel_1_Master.st  Source Automatic Split: Retention Period: 3:26:05 PM 07/29/2021 4:26:05 PM 07/29/2021	9
Status: Prepared Name: Example Recording	nnels 🔻 All types 🔻		open end	Add
Channel Source	Type Status	Profile	Actio	ı
+ 🔍 Encoder 3 💽 Channel_1	Crash Prepared	As Source		

10. Click Apply.

Figure: Makalu Automation - Apply crash job

The crash job is created, added to the Recordings list, and prepared. There you can control it manually. For more information see section Controlling a recording job.

### 10.4.2 Creating a scheduled recording job

To create a scheduled recording job, proceed as follows:

1. Repeat steps 1 to 9 as described in section Creating a crash recording job.

## 2. Enable Schedule.

Media Playlist	Graphics <b>Recordings</b>	s Stream Targets	Transfer
Encoder 2 (Broadcast)	(Preview)		Encoder 2 (Broadcast) (Preferences)
		Encoder 2 (Broadcast)	Common Tide*: Scheduled Example Filename: Filename Folder: Clips $\textcircled{\}$ Source: Clips $\textcircled{\}$ Save As Default Profile: MP4 $\checkmark$ Type: Single Shot $\checkmark$ Split: Automatic Split: Off $\checkmark$ Loop: Retention Period: D
Current Current Next Source: Channel_1_Master.t Input: H.264 Profile: MP4 Status: Online Name:	:;		Apply           Schedule           Start:         05:00:00 PM         07/29/2021         Image: Now provide the start providet the start provide the start provide the start provide
Recordings All state	es 🔻 All channels	✓ All types ▼	▼ 10 ▼ 1-1 of 1  < < > >  5
Channel	Source Type	Status	Profile Action
+ O Encoder 3	🕙 Channel_1 Crasi	h Prepared	As Source

Figure: Makalu Automation - Add schedule job

- 3. Enter a Start time and date or, if you want to use the current time and date, click Now.
- 4. Enter an **End** time and date or, if you want to enter a duration, enable the toggle switch to the right of the end date. Alternatively you can create a scheduled recording job without specifying an end time, by selecting **Open end**.
- 5. Click Add.

The scheduled job is created and added to the recording list.

### 10.4.3 Controlling a recording job

In the **Recordings** area, the list of available recording jobs is displayed. You can control a recording job via the icons in the **Action** column.

Recordings All st	ates 🔻 All	channels 🔻	All types 🔻	•	10 💌	1 – 1 of 1 🛛 🕹	<	> >1	Ð
Channel	Source	Туре	Status	Profile			Action		
🕂 🔍 Encoder 3	Channel_1	Crash	Prepared	As Source			Ø	■{}Ð	×

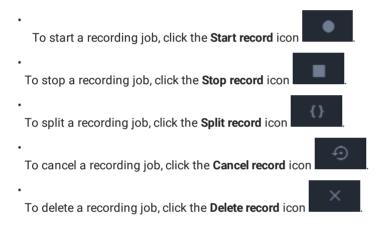
Figure: Makalu Automation - Controlling recordings

To prepare a recording job, click the **Prepare** icon



#### Notice

Crash recording jobs are prepared automatically.



## 10.4.4 Deleting a recording job

To delete a recording job, proceed as follows:

- 1. In the **Recordings** section, select the recording job to be deleted.
- 2.



Confirm the displayed dialog by clicking Yes.
 The recording job is deleted.

### 10.4.5 Previewing a recorded file

To preview a recorded file, proceed as follows:

- 1. On the right side select the Media tab.
- 2. Below the preview player select the source Playoutdata.
- 3. Search the file to be previewed either by using the search field or by selecting the corresponding folder.

4. Select the file to be previewed and either add it to the preview player via drag and drop or by clicking **Play** on the right side.

The file is opened in the preview player. Use the player controls to control the preview.

# 11. Ad triggering

#### Notice

Dynamic ad triggering requires the optional Makalu SCTE-35 addon.

The dynamic ad triggering feature enables you to signal ad insertion opportunities that can be used by downstream systems to automatically replace these parts of your content.

The underlying workflow is based on the SCTE-35 standard and enables you to schedule splicing event trigger points in your program that are afterwards included in the playout output data stream. These splicing trigger points can be evaluated by downstream systems to perform server-side or player-side ad insertion. In addition to ad insertion, SCTE-35-based splicing events can be used for various other purposes, e.g. for regional content variations (opt-out), for blanking content on the web or to trigger recording servers.

Shortly before a splicing event is sent by the playout, the event itself is announced. For this purpose additional information is included in the playout output stream. The time interval for announcing the upcoming splicing event is configurable and usually set between one and four seconds before the start of the actual event.

Depending on its properties a splicing event can be stopped either automatically or manually. For an automatic splicing event the end event trigger is automatically sent when the playback of the corresponding clip or show is finished. A manual splicing event must be stopped manually by an operator.

In Makalu you can add and manage splicing events in the following ways:

- · use Makalu Traffic to add splicing events to clips or shows already when you create/schedule playlists
- use Makalu Automation for last minute changes

## 11.1 Splicing event types

Makalu provides the following splicing event types:

Makalu splicing event type	Matching splice command according to SCTE-35 specification			
SCTE-35 Avail	Corresponds to the legacy splice command splice_insert()			
SCTE-35	Corresponds to the more recent splice command time_signal() with segmentation descriptor			

Which splicing event type you need to use for your application depends on your downstream systems, what data they expect and how they are configured.

For more information about splicing events, refer to the official SCTE-35 standard specification (ANSI/SCTE 35 2020 - "Digital Program Insertion Cueing Message") which is available on the SCTE website.

## 11.2 Adding a splicing event via Makalu Traffic

#### Notice

In the following it is assumed that you already have created a show and want to add a splicing event to this existing show. For information about how to create a new show, see section Traffic (Creating a show).

You can also add splicing events to single clips in a similar way. For information about how to edit a clip, see section Traffic (Editing a clip).

### Notice

Only one splicing event can be scheduled and sent at a certain point in time. This means, for example, that if there is already a splicing event added to a show, it is not possible to add an additional splicing event to individual clips within this show.

To add a splicing event to a show, proceed as follows:

- 1. Open Makalu Traffic.
- 2. Either use the Shows area in the sidebar on the left or the list of shows on the right to search for the show to be edited.
- 3. Click the name of the show to be edited.

The show details are opened in a new tab.

🐼 MAKALU. Traffi	c			θ
	Show Properties		Show Addons	Show Addon details
PLAYLISTS <		SHOW NAME Example	/ 1	
+ Filter		CATEGORY default -		
Example demo		JB-CATEGORY default -		
demo		Media Ready     Approved     Random Play     Clean		
	PLANNE	ED DURATION 00 : 00 : 10 . 00		
		NT DURATION 00:00:00		
		Duplicate Close Delete	DROP ZONE	
Ĩ	+ CURRENT DURATION	00:00:00.00 OVERTIME -00:00:10.00		
PRIMARY EVENTS				
File	my_folder	Filter Q All		
Live	my_romer			
Placeholder			2021 17:35:17 No Cli 2021 17:37:46	
SECONDARY EVENTS		□ QAIL_07 000037.17 0100 □ □ QAIL_07 00.01:33.01 02-05		
METADATA 🗸	<b>:</b> ا			

Figure: Makalu Traffic - Show details

4. In the sidebar on the left select Secondary Events > Splicing.

The list of available splicing event types is displayed.

🐼 MAKALU. Traffic						θ
	Show Properties		Show Addon		Show Addon details	
PLAYLISTS <		Example		/ 1	i	
SHOWS V		default 👻				
Example demo		default 👻				
		Media Ready     Approved     Random Play     Clean				
		00 : 00 : 10 . 00				
		00.00:00.00				
		Duplicate Close Delete		DROP ZONE		
<b>î</b> +		/ERTIME -00:00:10.00				
PRIMARY EVENTS <	- Splicing Filter		৭ ≣			
SECONDARY EVENTS 🗸						
Graphics						
Stream Targets Splicing						
Recordings						
METADATA <						

Figure: Makalu Traffic - Available splicing event types

5. Select the splicing event type to be added and drag it onto the **Drop Zone** in the **Show Addons** area.

🐼 MAKALU. Traffic					8
	Show Properties		Show Addons		Show Addon details
PLAYLISTS <		Example			II
+ Filter		default 👻			
Example demo		default 👻			
		Media Ready     Approved     Random Play     Clean			
		00 : 00 : 10 . 00			
		00.00.00.00			
		Duplicate Close Delete		DROP ZONE	
<b>î</b> +	CURRENT DURATION 00:00:00.00 C	WERTIME -00.00:10.00			
PRIMARY EVENTS <	Filter		ୟ ≣		
SECONDARY EVENTS V					
Graphics					
Stream Targets	SCTE35 SCTE35_A	VAIL			
Splicing					
Recordings					
METADATA <					

Figure: Makalu Traffic - Add splicing event to show

The splicing event is added to the show addons list.

🐼 MAKALU. Traffic								8
	Show Properties		Show Addons				Show Addon details	
PLAYLISTS <		Example				/ 1	l	
SHOWS V		default 🔻	Type Name					
Example  demo		default 👻	SPL SCTE	35 00:00:00.00 00:	:00:00.00 🤗	- 0	J	
		Media Ready     Approved     Random Play     Clean						
		00 : 00 : 10 . 00						
		00:00:00.00						
		Duplicate Close Delete			DROP ZONE			 
<b>ĩ</b> +	CURRENT DURATION 00:00:00.00 0'	/ERTIME -00:00:10.00						
PRIMARY EVENTS <	Filter		ৎ ≣					
SECONDARY EVENTS 🗸								
Graphics								
Stream Targets								
Splicing								
Recordings								
METADATA <								
METADATA								

Figure: Makalu Traffic - Splicing event added to show

6. Edit the splicing event properties, by selecting the event in the Show Addons list and click the Edit Addon icon.

The splicing event details are displayed to the right, where you can edit the available properties.

🐼 MAKALU. Traffic							Θ
	Show Properties		Show Addons			Show Addon details	
PLAYLISTS <		Example			1		
SHOWS V		default 👻	Type Name		tart B-End Extend Channel Action		
Example	SUB-CATEGORY	default 🔻	SPL SCTE:	35 00:00:00.00 00:00:00.00 -	- 0 - 🗹		123456
demo		Media Ready     Approved					
		Random Play     Clean					
		00:00:00.00					
		Duplicate Close Delete			ŧΕ		Update
<b>i</b> +	CURRENT DURATION 00:00:00.00	OVERTIME -00:00:10.00					⊤ ⊥ ∧ ∨ / î
	Splicing						
PRIMARY EVENTS <			୍ ≣				
SECONDARY EVENTS							
Graphics Stream Targets							
Splicing							
Recordings							
METADATA <							

Figure: Makalu Traffic - Edit splicing event details

7. To save your changes, click **Update** in the **Show Properties** area.

The show is saved.

8. To close the tab with the show details, click **Close** below the show properties.

The tab is closed.

## 11.3 Adding a splicing event via Makalu Automation

To add a splicing event to a single clip, proceed as follows:

- 1. Open Makalu Automation.
- 2. (Optional) If you want to add a new playlist to the rundown, see section Adding a playlist to a rundown.
- 3. In the rundown expand a playlist by clicking the **plus** icon on the left side.

The playlist is expanded.

4. Expand a show in the playlist by clicking the **plus** icon on the left side.

The show is expanded.

5. Select the clip to which you want to add the splicing event by activating the corresponding checkbox on the left side.

ŌŊ	opera	itional mode: 🔵	manual End	l of Schedule		=+ ≡_ ↑ ∧	· • <u>†</u> 🗄	■= è; S 🛛	×
	Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur	Sub SE ST	Flags	Clean
		Demo	12.04.2021	14:49:06.03		00:04:45.05			
		demo				00:04:45.05			
	-	0.400	Ready			00:00:57.17	ΞΞ	50 <b>0*5</b>	
		0400	Ready			00:02:14.12		50 <b>0*5</b>	
	Nº 4	1946,94	Ready			00:01:33.01		20 <b>0*5</b>	

Figure: Makalu Automation - Select clip

6. Click the Add splicing event for selected clip sicon in the rundown toolbar.

The splicing event details are displayed.

CREATE SPLICING EVENT			
Enter the data of the splicing	g event		
SpliceEventId*	123456		
UpidType*	12		
Upid*	1		
Use automatic			
Duration	00 : 02 : 14	Clip length	Show length
Send duration			
Event offset	00 : 00 : 00 hours minutes seconds		
Web delivery allowed			
Regional blackout			
Archive allowed			
Device restrictions	no restrictions		•
			Cancel Apply

Figure: Makalu Automation - Splicing event details

- 7. Edit the splicing event details.
- 8. To confirm your changes, click **Apply**.

The splicing event is added to the clip and the splicing event icon is displayed to the right of the clip status.

e	; Ō	орега	itional mode: 💽	manual	End of Schedule		≒=. ↑ ∕	×	ê 💷 èş	s R	Ē
		Туре	Title	Status	Scheduled Time	Actual Time	Scheduled Dur	Sub SE	ST Flags		Clean
—			Demo	12.04.20	21 14:49:06.03		00:04:45.05				
—		<u>P</u>	demo				00:04:45.05				
		-	640	Ready			00:00:57.17	⊠∃	₩5		
			640,00	Ready	S		00:02:14.12	⊠≘	₩5	oth C	
		Nº 4	1940,04	Ready	/		00:01:33.01		≈*	0¢2	
-											

Figure: Makalu Automation - Splicing event added to clip in rundown

## 11.4 Visual representation of splicing events in a rundown

Splicing events with automatic stop trigger added to a single clip are highlighted with a dark grey splicing icon.

13_Penguin_1080p25	Ready		14:09:51.10	00:00:05.01		≝*□⇔≌ ●
30_ScraperWithTone	Ready	s 🔶	14:09:56.11	00:00:24.24	BE	≅*□⇔⊇ ●
20_Scraper_1080i25	Ready		14:10:21.10	00:00:25.00		▣ ≌₩□₩≌ ●

Figure: Makalu Automation - Splicing event added to a single clip, automatic stop trigger

Splicing events with manual stop trigger added to a single clip are highlighted with a white splicing icon.

13_Penguin_1080p2	5 Ready		14:15:20.22	00:00:05.01		.● 500%5
30_ScraperWithTone	Ready	s 🔶	14:15:25.23	00:00:24.24	BE	≝*□⇔2 ●
20_Scraper_1080i25	Ready		14:15:50.22	00:00:25.00		.● 500×5

Figure: Makalu Automation - Splicing event added to a single clip, manual stop trigger

Splicing events with automatic stop trigger added to a show are highlighted with dark grey (first clip) and light grey (subsequent clips) splicing icons.

- □ ≣	Doc Demo	18.03.2021	14:20:25.12		00:02:40.00		(	
- 🗆 🖻	Doc Demo				00:02:40.00			
	20_Scraper_1080i25	Ready	5	14:20:25.12	00:00:25.00	■∃	. 50 <b>0%5</b>	$\bullet$
	21_Scraper_1080i25	Ready	5	14:20:50.12	00:00:25.00		50 <b>0%5</b>	$\bullet$
	13_Penguin_1080p25	Ready	5	14:21:15.12	00:00:05.01		50 <b>0%5</b>	$\bullet$
	30_ScraperWithTone	Ready	3	14:21:20.13	00:00:24.24		2010 × 5	$\bullet$
	20_Scraper_1080i25	Ready	5	14:21:45.12	00:00:25.00		200%	$\bullet$
	30_ScraperWithTone	Ready	5	14:22:10.12	00:00:24.24		200%	$\bullet$
	13_Penguin_1080p25	Ready	5	14:22:35.11	00:00:05.01		200%	$\bullet$
	21_Scraper_1080i25	Ready	5	14:22:40.12	00:00:25.00		50 <b>0%5</b>	

Figure: Makalu Automation - Splicing event added to a show, automatic stop trigger

Splicing events that are currently active (on air) are highlighted with a red splicing icon.

- 🗆 📘	Doc Demo	18.03.2021	14:14:30.08		00:02:40.00		
- 🗆 🖻	Doc Demo				00:02:40.00		
	20_Scraper_1080i25	Ready		14:14:30.08	00:00:25.00	⊠∃	≝*□⇔2 ●
	21_Scraper_1080i25	Ready		14:14:55.08	00:00:25.00		⊇ 200*2
	13_Penguin_1080p25	Ready		14:15:20.08	00:00:05.01		≝*□⇔⊇ ●
	30_ScraperWithTone	On Air		14:14:47.00	00:00:24.24		≌*□⇔2 ●
	20_Scraper_1080i25	Cue		14:15:11.24	00:00:25.00		≅*□⇔2 ●
	30_ScraperWithTone	Ready		14:15:36.24	00:00:24.24		≅*□⇔2 ●
	13_Penguin_1080p25	Ready		14:16:01.23	00:00:05.01		≅*□⇔2 ●
	21_Scraper_1080i25	Ready		14:16:06.24	00:00:25.00		≝*□⇔≌ •⊃

Figure: Makalu Automation - Splicing event added to a show, on air

## 11.5 Removing a splicing event from the rundown

To remove a splicing event from a single clip or a show in the rundown, proceed as follows:

1. In the rundown expand the corresponding playlist.

The playlist is expanded.

2. Expand the corresponding show.

The show is expanded.

- 3. Depending on whether you want to remove a splicing event from a single clip or a show:
  - a. To remove a splicing event from a single clip, select the clip with the splicing event to be removed, by activating the checkbox on the left side.
  - b. To remove a splicing event from a show, select the first clip of the show with the splicing event to be removed, by activating the checkbox on the left side.
- 4. Click the **Delete splicing event for selected clip** icon in the rundown toolbar.

The splicing event is removed.

# 12. Supported formats and codecs

# 12.1 Input

## 12.1.1 Files

Туре	Video	Audio
Codec	• XAVC	• MPEG-1 L2
	• AVC-Ultra	• MPEG-2 L2
	• AVC-Intra	• AAC-LC
	• XDCAM	• HE-AAC
	• MPEG-2	• HE-AAC v2
	• H.264 (AVC)	• AC-3 (Dolby Digital)*
	• H.265 (HEVC)	• E-AC-3 (Dolby Digital Plus)*
Container	۰MXF	
	• MP4	

## 12.1.2 Streams

Protocol	Video	Audio
RTMP/RTMPS	• H.264 (AVC)	• AAC
	• VP6	• AAC-LC
	• VP8	• HE-AAC
	Sorenson Spark	• HE-AAC v2
	Screen Video (v1, v2)	• MP3
		• Speex
RTSP/RTP	• H.264 (AVC)	• AAC
	• H.265 (HEVC)	• AAC-LC
	• VP8	• HE-AAC
	• VP9	• HE-AAC v2
		• MP3
		• Speex
		• Opus
		• Vorbis

Protocol	Video	Audio
ICY (SHOUTcast/Icecast)	-	• AAC
		• AAC-LC
		• HE-AAC
		• HE-AAC v2
		• MP3
SRT	• H.264 (AVC)	• AAC
	• H.265 (HEVC)	• AAC-LC
		• HE-AAC
		• HE-AAC v2
		• MP3
		• AC-3 (Dolby Digital)*
		• E-AC-3 (Dolby Digital Plus)*
		• ALS (LOAS)
WebRTC	• H.264 (AVC)	Opus (recommended)
	• VP8	• PCM (PCMU, PCMA)
	• VP9	
MPEG-TS, MPEG-TS over UDP	• MPEG-2	• AAC
	• H.264 (AVC)	• AAC-LC
	• H.265 (HEVC)	• HE-AAC
		• HE-AAC v2
		• MP3
		• AC-3 (Dolby Digital)*
		• E-AC-3 (Dolby Digital Plus)*
		• ALS (LOAS)

## 12.1.3 Subtitles

Туре	Format
File-based	• STL
	• WebVTT
	• SRT
	• EBU-TT
	• TTML

Туре	Format	
Live	• EBU-TT-D	
	• FAB Public	

## 12.2 Output

## 12.2.1 Streams

Protocol	Video	Audio
HLS	• H.264 (AVC)	• AAC
	• H.265 (HEVC)	• AAC-LC
		• HE-AAC
		• HE-AAC v2
		• MP3
		• AC-3 (Dolby Digital)*
		• E-AC-3 (Dolby Digital Plus)*
CMAF HLS, Low-Latency HLS	• H.264 (AVC)	• AAC
	• H.265 (HEVC)	• AAC-LC
		• HE-AAC
		• HE-AAC v2
		• AC-3 (Dolby Digital)*
		• E-AC-3 (Dolby Digital Plus)*
MPEG-DASH	• H.264 (AVC)	• AAC
	• H.265 (HEVC)	• AAC-LC
		• HE-AAC
		• HE-AAC v2
		• AC-3 (Dolby Digital)*
		• E-AC-3 (Dolby Digital Plus)*
		• ALS
RTMP/RTMPS	• H.264 (AVC)	• AAC
	• VP6	• AAC-LC
	Sorenson Spark	• HE-AAC
	• Screen Video (v1, v2)	• HE-AAC v2
		• MP3
		• Speex

Protocol	Video	Audio
RTSP/RTP	• H.264 (AVC)	• AAC
	• H.265 (HEVC)	• AAC-LC
	• VP8	• HE-AAC
	• VP9	• HE-AAC v2
		• MP3
		• Opus
		• Vorbis
		• Speex
SRT	• H.264 (AVC)	• AAC
	• H.265 (HEVC)	• AAC-LC
	• VP8	• HE-AAC
	• VP9	• HE-AAC v2
		• MP3
		• AC-3 (Dolby Digital)*
		• E-AC-3 (Dolby Digital Plus)*
		• ALS (LOAS)
		• Vorbis
WebRTC	• H.264 (AVC)	• Opus (recommended)
	• VP8	• PCM (PCMU, PCMA)
	• VP9	
MPEG-TS	• MPEG-2	• MPEG-1 L2
	• H.264 (AVC)	• MPEG-2 L2
	• H.265 (HEVC)	• AAC-LC
		• HE-AAC
		• HE-AAC v2
		• AC-3 (Dolby Digital)*
		• E-AC-3 (Dolby Digital Plus)*

## 12.2.2 CDN service providers

- Akamai
- Fastly
- Microsoft Azure
- Amazon CloudFront
- KeyCDN

## 12.2.3 Video and social media platforms

- YouTube
- Facebook
- Twitch
- LinkedIn

### Notice

All Dolby audio formats (marked with a "\*") require the optional Makalu Dolby addon.

### i Notice

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