E-Jam API

RUST ACTIX UBUNTU RASPBERRY PI RESTFUL API

The E-Jam API documentation

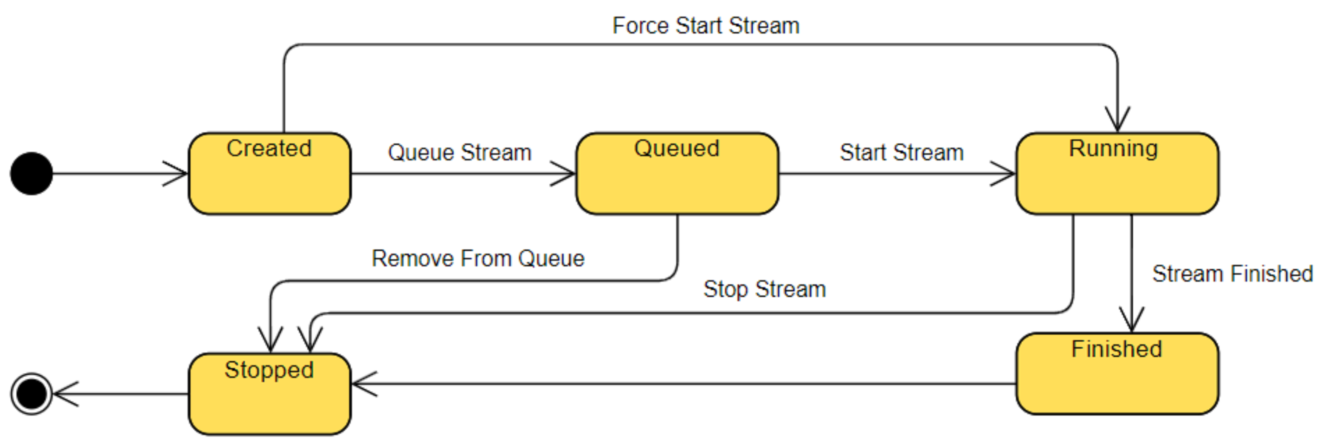
This API is used to create and manage streams. The E-Jam API is a REST API that allows you to manage the list of streams in the E-Jam application. The API is implemented using the Actix Web framework and Rust.

The API is hosted on a Raspberry Pi 4 Model B with 4GB of RAM. The Raspberry Pi is connected to a 1Gbps network. The Raspberry Pi is running Ubuntu 20.04 LTS.

The API is hosted on port 8080. The API is hosted on the IP address

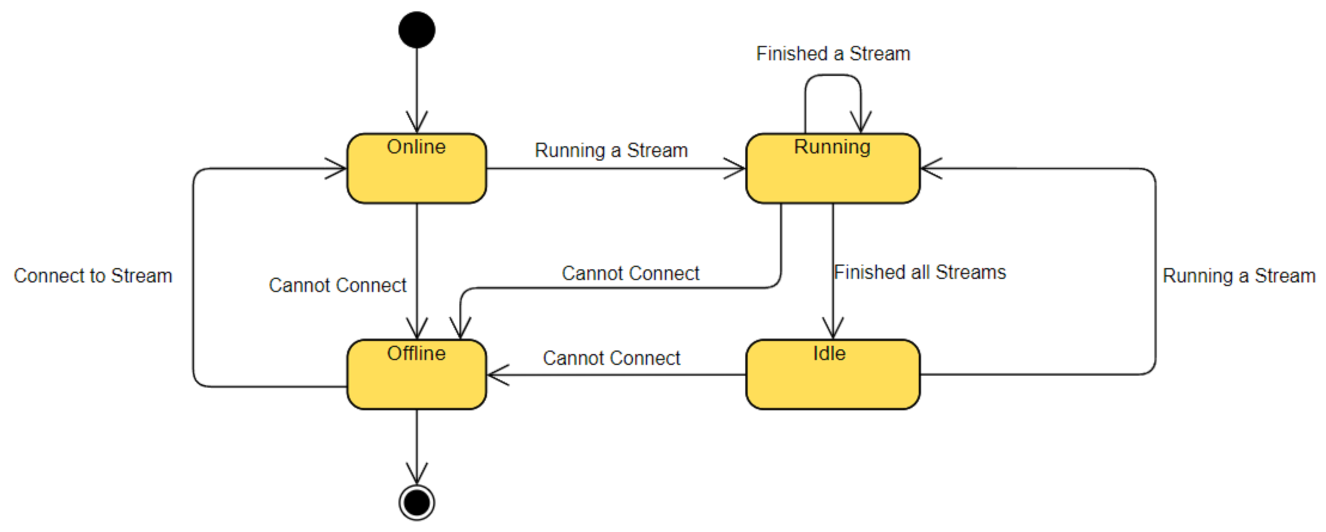
Stream State Machine

The stream state machine is as follows:



note: The stream state finished is only applied when all devices have finished sending and receiving packets.

The Device State Machine is as follows:



API Documentation

The API documentation is available at http://localhost:8080/.

Routes

GET /streams

Returns a list of all streams in the list of streams.

GET /streams/{stream_id}

Returns the stream with the given stream_id.

POST /streams

Adds a new stream to the list

DELETE /streams/{stream_id}

Deletes the stream with the given stream_id.

PUT /streams

Updates the stream with the given stream_id.

POST /streams/{stream_id}/start

Starts the stream with the given stream_id in body.

POST /streams/{stream_id}/force_start

Forces the stream with the given stream_id to start.

POST /streams/start_all

Starts all streams in the list of streams.

POST /streams/{stream_id}/stop

Stops the stream with the given stream_id.

POST /streams/{stream_id}/force_stop

Forces the stream with the given stream_id to stop.

POST /streams/stop_all

Stops all streams in the list of streams.

GET /streams/{stream_id}/status

Returns the status of the stream with the given stream_id.

GET /streams/status

Returns the status of all streams in the list of streams.

GET /devices

Returns a list of all devices in the list of devices.

GET /devices/{device_ip}

Returns the device with the given device ip address.

POST /devices

Adds a new device to the list

DELETE /devices/{device_ip}

Deletes the device with the given device_ip.

PUT /devices/{device_ip}

Updates the device with the given device_ip.

Stream object

The structure of the Stream object as a table is as follows:

Field	Type	Required	Default	Min	Max	Validation
stream_id	String	Yes		3	3	stream_id must be 3 characters long alphanumeric
delay	u64	No	0	0	2^63-1	stream start time must be greater than 0
generators	Vec of Devices	Yes		1		number of generators must be greater than 0
verifiers	Vec of Devices	Yes		1		number of verifiers must be greater than 0
payload_type	u8	Yes		0	2	payload_type must be 0,

						1 or 2
number_of_packets	u32	Yes		0		number_of_packets must be greater than 0
payload_length	u16	Yes		0	1500	payload_length must be between 0 and 1500
seed	u32	NO		0		seed must be greater than 0
broadcast_frames	u32	Yes		0		broadcast_frames must be greater than 0
inter_frame_gap	u32	Yes		0		inter_frame_gap must be greater than 0
time_to_live	u64	Yes		0	2^63-1	time_to_live must be greater than 0
transport_layer_protocol	TransportLayerProtocol	No	TCP			transport_layer_protocol must be TCP or UDP
flow_type	FlowType	No	BtB			flow_type must be BtB or Bursts
check_content	bool	No	false	0	1	check_content must be true or false
running_devices	Vec of IPs	No	empty	0		must containe devices running courent stream only when running it
stream_status	StreamStatus	No	0	0		must containe the status of the Stream at the current point in time

Device object

The structure of the Device object as a table is as follows:

Field	Type	Required	Default	Min	Max	Validation
name	String	Yes	ip Variable	1		name must be greater than 0
ip	String	Yes		7	15	ip must be between 7 and 15 characters long, ip must be a valid ip address
mac	String	Yes		17	17	must be a valid mac address

System API endpoints

The following endpoints are available for the system API:

Endpoint	Method	Body	Response	Description
/streams/{stream_id}/finished	POST			Notify the Admin-Client that the Stream

				has finished only when the stream is finished in the systemAPI side (must be sent from the systemapi to the admin client)
/streams/{stream_id}/started	POST			Notify the Admin-Client that the Stream has started in one of the systemAPI's (must be sent from the systemapi to the admin client)
/connect	GET	mac address of the device	Success	will be called to Connect to the system API
/start	POST	StreamDetails	Success	generate or verify the Provided Stream
/stop	POST	stream_id	Success	Stop a currently running Stream