

Conversational Avatar Communication

Real-time conversational avatars, animated from user to user

MPEG (ISO/IEC)

3GPP



About the project

Real-time conversational avatars, animated from user to user

3GPP TR 26.813

Technical Report

Formats for representing and animating avatars, and recommendations for integrating them in 3GPP services.

MPEG ARF

ISO/IEC 23090-39

The Avatar Representation Format: base avatar data model, container and animation stream.

3GPP TS 26.264

Technical Specification

IMS-based AR real-time communication: avatar calls over the IMS data channel and the three avatar animation modes.

FIND OUT MORE

Technical Analysis

Specifications

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LEARN

The avatar format: MPEG ARF

ISO/IEC 23090-39, as described in 3GPP TR 26.813

Container ISOBMFF or Zip

ARF document

Animation track (optional)

Base Avatar Format stores the avatar asset

Skeletons

Meshes

Blendshapes

Skins

Landmarks

Textures

Nodes (joints)

Animation Stream Format live or stored

Avatar Animation Units

AAU header and payload

configuration

blendshape

joint

landmark

texture

The base avatar and the animation are separate: a client loads the model once, then receives only the compact animation stream during the call.

Animating the avatar

Avatar Animation Units (AAU) of 3GPP TR 26.813

FIVE KINDS OF AAU

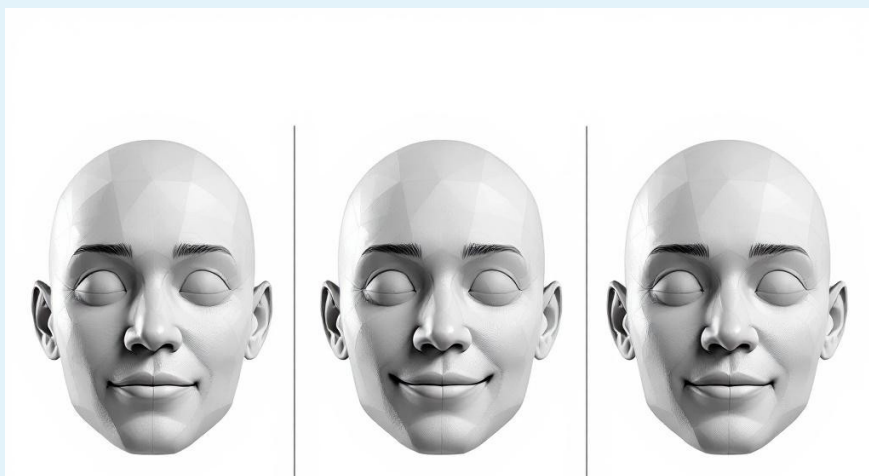
configuration

blendshape

joint

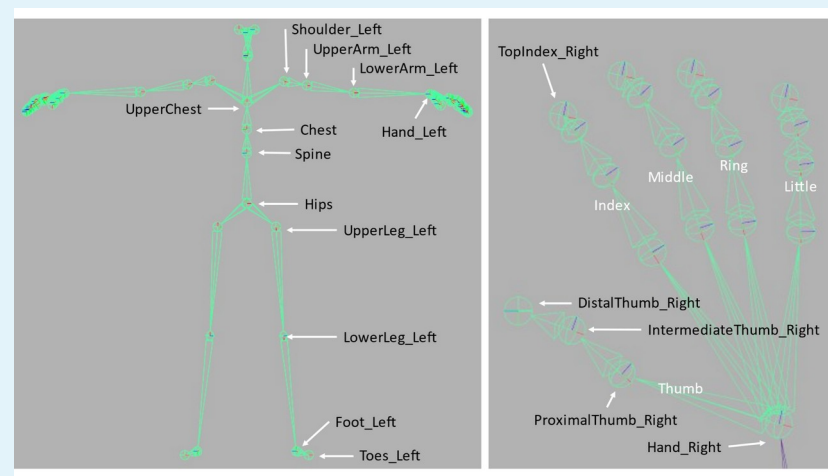
landmark

texture



Facial animation

Blend shape animation starts from the neutral expression and adds weighted contributions from predefined expressions.



Body and hand animation

Linear blend skinning moves the avatar surface with the skeleton, weighted per joint.

Three avatar animation modes

Three avatar animation modes defined by 3GPP TS 26.264 for a call over the IMS data channel

SENDER-CENTRIC

The sender animates

“the sender UE animates and renders its avatar representation before sending it to the receiving UE as 2D video.”

RECEIVER-CENTRIC

The receiver animates

“the receiving UE animates and renders the sender UE’s avatar representation.”

5G-MAG Reference Tools

NETWORK-CENTRIC

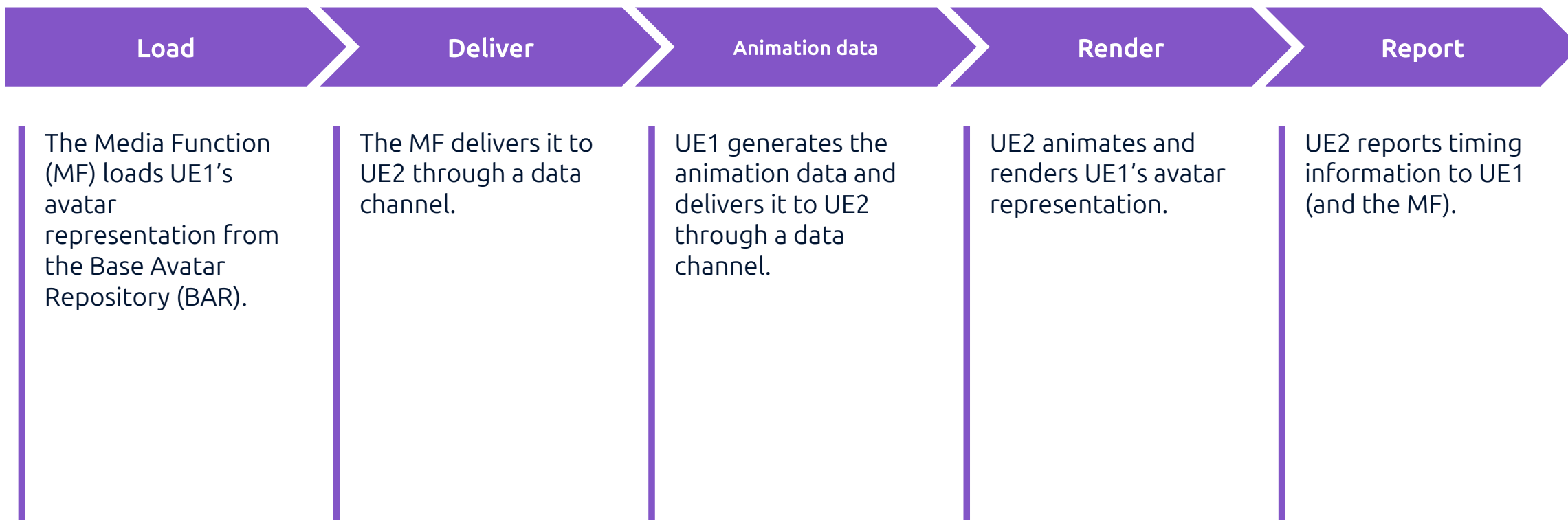
The network animates

“the MF animates and renders the sender UE’s avatar representation before sending it to the receiving UE as 2D video.”

Base Avatar Repository: “stores the base avatar of a user and makes it available to other participants” (3GPP TR 26.813).

A receiver-centric call

Avatar delivery and animation flow of 3GPP TS 26.264, receiver-centric mode



IMPLEMENT

Repositories

What each repository covers, from its README; all under the 5G-MAG Public License

REPOSITORY	WHAT IT IS	COVERS	LATEST RELEASE
rt-avatar-call	the call application: Android and Windows	Receiver-centric call Animation ARF format SWAP signalling	 v0.10.154 16 Oct 2026
rt-avatar-content	reference MPEG ARF content for the call	ARF format	 v0.10.154 16 Oct 2026
rt-avatar-unity-tracker	a sample OpenXR tracker for ARF avatar animation in Unity; no code yet	Animation	 none yet
rt-avatar-bar	stores base avatar models as ARF containers, scoped to a call; client fetch pending	Base Avatar Repository	 none yet
rt-3gpp-swap	the 3GPP SWAP server and Node.js library (TS 26.113)	SWAP signalling	 v0.9 16 Oct 2026

FIND OUT MORE

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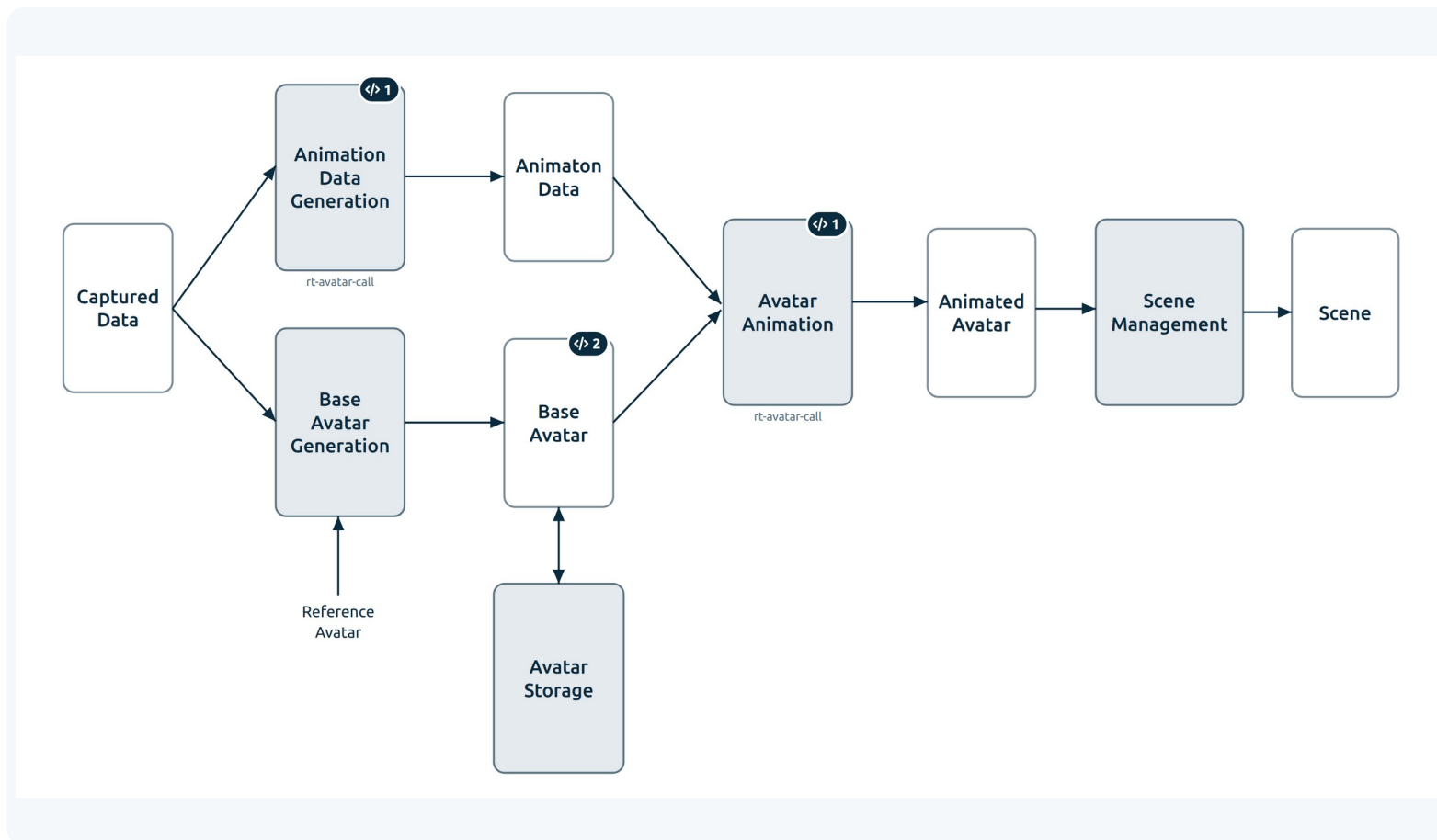
 released

 no release yet

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Repositories in the architecture

The Reference Tools on the specification figure, as the figure generator draws them



PROVIDED BY THE REFERENCE TOOLS

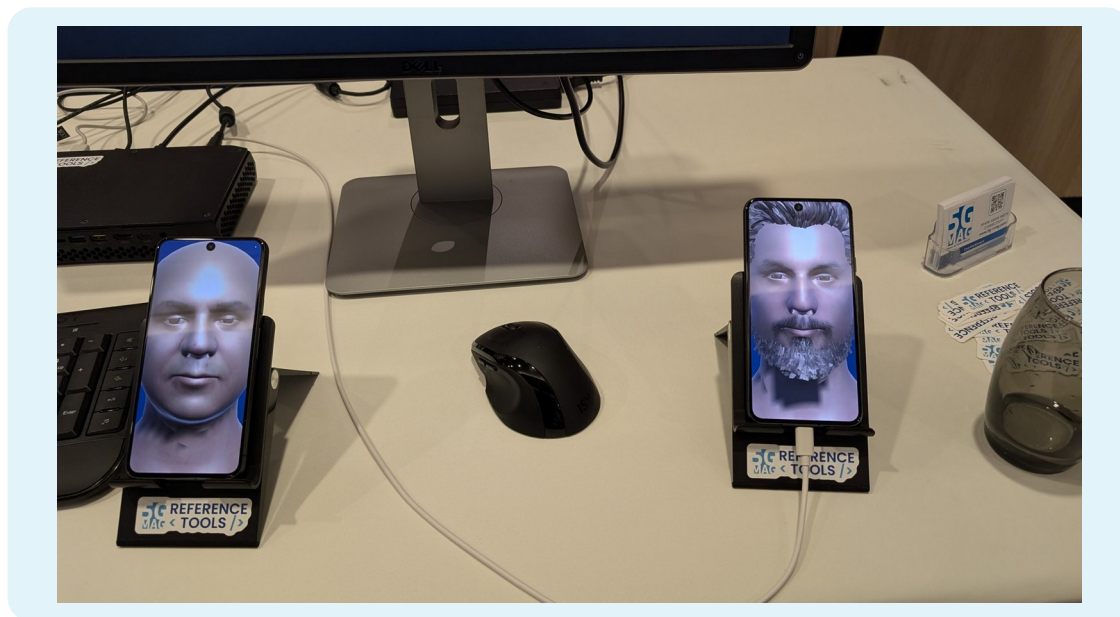
- 1 **rt-avatar-call**
- 2 **rt-avatar-content**
- 3 **MediaPipe**
dependency, used by 1
- 4 **UnityARF**
dependency, used by 1

Boxes without a badge are not mapped to a repository.

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See it and try it

Photos of the project's demo, an avatar call on two phones



MPEG meeting, Geneva, 14 July 2026



IBC 2026, 13 September 2026

CONTRIBUTORS

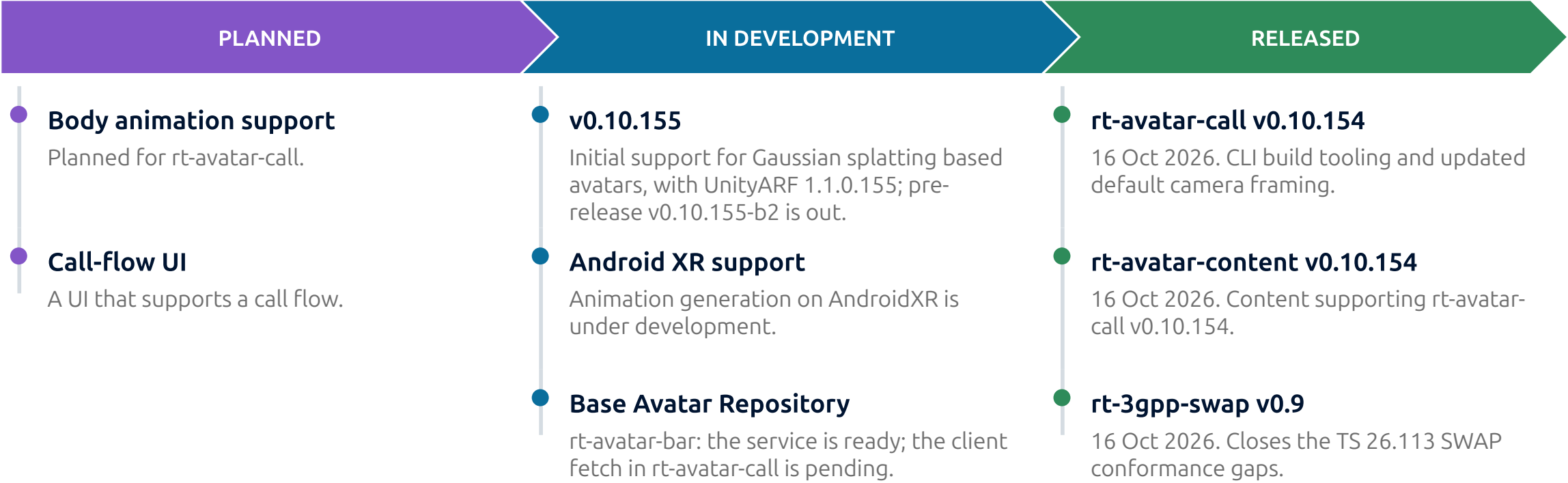


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Latest updates and roadmap

Status on 19 October 2026



MERGED SINCE V0.9.1 5 pull requests in 3 repositories



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