



Open-Source Developer Community

Transforming Specifications into Products



Open-source Toolbox for
Connected Media Applications



Standards validation & verification,
early demonstrations and testing



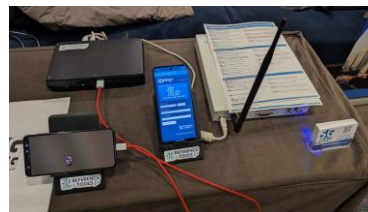
Ready-to-use code in production
environments and as benchmark



Shared development effort avoids
duplication across companies



Transparency, trust and
collaborative enhancements



Software Developer Community

Sponsored by 5G-MAG Members

Define the **roadmap** and **prioritization** of 5G-MAG's resources

Open to the Industry, Academia, Independent Developers,...

To **collaborate** and **contribute** your code

OFFICIAL CONTRIBUTORS WITH A SIGNED CLA



OPERATING EUROVISION AND EURORADIO



UNIVERSITAT
POLITÀCNICA
DE VALÈNCIA



Join the Software Developer Community



GITHUB

5g-mag.github.io/Getting-Started/

Getting Started guides with documentation, access to repos, projects, releases, tutorials,...



GITHUB

<https://github.com/5G-MAG>

Software Development is handled in GitHub. Find there all the repositories



5G-MAG Dev Community

Join us in Slack for communication between developers

tinyurl.com/join5gmagslack



Groups

Mailing List with Releases & News

Announcements and publication of new projects, software releases and documentation

tinyurl.com/join5gmagggroup



Join the Developer Calls

WG DEV: Every Friday for 5G-MAG members

Public Friday Calls

Last Friday of the month from 13:00 to 14:30 CET for everybody

5g-mag.com/community#calendar



Standards and Software – The Projects

5G Media Streaming Architecture



UE Data Collection, Reporting & Event Exposure



5G Broadcast: TV, Radio and Emergency Alerts



5G Multicast Broadcast Services



Real-Time Media Communication



Network Capability Exposure through APIs



Non-Terrestrial Networks



Non-Public Networks



Time Sensitive Communication



XR Media with MPEG-I Scene Description



Volumetric Video Experiences with MPEG V3C



Beyond 2D Video Experiences



AI/ML in Mobile Media Services



Multimedia Content Delivery Protocols



DVB-I Services over 5G Systems



Towards 6G Media



WHERE TO LOOK AT?

Check the [Execution Plans](#)
All the [Technical Resources](#)
Information on [Standards](#)
[Reference Tools](#)



5G-MAG Reference Tools – Roadmaps

5G-MAG Reference Tools - Roadmaps

All 5G Media Streaming 5GC Components UE Data Collection 5G Broadcast Emergency Alerts 5G Multicast Broadcast Service Multimedia Content Delivery XR Media with MPEG-V3C Immersive Platform

label: "Project: 5G Media Streaming"

Candidates 1	Under Study 1	Under Development 4	Completed 0	Completed + Tested 6
<p>This is a candidate for future work.</p> <p>Getting-Started #126 Advanced Media Delivery (AMD) - In-band reporting of CMCD information</p>	<p>This is under study.</p> <p>Getting-Started #137 Cloud Deployment support</p>	<p>This is actively being worked on.</p> <p>Getting-Started #132 Dynamic Policies (M1 Policy Templates API + M5 Dynamic Policies API)</p>	<p>This has been completed.</p>	<p>Getting-Started #134 Consumption collection and reporting</p> <p>Getting-Started #130 Implementation of M1d Provisioning APIs</p> <p>Getting-Started #133 QoE metrics collection and reporting</p> <p>Getting-Started #129 Implementation of AF to AS RESTful OpenAPI (M3)</p> <p>Getting-Started #128 Support for basic media session handling (Application Function + Media Session Handler)</p> <p>Getting-Started #127 Support for basic media stream handling (Application Server + Media Stream Handler)</p>
+ Add item	+ Add item	+ Add item	+ Add item	+ Add item

All the contributions, on-going developments and opportunities for contributors

<https://github.com/orgs/5G-MAG/projects/48>

The screenshot displays the 5G-MAG Standards Feedback tool, which is a web-based interface for tracking and managing standards. The tool is organized into a grid of 12 panels, each representing a different stage in the standardization process. The stages are: Pre-Acceptance, Adopted, Change contribution drafting, Contributed to Working Group, Agreed/endorsed by Working Group, Approved for publication by Tech, Published, and Not adopted. Each panel contains a list of standards, with each entry showing the standard number, title, a link to the discussion, and a status indicator (e.g., 'Adopted', 'Discontinued', 'Change'). The standards listed include various 5G-related topics such as QoS, network architecture, and security.

Discussions: github.com/5G-MAG/Standards/discussions



Software Contributors and License Model

The 5G-MAG Reference Tools software makes use of **various licenses** to distribute and accept contributions from the community, including the:

5G-MAG Public License v1.0

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The **5G-MAG Public License v1.0** is a modified version of the Apache 2.0 license which includes a **patent clause** to allow contributors to make patent license available to third parties under **FRAND** (fair, reasonable and non-discriminatory) terms for **commercial** exploitation. The code remains free for non-commercial, study, testing and research purposes.

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Individuals and/or **companies** with a signed **Contributor License Agreement (CLA)** can contribute code. Reach out to us in case of doubts and any clarification.

Tutorials and Developer Xchange

Multimedia Content Delivery Protocols

GPAC Flute interop with 5G-MAG Reference Tools

Sohaib Larbi
Motion Spell

Tutorial

BBC Dolby Fraunhofer FOKUS Qualcomm

5G Media Streaming Architecture

5G Media Streaming in the BBC standalone testbed

Richard Bradbury, David Waring,
Dev Audsin and John Elliott
BBC R&D

Tutorial

BBC Dolby Fraunhofer FOKUS Qualcomm

5G Broadcast TV and Radio Hybrid Services

Unicast/Broadcast Seamless Switching

Klaus Kühnhammer
ITEAM-UPV

Daniel Silhavy
Fraunhofer FOKUS

Tutorial

Bitstream Fraunhofer FOKUS ORS Qualcomm

XR Media with MPEG-I Scene Description

XR Unity Player in 5G-MAG Reference Tools

Imed Bouazizi
Qualcomm

Tutorial

Qualcomm Interdigital

5G Media Streaming Architecture

5GMS with Application Provider Portal

Vuk Stojkovic
Fraunhofer FOKUS

Tutorial

BBC Dolby Fraunhofer FOKUS Qualcomm



UE Data Collection, Reporting & Event Exposure

Docker Setup with Insomnia REST Client

Daniel Silhavy
Fraunhofer FOKUS

Tutorial

BBC Fraunhofer FOKUS

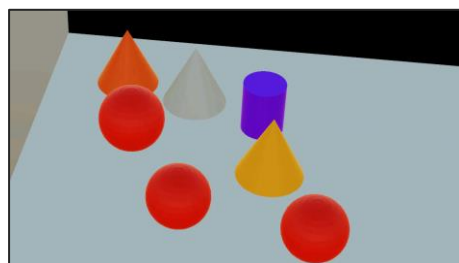
5G Multicast Broadcast Services

Initial support of 5MBS core network functions

Borja Inesta Hernández
ITEAM - UPV

Tutorial

BBC UNIVERSITAT DE VALÈNCIA



V3C Immersive Platform

Unity Player for Android with DASH Streaming Server

Tutorial

Interdigital PHILIPS



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