

EVIDEN

Lifelink MCx SDK

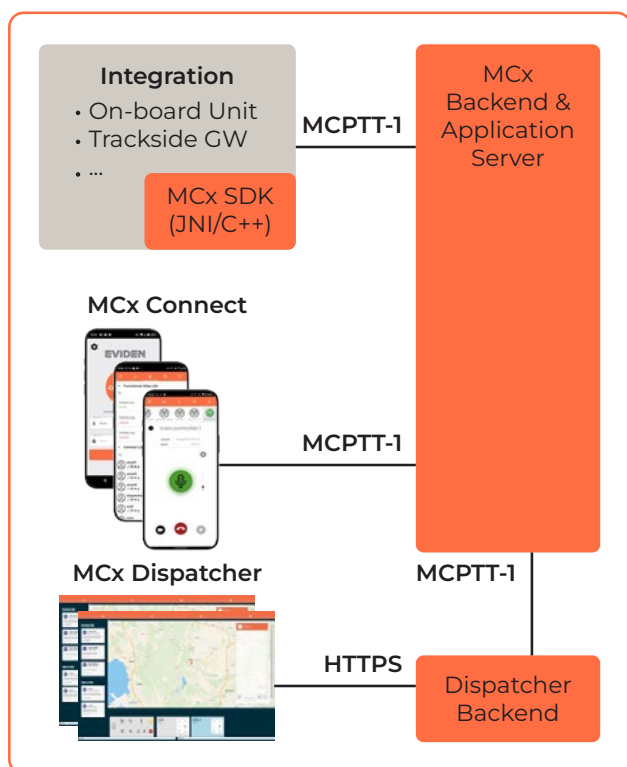
Integrate MCx communication into customer equipment

The MCx SDK allows customers to integrate MCx communication capabilities into their equipment. As an example, On-Board Units or Track-side Gateways in the Railway industry will be able to interwork with other FRMCS / MCx capable devices or applications.

The SDK can also run on small-factor Raspberry-Pi based equipment integrating e.g. camera servers into MCx realm.

The MCx SDK abstracts the complexity of the MCx protocol details by encapsulating functionality that is required for underlying connection establishment, session control, messaging sequences and especially the pure content of the packets interchanged between client and MCx application server.

Typical use case scenarios can be found in industries like Transportation, Public Safety, Ports and Utilities and commercial or sports events.



Customer Value

- Customer applications with integrated MCx SDK "act" as MCx Client
- Fast integration thanks to provided sample application including an example project
- Supports MCPTT, MCData (including IPConn), MCVideo
- Compliant with 3GPP Rel. 18 and FRMCS v2.1
- Active development towards 3GPP Rel. 19, FRMCS v2.2 and FRMCS v3
- Interoperability yearly plug tested for 3GPP / FRMCS
- SDK providing JNI / C++ interfaces
- Operating Systems and hardware platforms: Linux, Android, iOS, x86 and armv8a

Lifelink MCx Connect Framework

Eviden provides Mission Critical Services supporting our customers in the transition from Narrowband to Broadband technology for Use Cases in industries like transportation, public safety, ports and utilities. Our comprehensive MCx framework supports MCPTT, MCDATA and MCVideo according to 3GPP and FRMCS standards.

The MCx solution scales well from small deployments like Eviden's NiB up to regional / national deployments.

Eviden's MCx solution portfolio consists of:

- MCx Connect - Mobile application client supporting MCPTT, MCDATA, MCVideo
- MCx Dispatcher - to coordinate field-based operations on-site and from control rooms
- MCx IWF (Interworking Function) - providing interoperability between MCx and legacy technologies, supporting a smooth transition from traditional narrowband PPDR voice-centric Use Cases to broadband including voice, data, and video.
- MCx Recorder - recorder and playback solution
- MCx CMS - Centralised management for provisioning, management & monitoring
- MCx SDK - integrate the MCx Client into Customer equipment
- MCx Server - On-Prem installations or MCx-as-a-service in the Eviden / Private cloud

MCx Client (Mobile App)

- Android, iOS
- Mobile / Tablet



MCx Dispatcher (Web App')

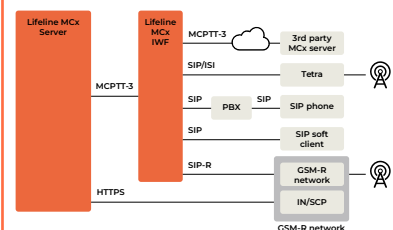
- Command & Control
- MCx Client Features



MCx IWF

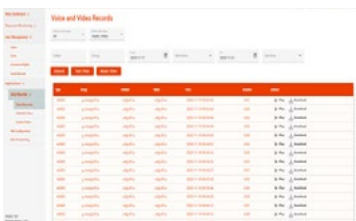
(Backend Component)

- MCx ↔ SIP PABx
- MCx ↔ SIP-R (GSM-R)
- MCx ↔ Other (on-demand)



MCx Recorder (Web App')

- Record/Play, search
- Voice, Video, Data



MCx CMS (Web App')

- MCx provisioning
- Management, Monitoring



Integration

- Railway Onboard Unit
- Trackside GW

MCx SDK
(JNI / C++)

MCx Server

- MCx Backend
- MCx Application Server



How to use the MCx SDK

As described in the MCx high-level architecture 3GPP TS, the usual sequence of functions are to be called by the Customer application, integrating the MCx SDK:

- MCx Client configuration to connect to proper MCx Application Server (MCx AS)
- Registration procedure (based on OpenID Connect specification)
- MCx Client collects server data (group and profile configuration information)
- Publishing POC, presence and affiliation
- MCx Client is then ready to perform / receive calls and messages

The MCx SDK provides JNI call-backs to Customer functions.

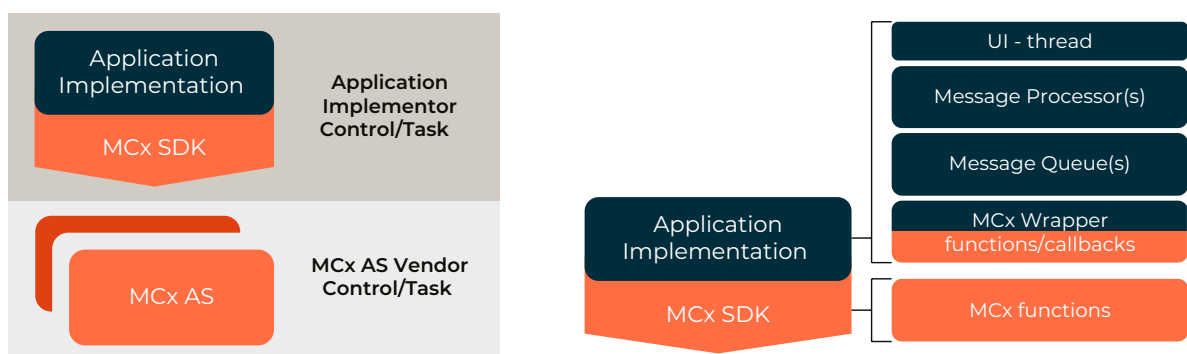


Figure 3: MCx SDK High-level Architecture

Prerequisites

SDK is provided as:

- Linux .so library (e.g. Rocky, RHEL, Ubuntu) x86 / armv8a (kernel >= 5.14)
- Android .so library for (kernel >= 6.6) platform
- iOS: 64 Bit ARM static library .a
- Option to be used as dynamically or statically linked library.



Supported Features

Feature	
Application Configuration	
Support configuration	✓
Client configuration	✓
User configuration	✓
Functions	
Configuration setting	✓
Login procedure	✓
User-profile fetching	✓
MCPTT Voice Push-To-Talk	✓
MCDATA Short Data Service (SDS), Individual Chat / Group Chat, File and Image Transfer	✓
MCDATA IPCon	✓
MCVideo	✓
Functional Alias	✓
Error handling	✓
Subscribe/publish concepts (i.e. publish presence) incl. affiliation	✓
Calls	
Private calls	✓
Chat group calls	✓
Prearranged group calls	✓
Ad-hoc group calls	✓
Call backs	✓
Video / data aspects	✓

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