

Technology Briefs and Whitepapers

In addition to [published specifications and code](#), and [reference architecture information](#), GENIVI presents a family of technology and security-related technology briefs and whitepapers.

These documents have also been published on the [GENIVI home page](#).

Vehicle Domain Interaction Category

Graphic Sharing & Distributed HMI

★ Sharing a physical display across multiple operating systems

- This brief describes the Display Sharing which provides support in hardware for compositing the display output from multiple operating systems into a single final display buffer. Using this, a combined HMI can be created from independently operating systems without any additional interaction
- [GENIVI_Renesas_DisplaySharing_TechBrief_1Mar2019.pdf](#)

Published with support from **Renesas**

★ Digital Cockpit HMI Distribution Using Shared State, Independent Rendering

- This brief introduction introduces the 5 identified [categories](#) of Graphics Sharing and describes a concrete application of the **Shared State / Independent Rendering** approach for Navigation map interaction between an IVI unit display and an instrument cluster display.
- [GENIVI_HARMAN Shared State Rendering_TechBrief_20180414.pdf](#)

Published with support from **Harman**

★ Interactive Cockpit HMI using Surface Sharing

- This brief describes the **Surface Sharing** category of graphics exchange, exemplified by the Wayland+Waltham projects.
- [GENIVI_ADIT_SurfaceSharing_TechBrief_20180711.pdf](#)

Published with support from **ADIT**

★ Distributed Graphics Control Through API Remoting

- This brief describes the API Remoting category of graphics exchange, exemplified by the [RAMSES](#) project.
- [GENIVI Distributed HMI through API Remoting 20181128.pdf](#)

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Generic Communication Protocols Evaluation

★ Franca / ARA::COM Interoperability

- This brief describes an approach and technologies essential to building a demonstrator for the interoperability of GENIVI IVI (and Linux) based IVI systems and Adaptive AUTOSAR systems.
- [GENIVI Franca-ARA-COM-tech-brief-20181219.pdf](#)

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Security Category

★ Certificate Pinning Technology Brief

- This one-pager gives an advanced reader an immediate understanding of the basics of Certificate Pinning, for avoidance of Man-in-the-middle attacks against SSL/TLS secured communications.
- [GENIVI Certificate Pinning Tech Brief 20180216.pdf](#)

Audience: Busy professionals, software engineers, as well as managers that need a quick awareness boost about risks and mitigations around encrypted communication channels.

Published with support from **Irdeto**.

★ **Man-in-the-middle Whitepaper**

- This detailed document provides an in-depth analysis of Man-in-the-middle attacks against secured communications, and mitigations, including the concepts mentioned in the Certificate Pinning Technology Brief.
- [GENIVI Man in The Middle Attacks whitepaper Feb 20 Final.pdf](#)

Audience: Security professionals, system architects and implementers that need a deeper understanding of pitfalls and risks in implementing SSL/TLS, categories of attacks, and the type of mitigation that is effective against each.

Published with support from **Irdeto**.