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TDM, a modern display manager based on web technologies

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This paper presents TDM, a cross-platform display manager built with modern web technologies. TDM leverages the Electron.js framework to integrate Node.js for backend services and React.js for the frontend interface. To enable communication with EPICS IOCs, a dedicated EPICS CA/PVA client library, epics-tca, was developed. TDM follows a client-server architecture: the server handles IOC communications, as well as the management of channels, windows, and script threads, while the client renders the graphical user interface (GUI) windows and manages widgets. Each GUI window runs in a separate thread, allowing TDM to fully utilize multicore CPU resources for responsive performance. TDM includes an EDM compatibility layer, enabling direct loading of existing EDM files, and offering a conversion tool for migrating EDM files to the TDM format. Additionally, TDM provides a built-in web server that allows users to open and edit display files through a web browser with an experience nearly identical to the desktop version. Performance tests demonstrate that TDM can efficiently open and edit complex display files while maintaining moderate resource usage.

Footnotes

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