V128c ALMAWebQL v3: a technology preview

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The poster gives a progress update about the upcoming version 3 of the interactive ALMA WebQL web service in operation at the Japanese Virtual Observatory. As the size of the publicly released ALMA datasets keeps growing it has become necessary to update the ALMA web service yet again in order to deal with recent increases in data volumes. Whilst version 2 — introduced in 2016 — made it possible to preview smoothly in a web browser 25 GB-large FITS files, version 3 lays foundations towards supporting an interactive preview of terabyte-class FITS files. In addition to handling larger files, ALMAWebQL3 also improves support for real-time spectrum updates. By default this option has been kept in an "OFF" state in the present ALMAWebQL v2 due to the difficulty handling large network latencies abroad. The newer version 3 tackles the latency problem in two ways. First, it introduces an *adaptive frame rate* control: monitoring the network latency and local web browser responsiveness, and reducing the FPS as and when necessary. Secondly, end user's mouse movements are tracked in real time with the Kalman Filter, which is then used to predict the future target mouse position after taking into account network latency and computation time. By predicting mouse movements with the Kalman Filter, the two data streams (FITS spectrum updates over the network and local FITS image zooming in a browser) are close to being kept synchronised. Another innovation is the replacement of the lossless but inefficient PNG image format with a highly efficient but lossy HEVC-based BPG (Better Portable Graphics).