AP Suite Extension Infrastructure

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Analysis techniques for atom probe tomography data are rapidly evolving, and innovative techniques have not always been immediately available in established analysis software platforms. There is a growing need for a platform to easily develop and share software to reduce duplication in efforts across multiple community tools [1-4].

CAMECA's upcoming AP Suite™ 6.3 software includes new updates to the extension system to support developing, distributing, and running custom analyses. The extension ecosystem enables production of novel analyses to support the unique requirements of an organization. These extensions can be easily distributed throughout the organization or shared among the wider community.

CAMECA® has developed a set of tools, documentation, and examples to support extension development. Public code libraries enable developing extensions without requiring an installed instance of AP Suite.
Available data and functionality include access to reconstructed position, mass, and ion type information. Additional data can be written to and read from the *.APT data file [5].

Custom user interfaces for an analysis can be designed, and several native data visualization elements are supported to provide seamless visual integration with AP Suite, including multidimensional charts, histograms, and tables. If a native chart is not available, knowledge of Windows Presentation Foundation development can aid in creating new forms of display.

A quick start document guides the process of creating a new extension utilizing a publicly available template. By utilizing these tools, developers can focus entirely on implementation of their analysis. Updated documentation, guides, and examples are available on GitHub [6].

Users manage extensions directly from AP Suite; no additional tools are required. CAMECA publishes several specialized analyses that can be installed. Additional public sources can be added to easily share community or organizational extensions. Extension files can also be distributed and directly installed without public internet access.
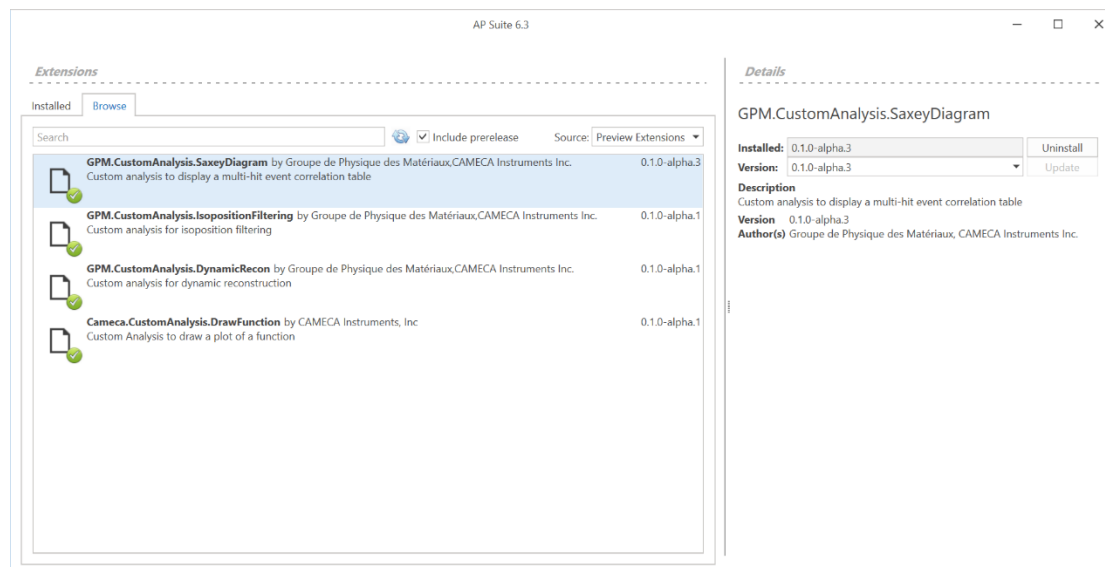
Figure 1. A screenshot of AP Suite 6.3 Extension Manager for installing new extensions

References:

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[6] Cameca Instruments, Inc. – Atom Probe Tomography, https://github.com/CamecaAPT (accessed Feb. 14, 2022)