The QisMLib System

(as of 2017-05-26)

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The QisMLib System

The QisMLib system is an extensible collection of Object-oriented C++ APIs to work with GDSII and OASIS* data and make the best use of parallel processing (threads) wherever possible. It is the next step in evolution of Artwork's proven and extensively used QisLib Library with modern software techniques such as multi-threading, object-oriented design and plug-in architecture. QisMLib is actively supported on 64-bit Windows and Linux platforms. Some of the key components/APIs are :-

QisMLib API serves as the gateway to the QisMLib system. It facilitates loading of a GDSII/OASIS* or DbLoad file and provides access to various extension APIs

QisMFile is the API to work with a file loaded into the QisMLib database. It provides functions to get information about the file such as cells, layers etc. and facilitates the creation of one or more independent window query objects (exploders) to collect get vector data crossing a window of interest

QisMExploder is the API to invoke a window query to collect vector data for a given view (window, cell, layers , nesting level and various other settings), each in it's own thread

QisMDraw is the API to draw a given view directly to a client screen or render the view to a GIF/BITMAP/XPM image or collect vector data specialized for drawing based on various settings such as window, cell, layers, nesting level, colors, display filters etc.

QisMBool is the API to perform multi-threaded boolean operations such as UNION, INTERSECTION, XOR, DIFFERENCE on polygons as well as other operations such as sizing, clipping etc. on very large sets of polygons

QisMLayerSynth is an extended API that allows the synthesis of new polygons by performing multi-threaded boolean operations UNION, INTERSECTION, XOR, DIFFERENCE, AGGREGATION as well as clipping on polygons belonging to one or more layers

QisMClipExtract is an extended API that allows multi-threaded extraction of thousands of tiny clips of data for a given set of layers in form of GDSII/OASIS files (polygons) or TIFF/BMP/RAW files (raster images) or in-memory polygon or image buffers

QisMNtrc is an extended API that allows multi-threaded tracing of nets (connected METAL and VIA sets) based on a pre-defined stackup

QisMRaster is an extended API that allows multi-threaded high-resolution rasterization of very large polygon sets

The QisMLib system can be extended with new APIs (via the QisMLib extension system) as needed

** OASIS not optimized for multi-threading*

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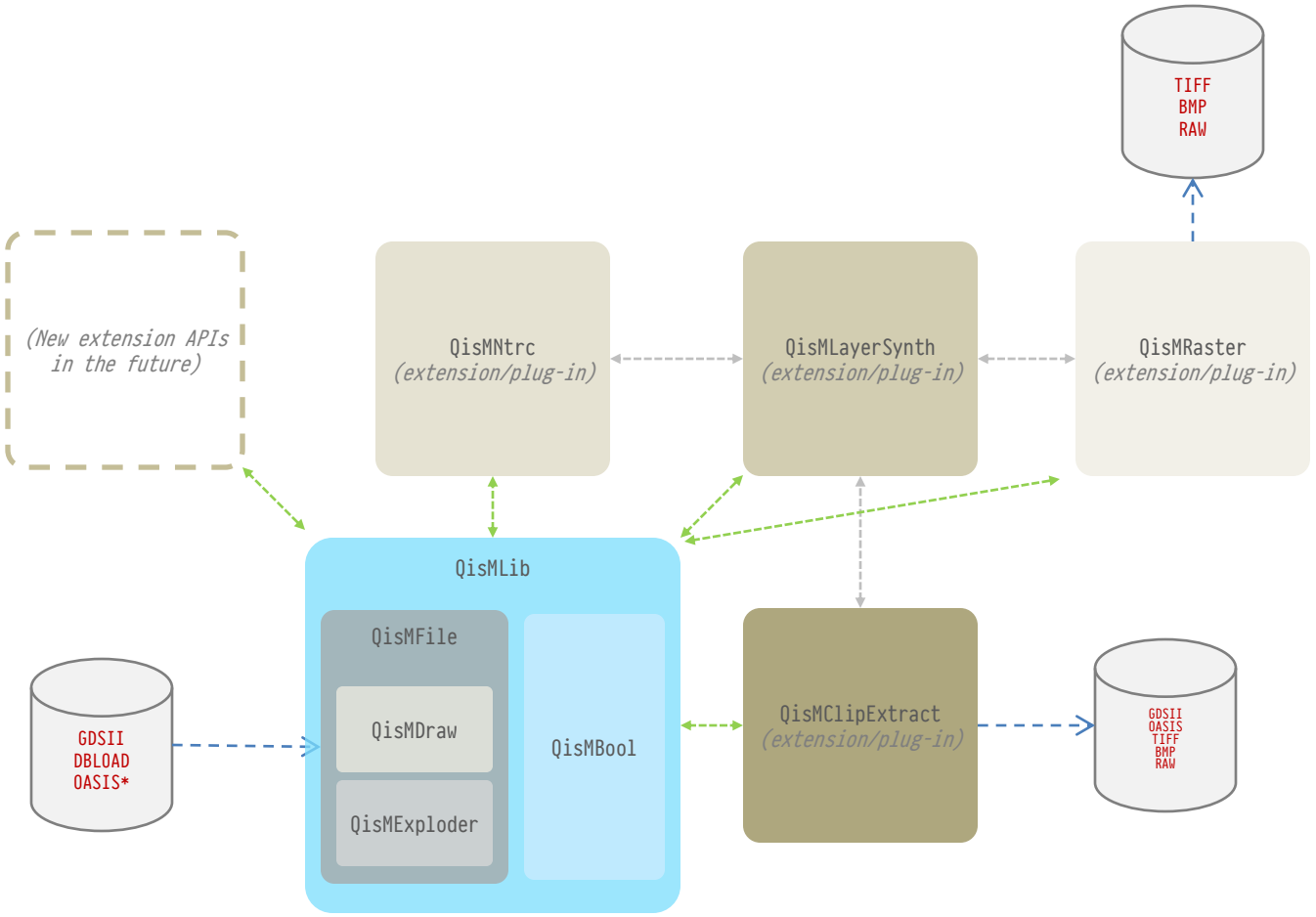
The QisMLib System



* OASIS not optimized for multi-threading

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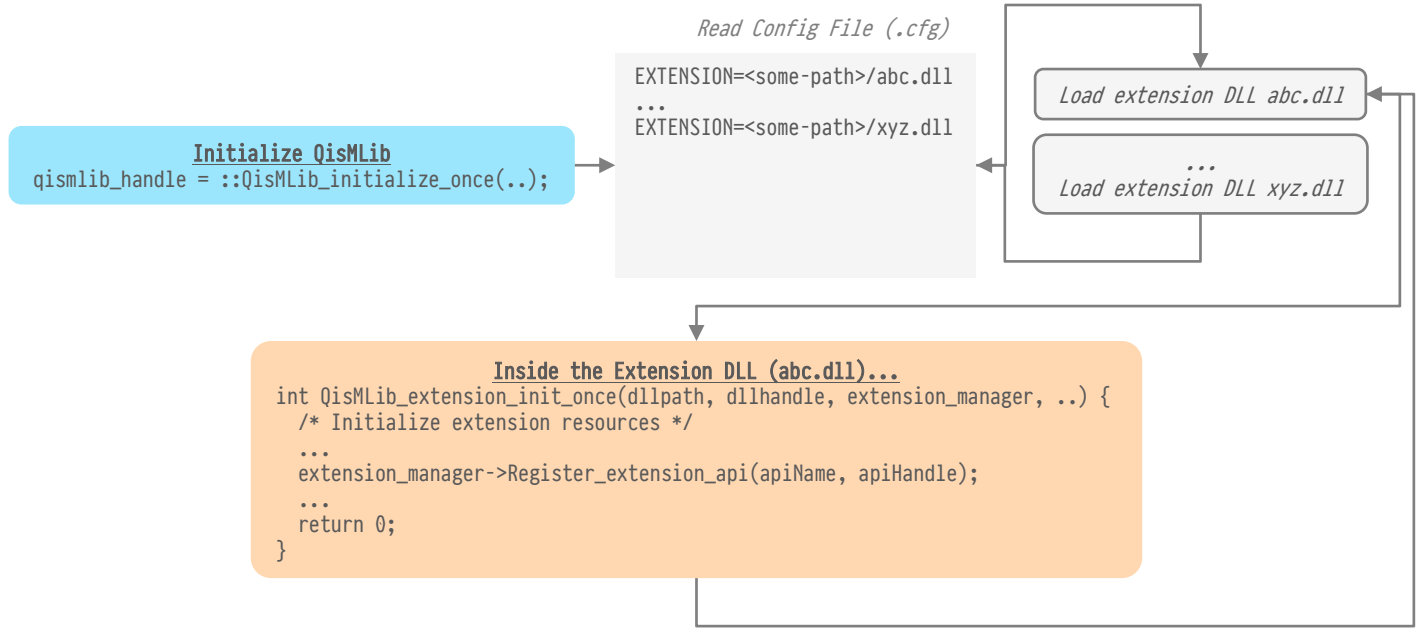
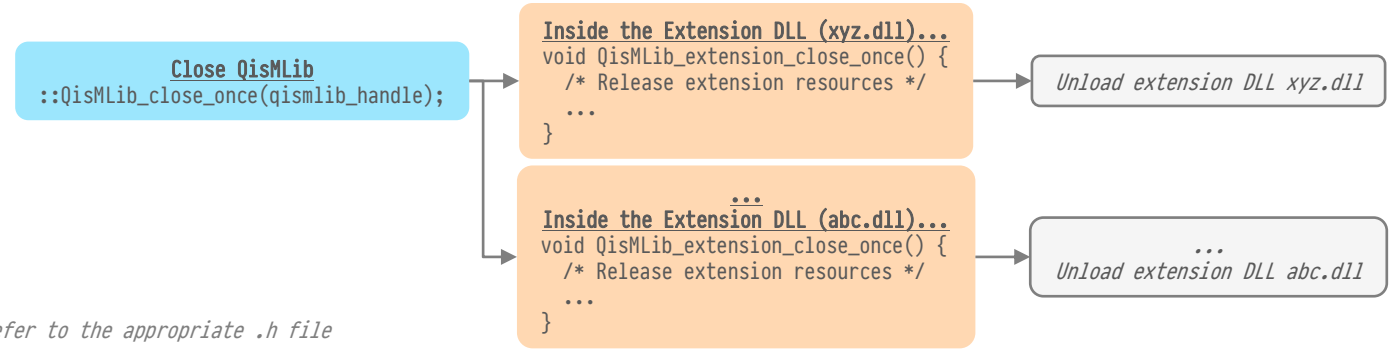
The QisMLib Extension (plug-in) System

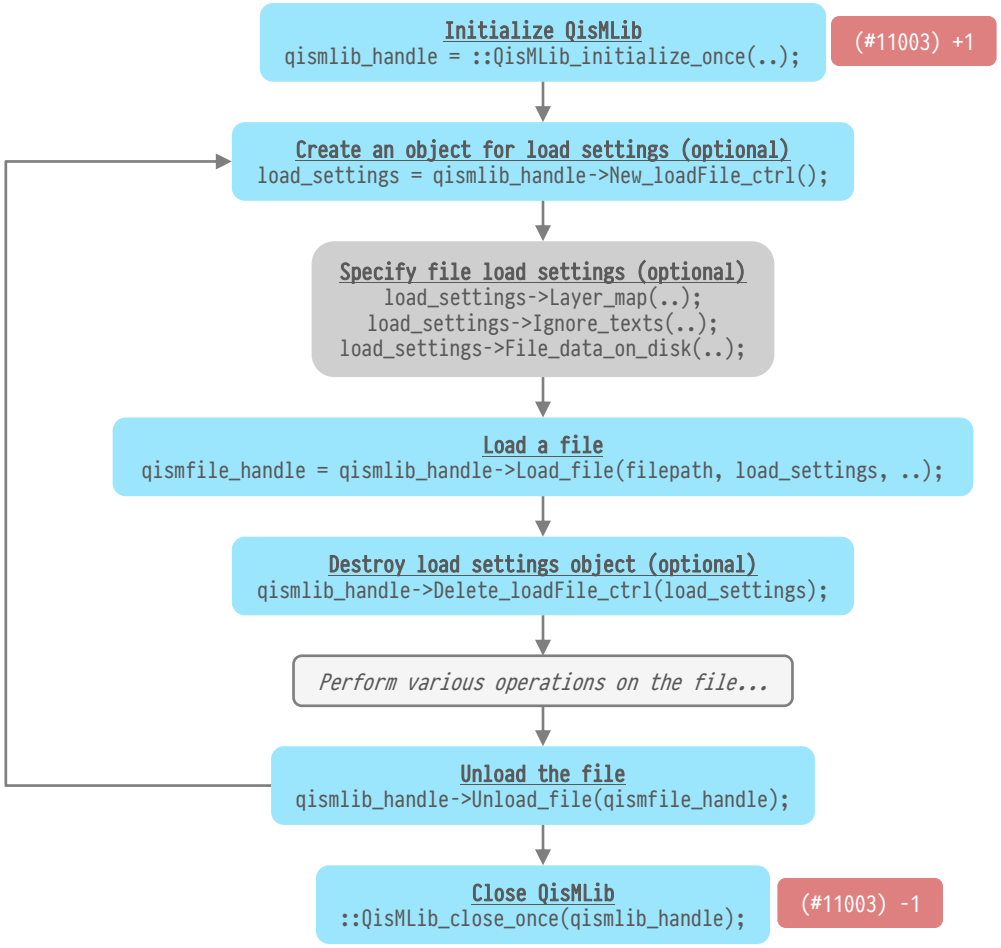




For API details, refer to the appropriate .h file

qismlib.h qismextension.h

QisMLib API how to..
load a file..



For API details, refer to the appropriate .h file

qismlib.h | qismfile.h | Requires license (product-number) +/-(count)

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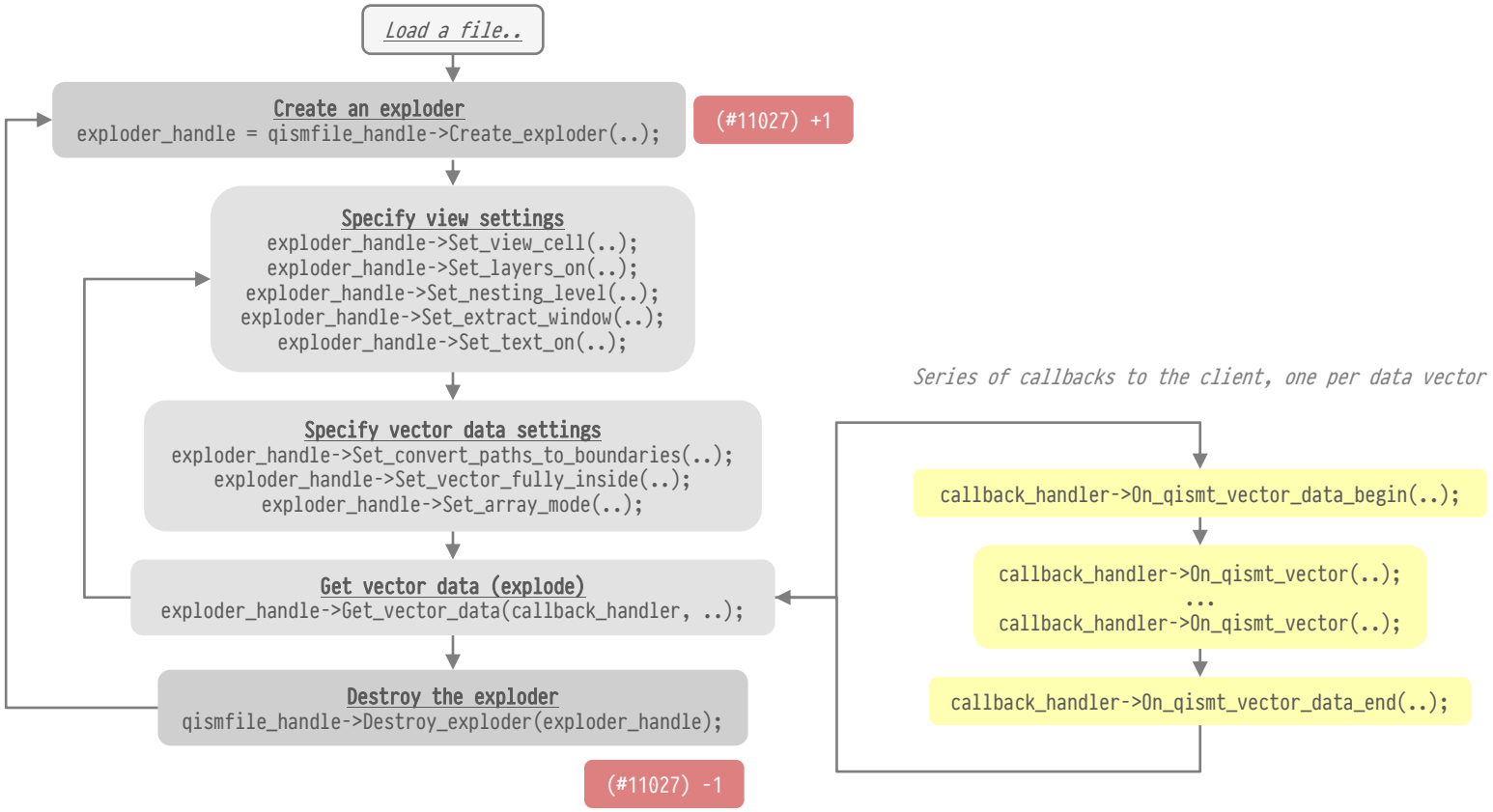
QisMLib API how to..
collect vector data..



For API details, refer to the appropriate .h file

qismfile.h | qismexploder.h | qismbase.h | Requires license (product-number) +/-(count)

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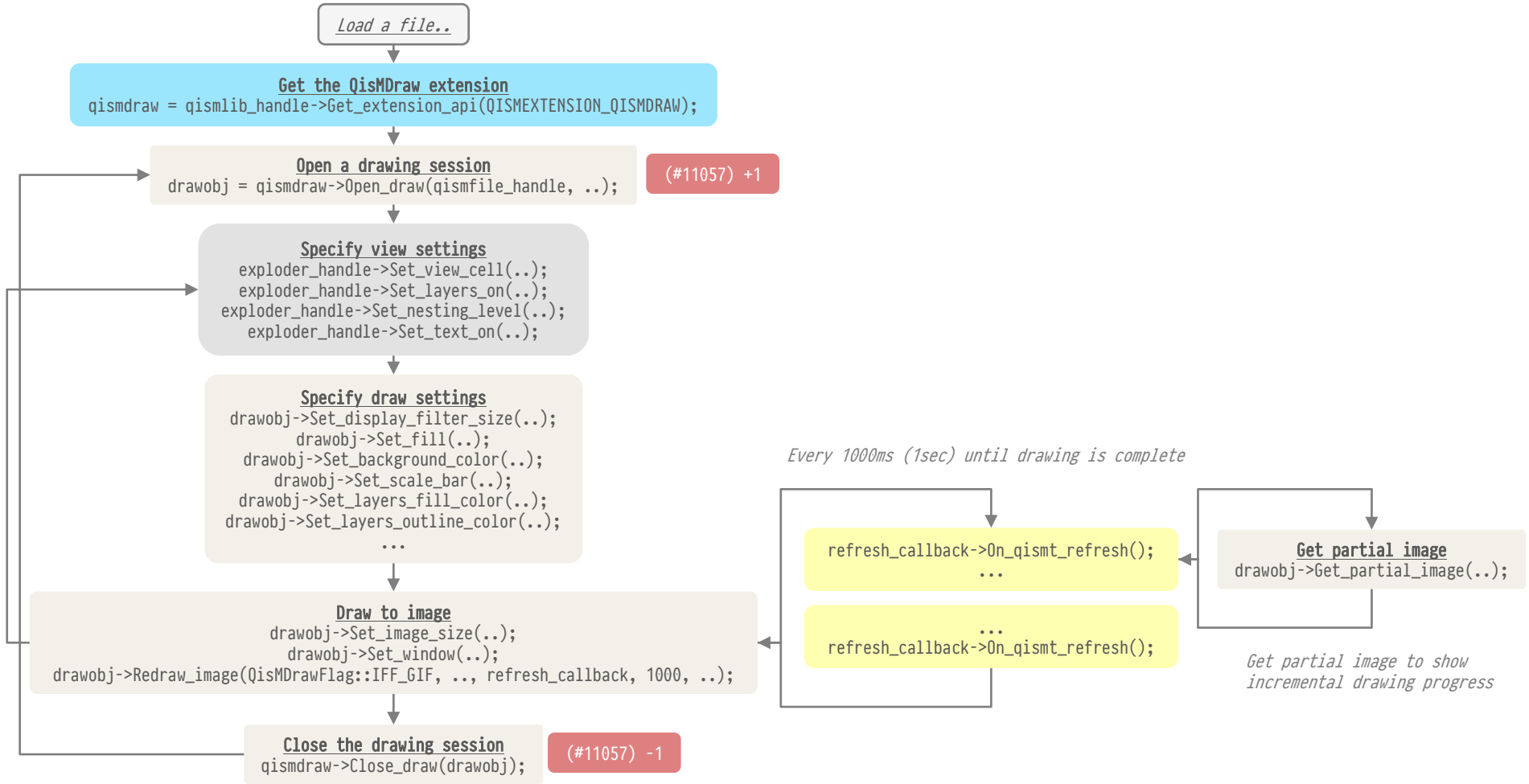
QisMLib API how to..
render a view to a GIF image..



For API details, refer to the appropriate .h file

qismview.h | qismlib.h | qismdraw.h | qismbase.h | Requires license (product-number) +/-(count)

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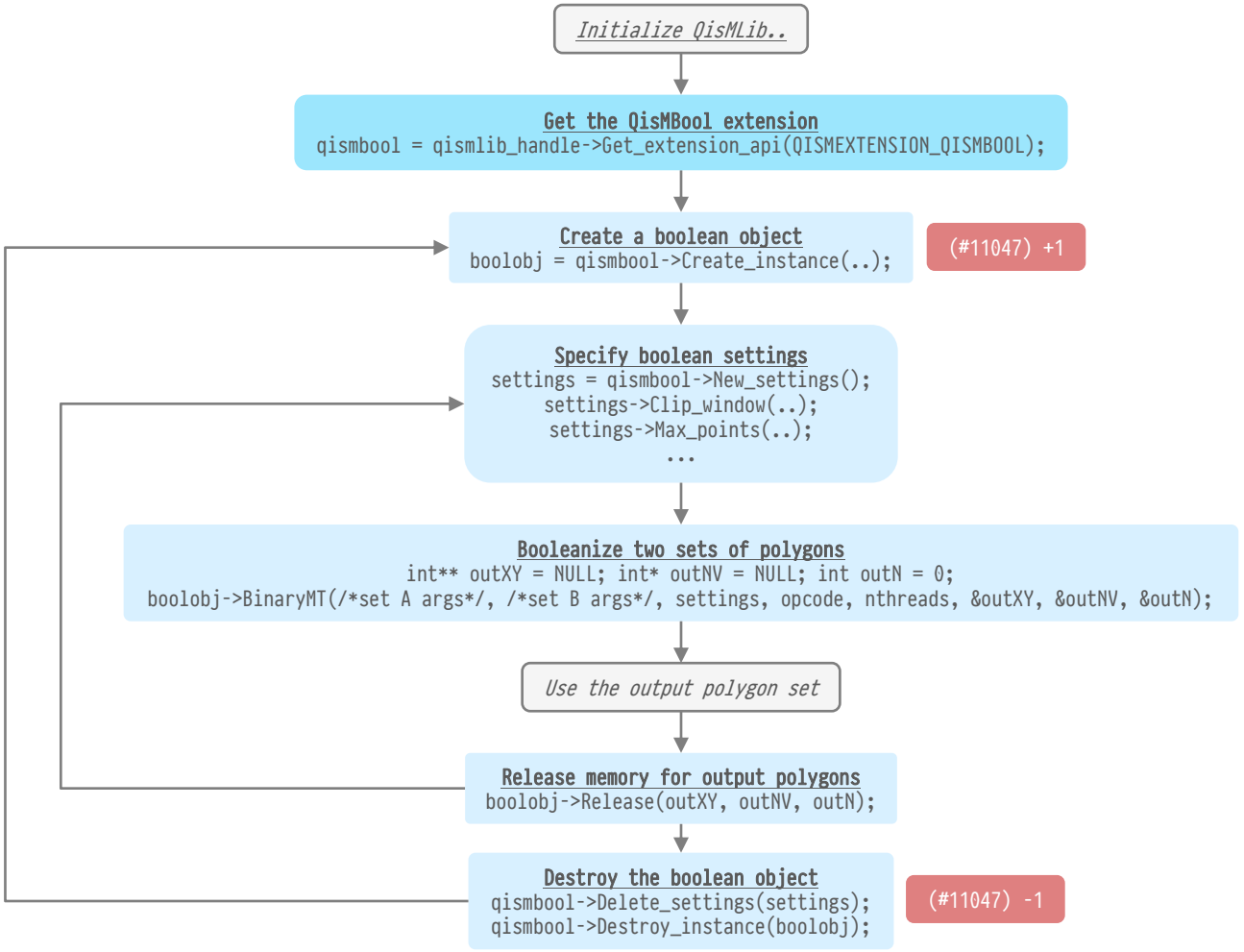
QisMLib API how to..
perform boolean operations on two polygon sets..



For API details, refer to the appropriate .h file

qismbool.h | qismlib.h | Requires license (product-number) +/-(count)

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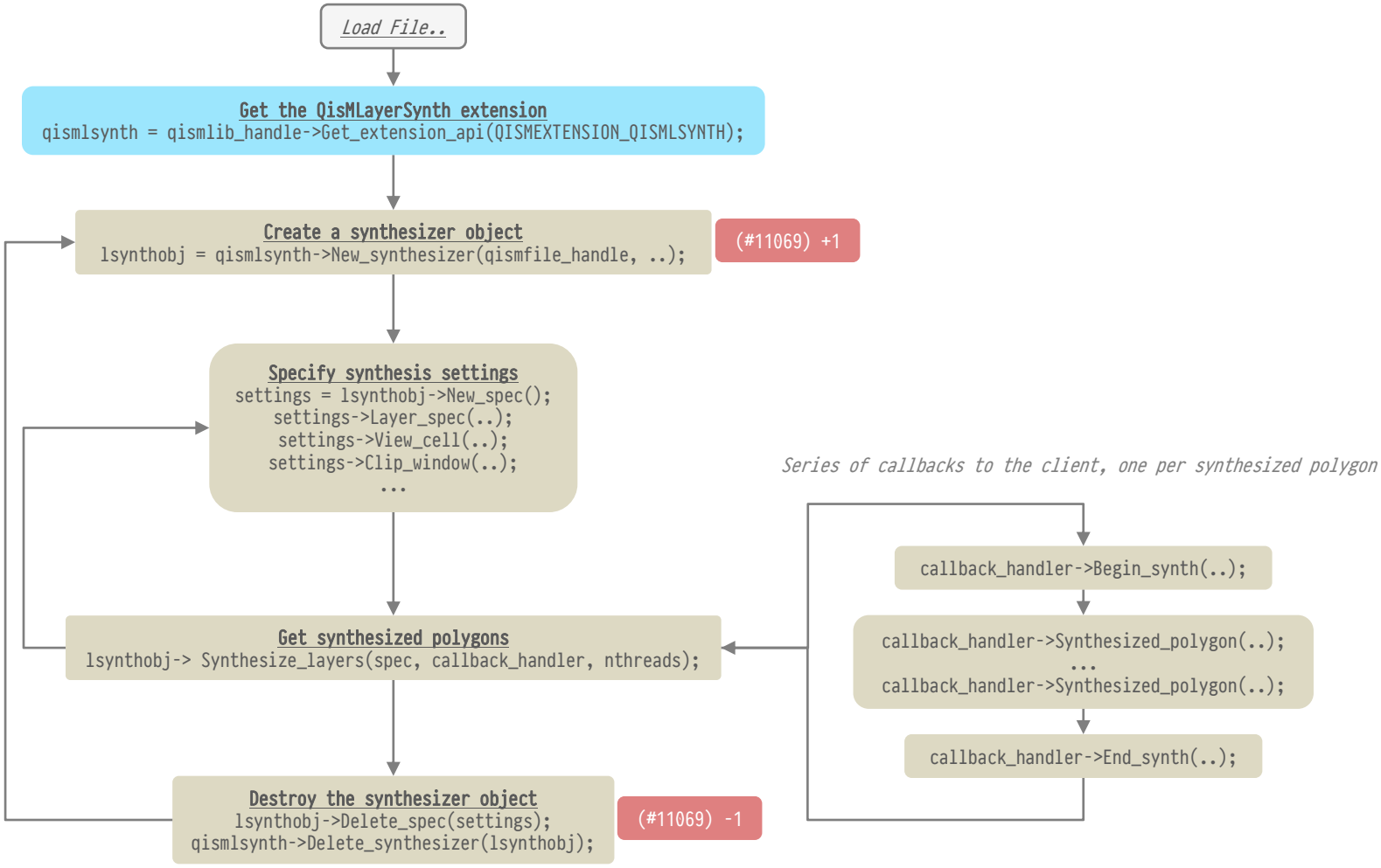
QisMLib API how to..
perform boolean operations between layers (layer synthesis)..



For API details, refer to the appropriate .h file

qismlayersynth.h | qismlib.h | Requires license (product-number) +/-(count)

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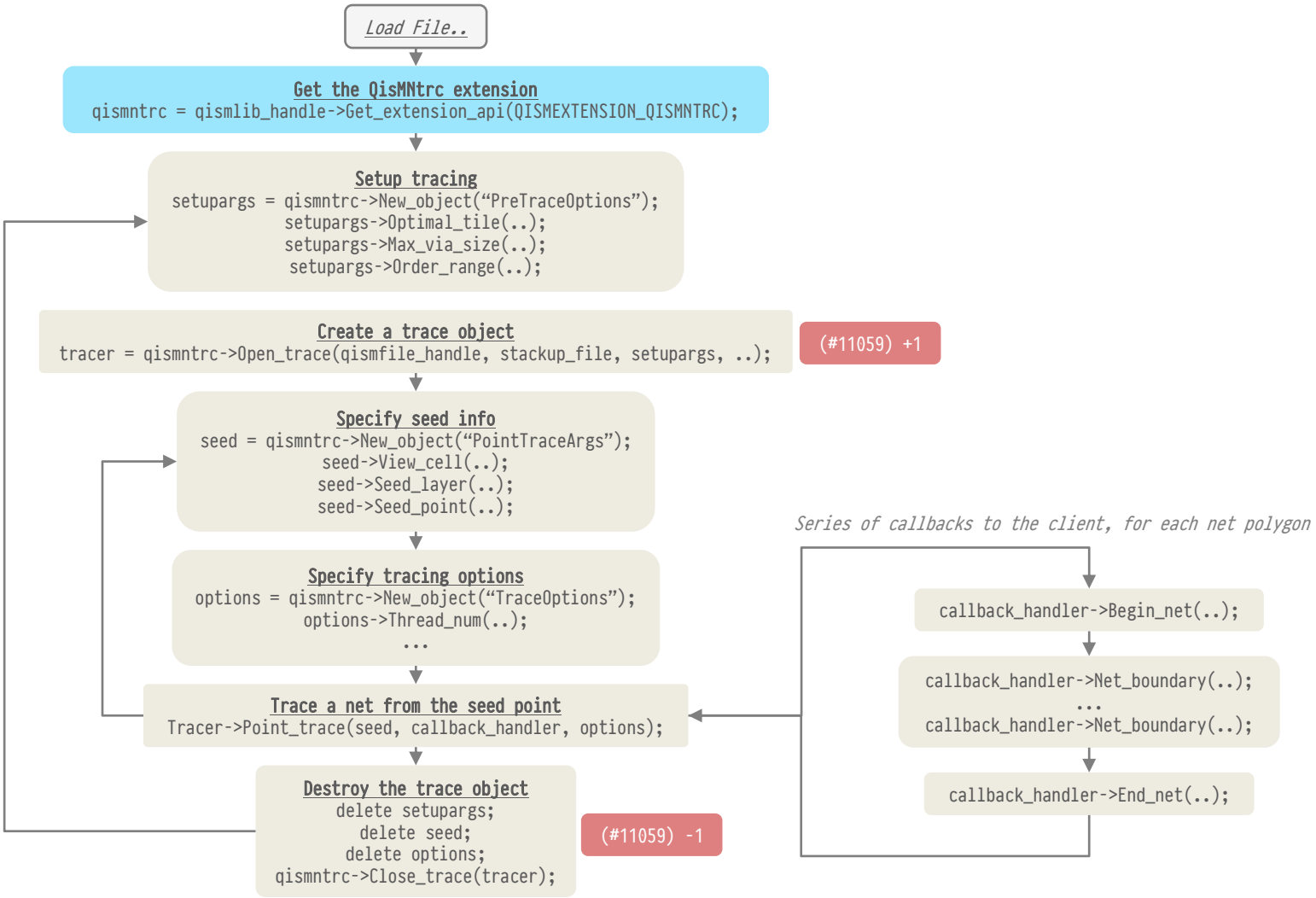
QisMLib API how to..

trace nets of connected metal and via layers (stackup)..

(in this example, trace nets from a single point/seed)



For API details, refer to the appropriate .h file

qismntrc.h | qismlib.h | Requires license (product-number) +/-(count)

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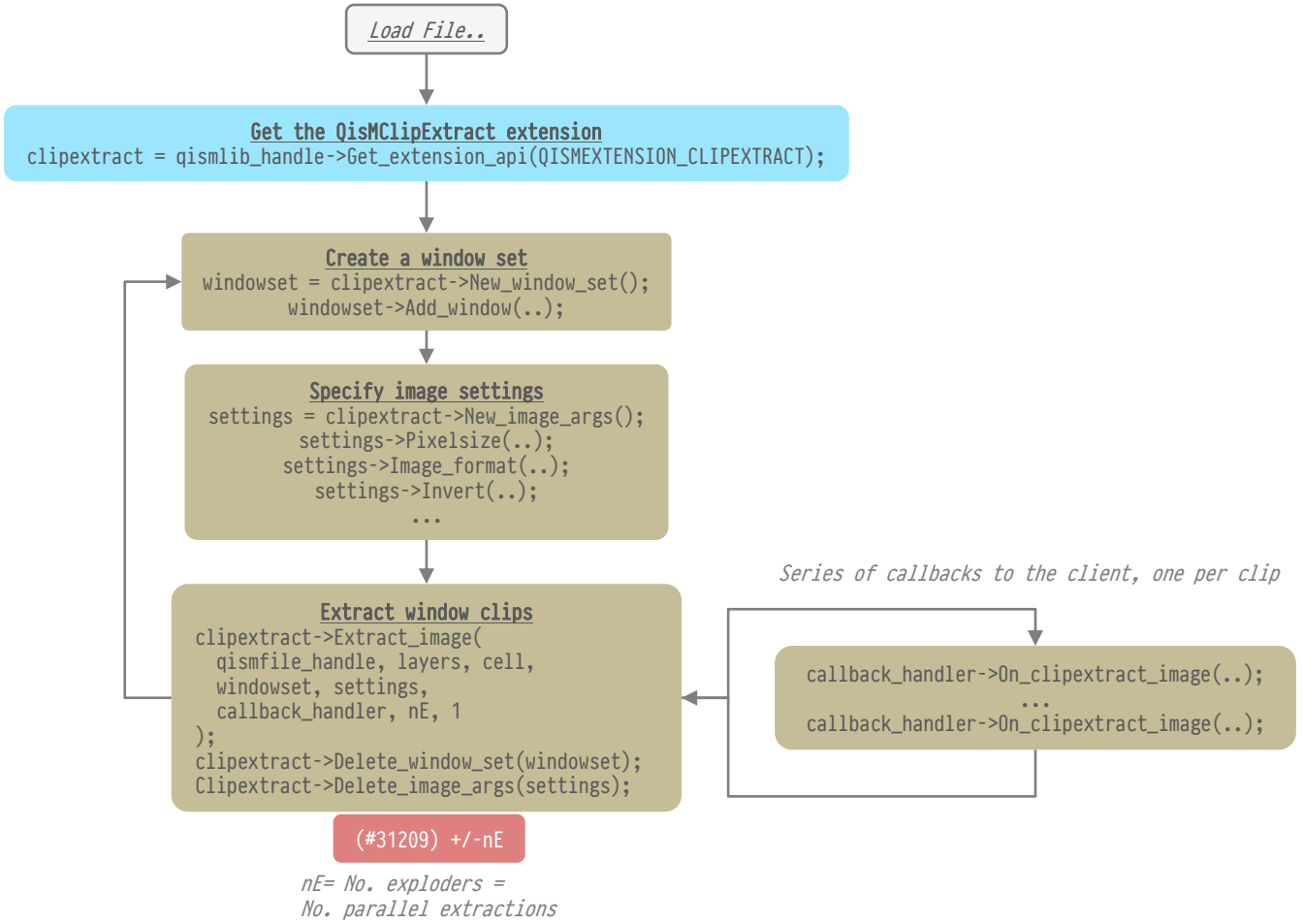
QisMLib API how to..

extract lots of tiny clips of data in parallel..

(in this example, extract raster images)



For API details, refer to the appropriate .h file

qismclipextract.h | qismlib.h | Requires license (product-number) +/-(count)

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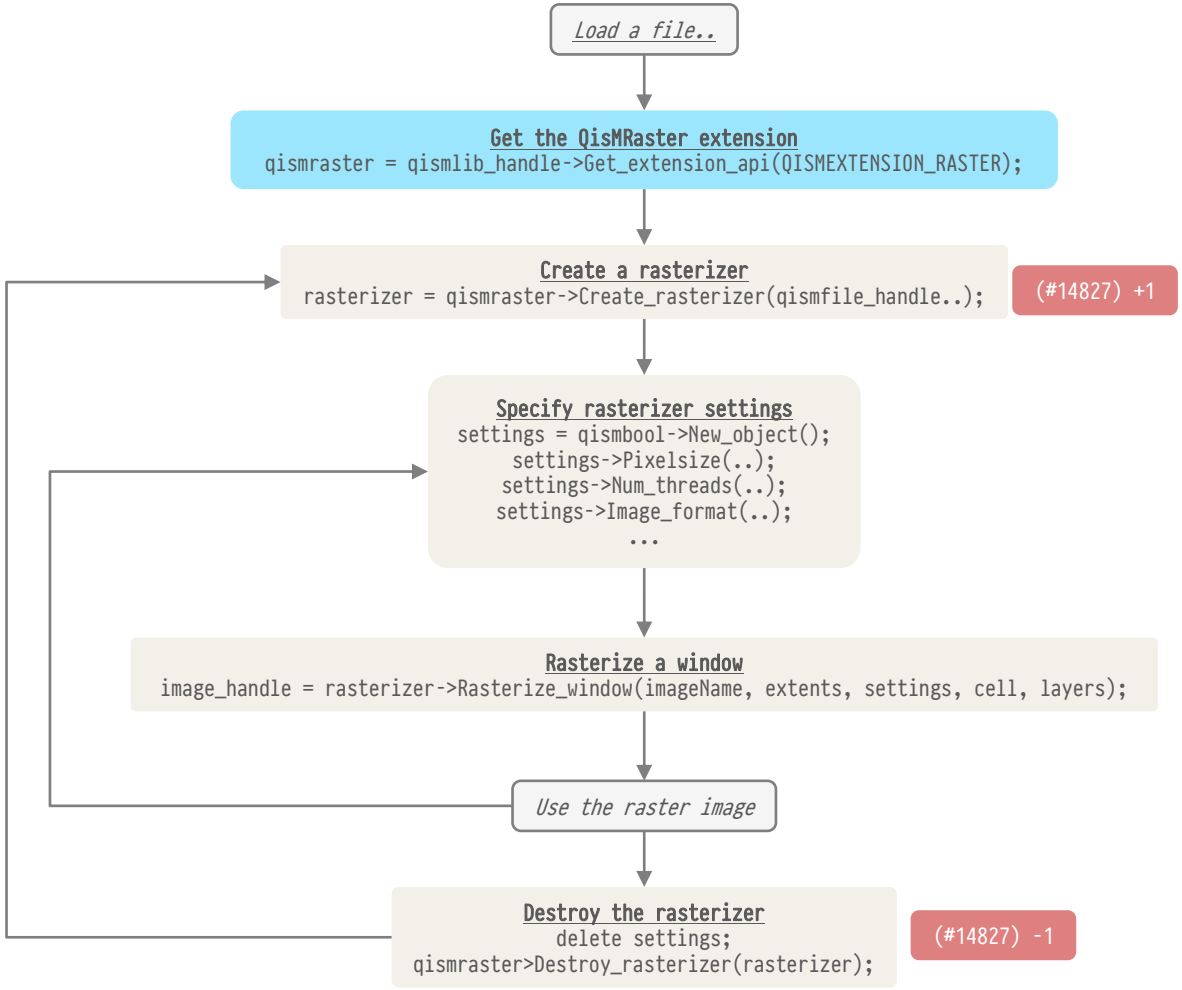
QisMLib API how to..

rasterize a window containing a large number of polygons..



For API details, refer to the appropriate .h file

qismraster.h qismlib.h Requires license (product-number) +/-(count)

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