

Garbage Collection for Wasm

Proposal update

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Progress since last time

Not a whole lot, except...

Split off **reference types** into separate proposal

Provides proper foundation

And more incremental route forward

This meeting

Discuss incremental **road map** and priorities

Agree on scope for **GC "MVP"**

Figure out strategy for **JS interop**

Possible Road Map

Reference types

Typed function references, downcasts

Type import/export

Basic GC types (GC "MVP")

More complex GC types

Weak refs, finalisers

GC “MVP”?

Plain struct & array types

Mutable and immutable fields

Instructions for allocation & access

Checked downcasts

No nesting, require indirection for now
...avoids the need for inner pointers

Tagged integers?

Post-MVP

Nested structs & arrays, inner references

...C data model, but distinguishing inner pointers

Dynamically-sized structs

Header fields or meta objects?

Means for eliminating more casts?

Abstract and nominal types?

Closures?

Threading with sharable references

Weak refs & finalisation

JS API

How should GC types be exposed to JS?

...not at all (initially), proxify values

...through Wasm JS API

...reviving Typed Object proposal

Avoid path dependency on TC39 for GC

Time line

Reference types: now

Function references: ASAP

GC MVP: this/next year?

Weak refs & Finalisation

Large zoo of language mechanisms to potentially support

Can't afford additive approach

Want sane semantics

Accept overhead for some producers

Completely open problem