

• Reduced complexity from $O(2^n)$ to $O(1)$

• Behaviour has changed

• **It now always increases**

• Could wrap if called std::underlying_int64_t::max() times

• 9223372036854775807 (9.2x10¹⁸)

• That's quite a lot of tracks/clips/plugins

• Contract has stayed the same - returns a unique ID

• Checkered with an asserition



- Reduced complexity from $O(2n)$ to $O(1)$
- Behaviour has changed
 - ID now always increases
 - Could wrap if called `std::numeric_limits<int64_t>::max()` times
 - 9223372036854775807 (9.2×10^{18})
 - That's quite a lot of tracks/clips/plugins
- Contract has stayed the same - returns a unique ID
 - Checked with an assertion

Techniques for Optimisation

4. Caching appropriate data