operator new/delete

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C++ / Utilities library / Dynamic memory management / Low level memory management

operator new, operator new[]

Defined in header <new>

replaceable allocation functions
`[[nodiscard]]` (since C++20)

```
void* operator new  ( std::size_t count );                              (1)
void* operator new[]( std::size_t count );                              (2)
void* operator new  ( std::size_t count, std::align_val_t al );         (3)  (since C++17)
void* operator new[]( std::size_t count, std::align_val_t al );         (4)  (since C++17)
```
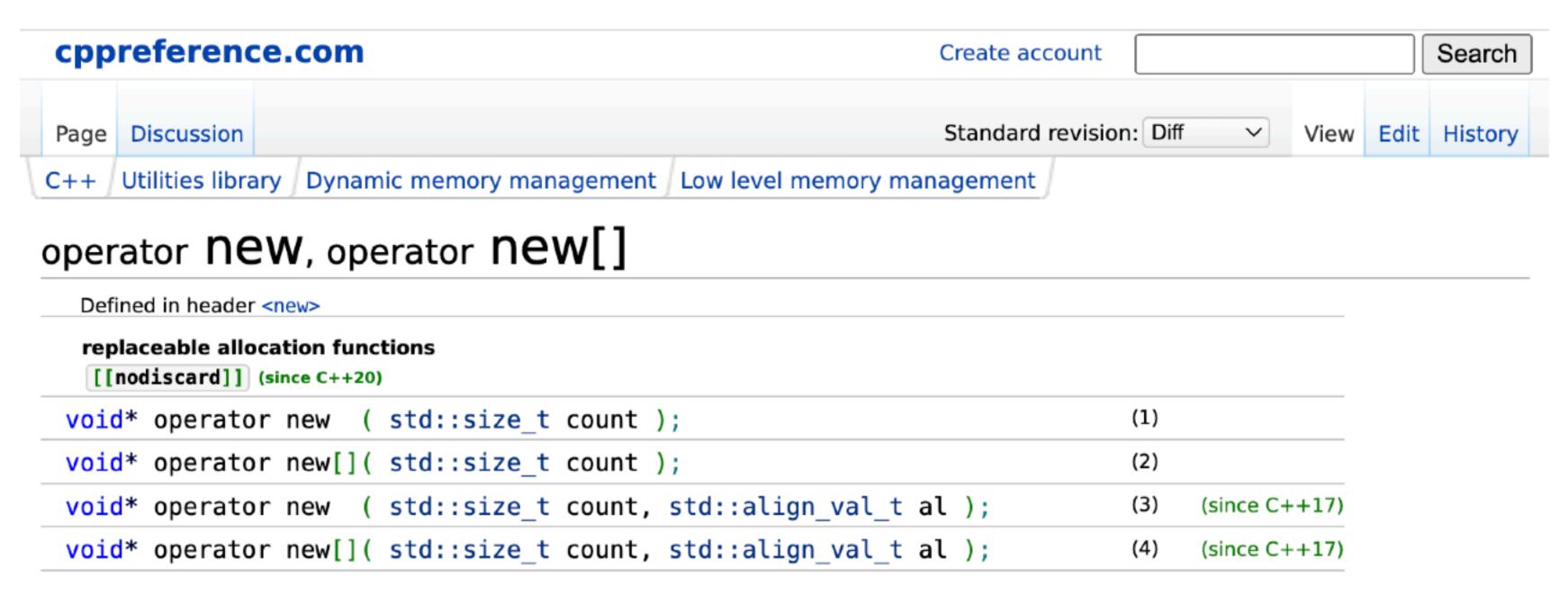
"The versions (1-4) are implicitly declared in each translation unit even if the <new> header is not included. ***Versions (1-8) are replaceable: a user-provided non-member function with the same signature defined anywhere in the program, in any source file, replaces the default version.*** *Its declaration does not need to be visible."*

```cpp
void* operator new (std::size_t sz)
{
    std::cout << "new called\n";
    return std::malloc (sz);
}

void* operator new[] (std::size_t sz)
{
    std::cout << "new[] called\n";
    return std::malloc (sz);
}

void operator delete (void* ptr) noexcept
{
    std::cout << "delete called\n";
    std::free (ptr);
}

void operator delete[] (void* ptr) noexcept
{
    std::cout << "delete[] called\n";
    std::free (ptr);
}
```