Subject: Assist++ typedef struct analysis problem
Posted by Xemuth on Sat, 26 Mar 2022 23:49:19 GMT
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Hello U++,

I noticed that Assist++ fail to parse some struct. Lets take a look at thoses 4 structs def:

test.h:

```
#ifndef _test_assist_test_h_
#define _test_assist_test_h_

typedef struct StructToResolve {
    uint32_t        engineVersion;
    uint32_t        apiVersion;
} StructToResolve;

typedef struct StructToResolve2 {
    uint32_t        engineVersion;
    uint32_t        apiVersion;
};

//Illegal but we test Assist++ here !
struct StructToResolve3 {
    uint32_t        engineVersion;
    uint32_t        apiVersion;
} StructToResolve3;

struct StructToResolve4 {
    uint32_t        engineVersion;
    uint32_t        apiVersion;
} test;

#endif
```

All four struct are found by assist++. However, auto completion don't work on the first.
Moreover having a struct having a name at begining and variable declaration with the same name are shown has two different struct by Assist++.

test.cpp

```
#include "test.h"
int main(int argc, const char *argv[])
{
 StructToResolve str;
```

```
 str. // Assist++ don't find anything. It don't even open

 StructToResolve2 str2;
 str2.engineVersion; // work fine


 StructToResolve3 str3;
 str3.apiVersion; // Work fine BUT doing a Ctrl+ Space during writting of this type result in 2
distinct StructToResolve3 type. See the screenshot

 StructToResolve4 str4;
 str4.engineVersion; // Work fine BUT ...

 return 0;
}
```

this bug is problematique when working with lib definition a huge amount of the structure which have the same declaration as the first one.

Subject: Re: Assist++ typedef struct analysis problem
Posted by Lance on Sun, 27 Mar 2022 01:38:20 GMT
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I can see it happens when you have to use some imported C code (first typedef). So it is a bug worth to be fixed.

second typedef is obviously illegal code.

I also noticed that following are valid C++ code

```
struct C{
};
C C;
```

I didn't know that before: I thought by declaring C as a class/struct name in C++, it kind of makes it a para-keyword which forbids it be further used as identifier name.

And the following are also valid

```
struct C{};
struct D{};
C D;
```

Subject: Re: Assist++ typedef struct analysis problem
Posted by Lance on Sun, 27 Mar 2022 01:54:09 GMT
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BTW, xemuth's example code

```
    StructToResolve3 str3;
```

is not legal C/C++ code: it won't compile.

It should be

```
    struct StructToResolve3 str3;
```

And the following code compiles

```
struct C{
 void hi(){}
};

struct D{
 void hi(){};
};

int main()
{
 C D;
 struct D d; // the keyword struct cannot be done without
 D.hi();
 d.hi();
}
```

or this also compiles

```
struct C{
 void hi(){}
};

struct D{
 void hi(){};
};

int main()
{
 D d;
 C D;
```

```
 D.hi();
 d.hi();
}
```

Conclusion: in a context where a class/struct name is used as identifier(and hence hidden by it), to refer to the class/struct, a leading classor struct keyword needs to be prepended.

Subject: Re: Assist++ typedef struct analysis problem
Posted by Lance on Sun, 27 Mar 2022 02:09:37 GMT
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BTW:

```
struct Empty{};

struct Z {
    char c;
    [[no_unique_address]] Empty e1, e2;
};
```

Above c++20 code will confuse assist++ too. I wasn't able to figure a way to fix it.

Subject: Re: Assist++ typedef struct analysis problem
Posted by Xemuth on Sun, 27 Mar 2022 02:20:01 GMT
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Hello Lance, yes somes of my struct here wont compile.

About this bug. I digged Parser code in order to find a simple way to ignore C struct alias but didn't find a correct way to fix it.
However I have a temporary fix :

.\upp\uppsrc\CppBase\Parser.cpp : 1675

```
if(d.name.GetCount() && d.name != d.type) { // We want to prevent struct alias to be missinterpreted
```

It's wacky :d

Maybe I will dig it more tomorrow to understand the root cause of it and find a better way to fix it.

Subject: Re: Assist++ typedef struct analysis problem
Posted by Lance on Wed, 30 Mar 2022 16:10:51 GMT
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That part of code is not very pleasant to touch 8) --from my experience to tell parser to ignore [[identifier]].