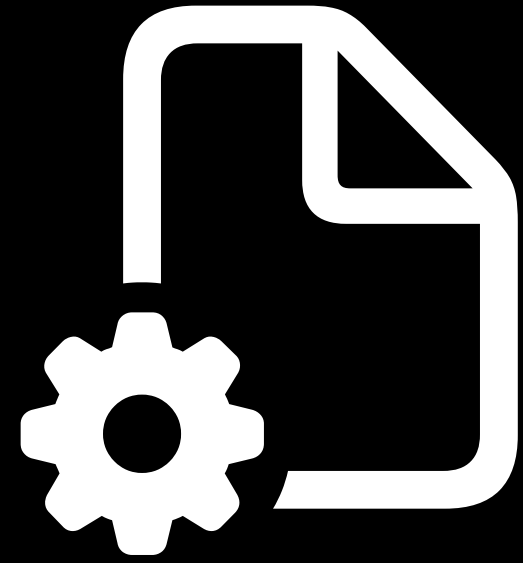




What's new in LLDB on Windows

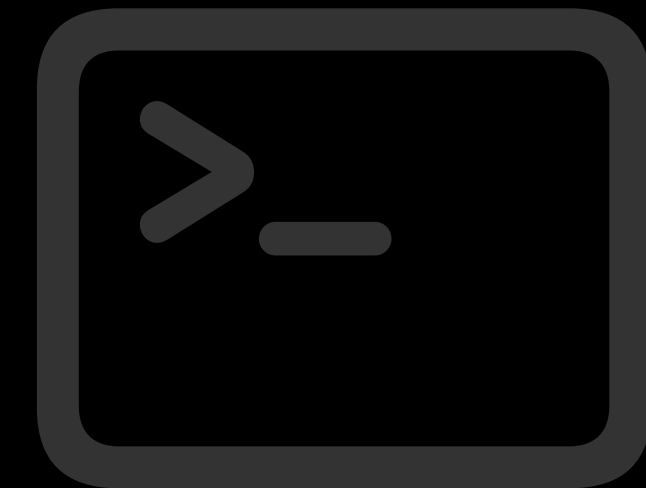
Gaps with other platforms



Debug Info

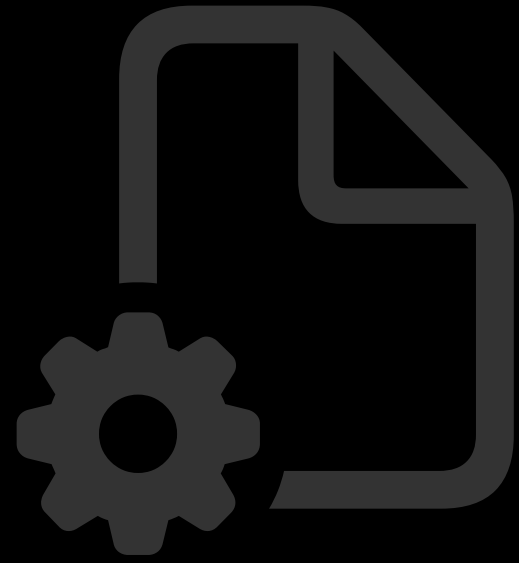


Data formatters



Terminal
I/O & setup

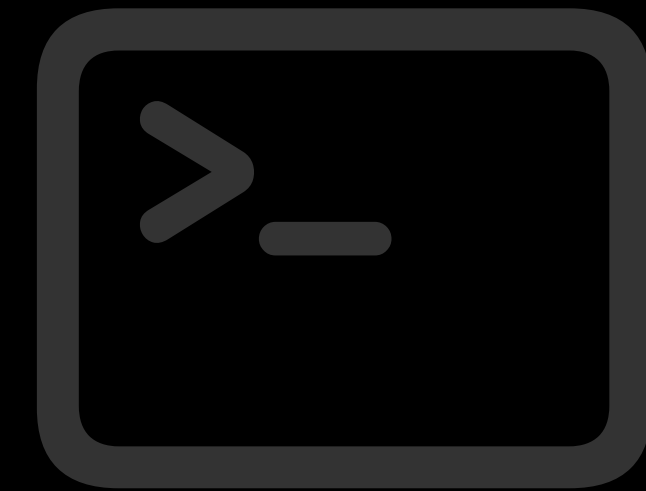
Gaps with other platforms



Debug Info



Data formatters



Terminal
I/O & setup

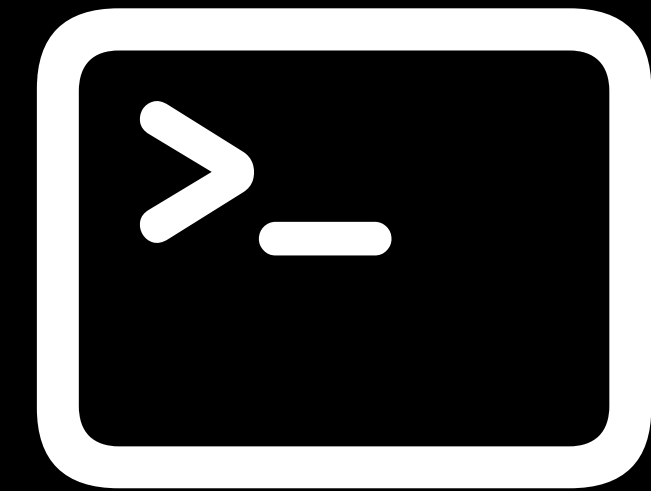
Gaps with other platforms



Debug Info

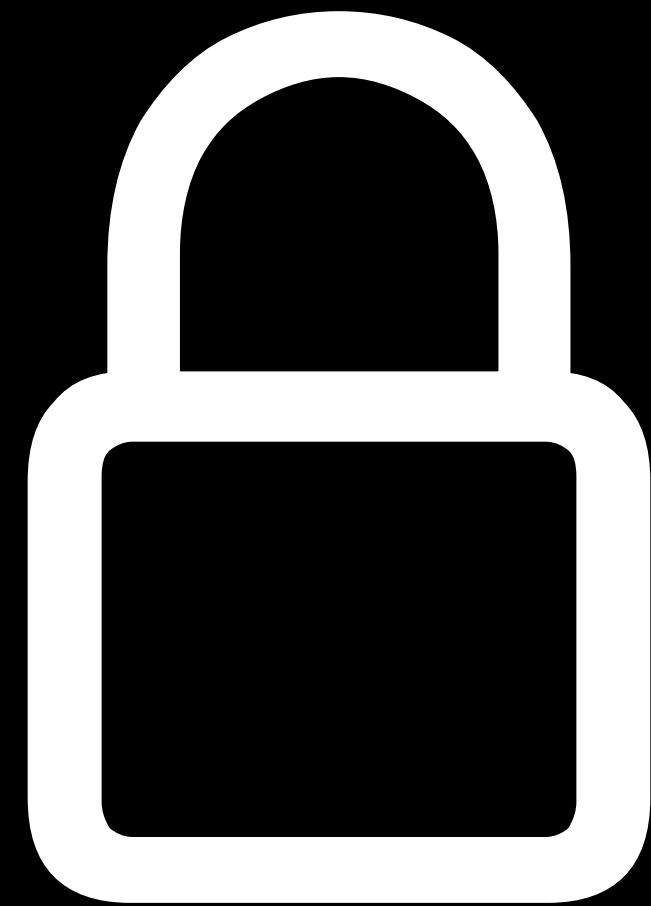


Data formatters



Terminal
I/O & setup

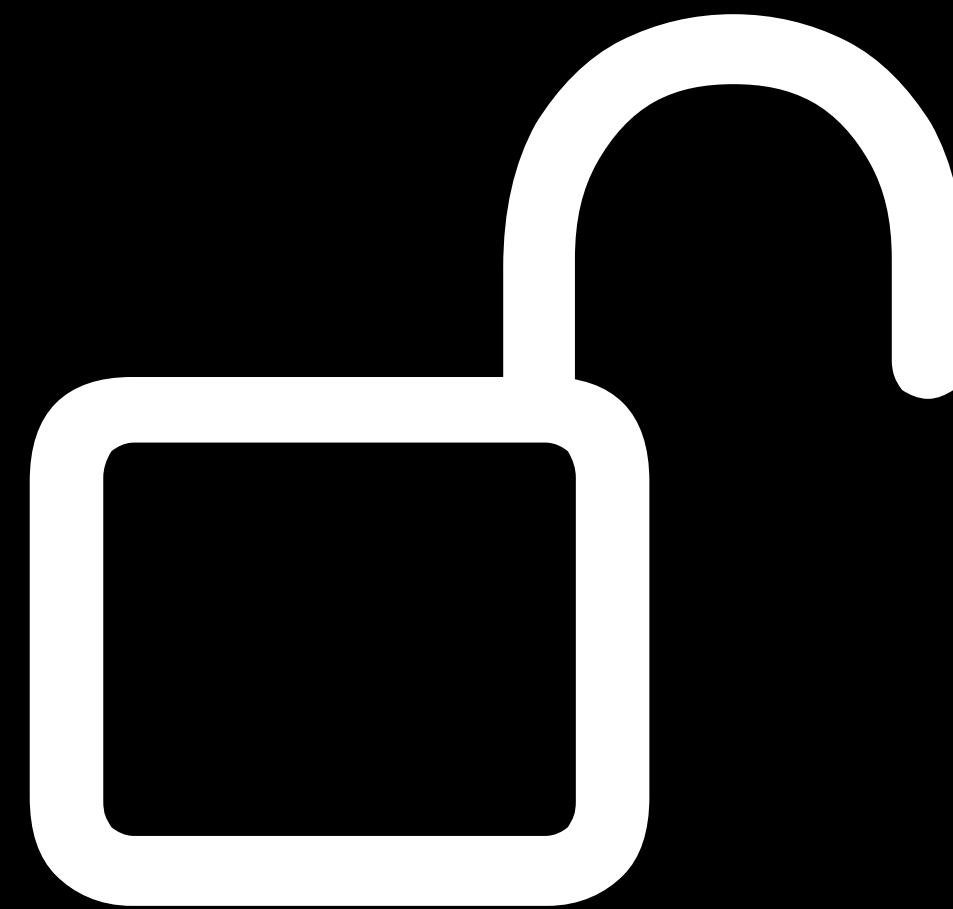
PDB - Closing the gaps



DIA PDB

SDK

PDB - Closing the gaps



LLVM's PDB

Plugin

PDB - Closing the gaps

Type System

- Typedefs inside structs
- Type lookup in namespaces
- Array members types

Symbol resolution

- Functions by mangled name
- Estimating symbols size
- Global variables in namespaces

+30 individual fixes done by @Nerixyz

MSVC STL formatters

Abc



MSVC STL

data formatters

MSVC STL formatters

```
#include <map>
#include <string>

int main() {
    std::map<std::string, int> map{{"foo", 0}, {"bar", 1}};
    return 0; // break here
}
```

MSVC STL formatters

Before

```
(lldb) v --raw map
(std::map<...>) map = {
  std::_Tree<...> = {
    _Mypair = {
      _Myval2 = {
        _Myval2 = {
          _Myhead = 0x0000020b01e852b0 {...}
          _Mysize = 2
        }
      }
    }
  }
}
```

After

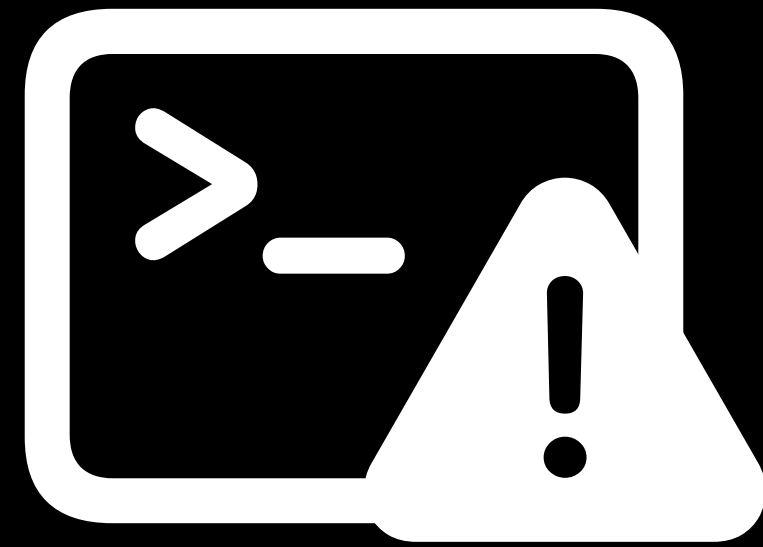
```
(lldb) fr v map
(std::map<...>) map = size=2 {
  [0] = (first = "bar", second = 1)
  [1] = (first = "foo", second = 0)
}
```

MSVC STL formatters

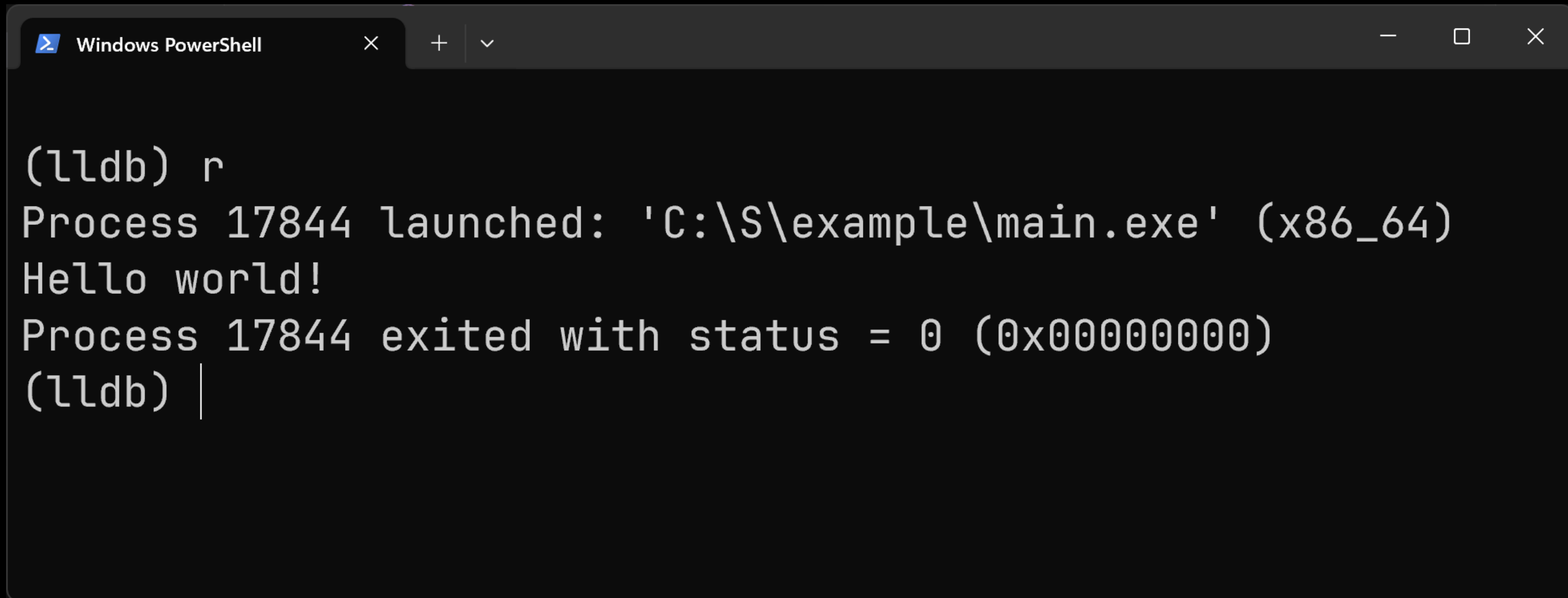
<code>std::string</code>	<code>std::map</code>	<code>std::span</code>
<code>std::string_view</code>	<code>std::set</code>	<code>std::shared_ptr</code>
<code>std::vector</code>	<code>std::optional</code>	<code>std::unique_ptr</code>
<code>std::list</code>	<code>std::variant</code>	<code>std::weak_ptr</code>
<code>std::deque</code>	<code>std::tuple</code>	<code>std::atomic</code>

STL formatters implemented by @Nerixyz

Terminal & I/O



Terminal & I/O



```
Windows PowerShell
(lldb) r
Process 17844 launched: 'C:\S\example\main.exe' (x86_64)
Hello world!
Process 17844 exited with status = 0 (0x00000000)
(lldb) |
```

Ildb's console

Terminal & I/O

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

Hello world!

Process 32824 exited with status = 0 (0x00000000)

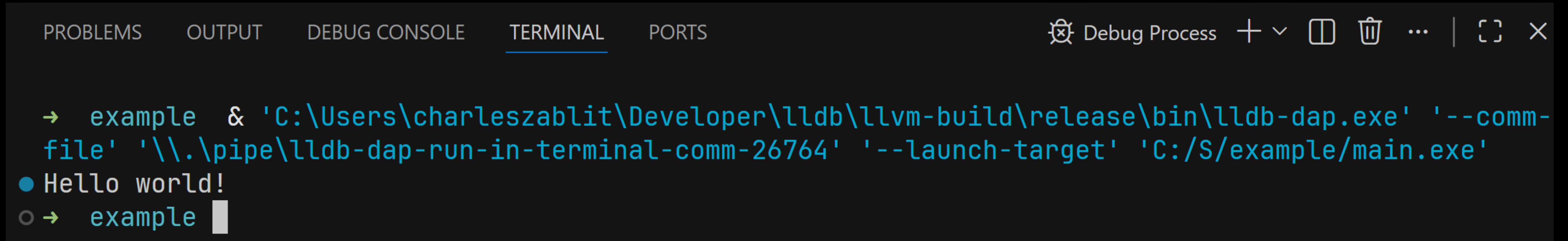
lldb-dap's console in VSCode

Python loading

```
PS C:\Users\charleszablit\Developer\lldb> .\llvm-build\debug-oft\bin\lldb.exe
error: unable to find 'python310.dll'.
PLEASE submit a bug report to https://github.com/llvm/llvm-project/issues/ and
Stack dump:
0. Program arguments: C:\\Users\\charleszablit\\Developer\\lldb\\llvm-bu
Exception Code: 0xC06D007E
0x00007FF980F566CA, C:\windows\System32\KERNELBASE.dll(0x00007FF980E90000) + (
0x00007FF739937B6B, C:\Users\charleszablit\Developer\lldb\llvm-build\debug-oft
\1\s\src\vctools\delayimp\delayhlp.cpp, line 346 + 0x0 byte(s)
0x00007FF73993659A, C:\Users\charleszablit\Developer\lldb\llvm-build\debug-oft
0x00007FF739719A39, C:\Users\charleszablit\Developer\lldb\llvm-build\debug-oft
veloper\lldb\llvm-project\lldb\tools\driver\Driver.cpp, line 859 + 0xE byte(s)
0x00007FF73999BB69, C:\Users\charleszablit\Developer\lldb\llvm-build\debug-oft
\vctools\crt\vcstartup\src\startup\exe_common.inl, line 79 + 0x0 byte(s)
0x00007FF73999BA52, C:\Users\charleszablit\Developer\lldb\llvm-build\debug-oft
work\1\s\src\vctools\crt\vcstartup\src\startup\exe_common.inl, line 288 + 0x5
0x00007FF73999B90E, C:\Users\charleszablit\Developer\lldb\llvm-build\debug-oft
\s\src\vctools\crt\vcstartup\src\startup\exe_common.inl, line 331 + 0x0 byte(s)
0x00007FF73999BBFE, C:\Users\charleszablit\Developer\lldb\llvm-build\debug-oft
rc\vctools\crt\vcstartup\src\startup\exe_main.cpp, line 17 + 0x0 byte(s)
0x00007FF98270E8D7, C:\windows\System32\KERNEL32.DLL(0x00007FF9826E0000) + 0x2
0x00007FF983828D9C, C:\windows\SYSTEM32\ntdll.dll(0x00007FF983820000) + 0x8D9C
PS C:\Users\charleszablit\Developer\lldb>
```

Warning printed by lldb if the Python shared library is not found

lldb-dap - integratedTerminal



The screenshot shows the VS Code interface with the 'TERMINAL' tab selected. The terminal output is as follows:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Debug Process + v [ ] [ ] ... | [ ] X  
  
→ example & 'C:\Users\charleszabliti\Developer\lldb\llvm-build\release\bin\lldb-dap.exe' '--comm-  
file' '\\.\pipe\lldb-dap-run-in-terminal-comm-26764' '--launch-target' 'C:/S/example/main.exe'  
● Hello world!  
○ → example █
```

VSCode's integrated terminal

Unicode support

Before

```
(lldb) expr foo
      Ë,,
      â•°â”€ error: use of undeclared identifier 'foo'
```

After

```
(lldb) expr foo
      ^
      | error: use of undeclared identifier 'foo'
```

Before and after Unicode support

Unicode support

Before

```
(lldb) expr foo
      Ë,,
      â•°â”€ error: use of undeclared identifier 'foo'
```

After

```
(lldb) expr foo
      ^
      └ error: use of undeclared identifier 'foo'
```

Before and after Unicode support

What's next?

- Building on LLVM's PDB reader

What's next?

- Building on LLVM's PDB reader
- Improving C++ support on Windows

What's next?

- Building on LLVM's PDB reader
- Improving C++ support on Windows
- Contributing has never been easier

