

# 01) Threads

## Remote Threads



7

SEVENTH  
EDITION

# Windows Internals



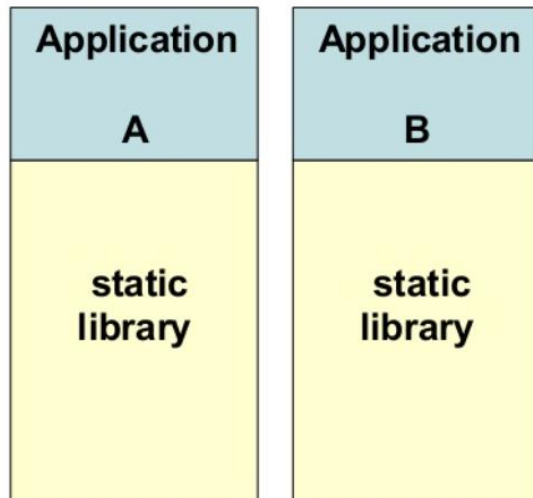
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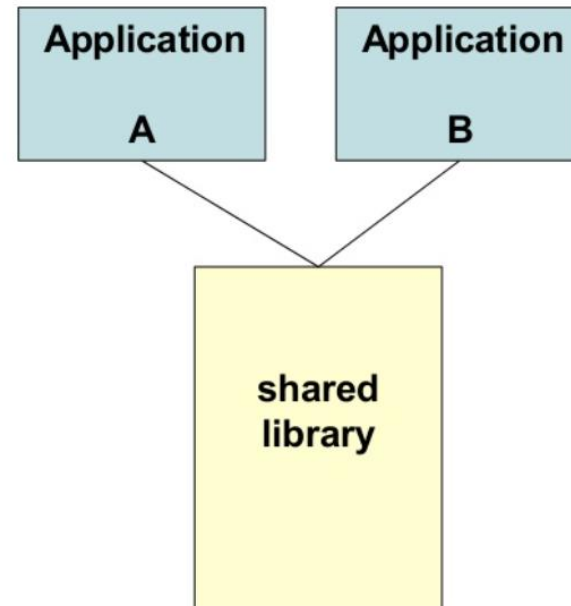
# DLL (Dynamic Link Library)?



## Static Library vs. Shared Library



**Static library**



**Shared library**

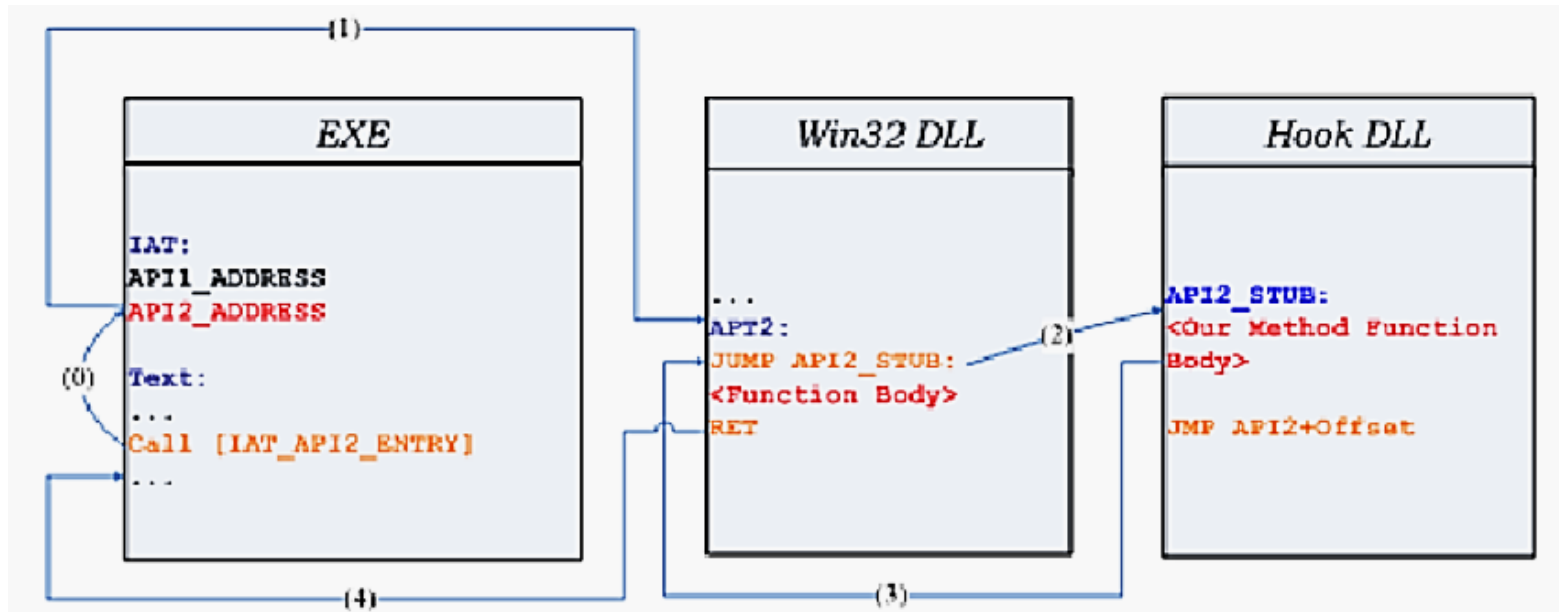
# Creating a Thread in Another Process

Reasons behind remote thread creation:

- Forcing a breakpoint by a Debugger
- Obtaining internal information from a process (ex: Heap)
- Used for code/DLL injection (ex: API Hooking)

```
HANDLE CreateRemoteThread(
    [in] HANDLE hProcess,
    [in] LPSECURITY_ATTRIBUTES lpThreadAttributes,
    [in] SIZE_T dwStackSize,
    [in] LPTHREAD_START_ROUTINE lpStartAddress,
    [in] LPVOID lpParameter,
    [in] DWORD dwCreationFlags,
    [out] LPDWORD lpThreadId
);
```

# API Hooking



[www.researchgate.net](http://www.researchgate.net)



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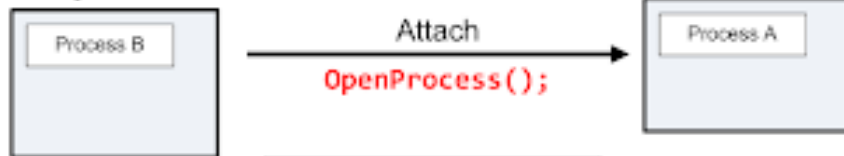


# DLL Injection Procedure

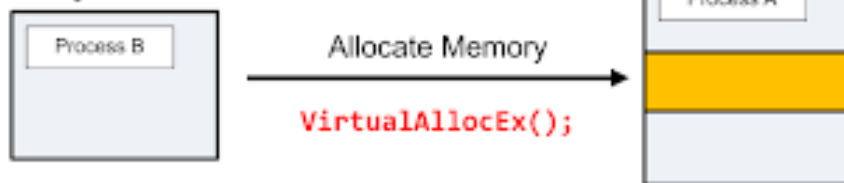
[blog.opensecurityresearch.com](http://blog.opensecurityresearch.com)

## Overview

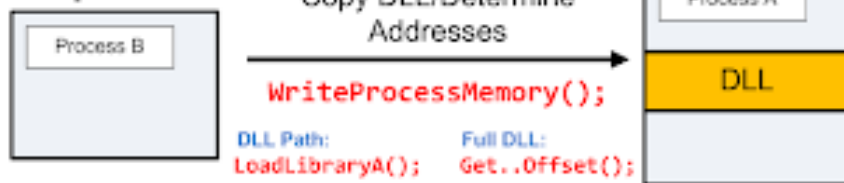
### Step 1



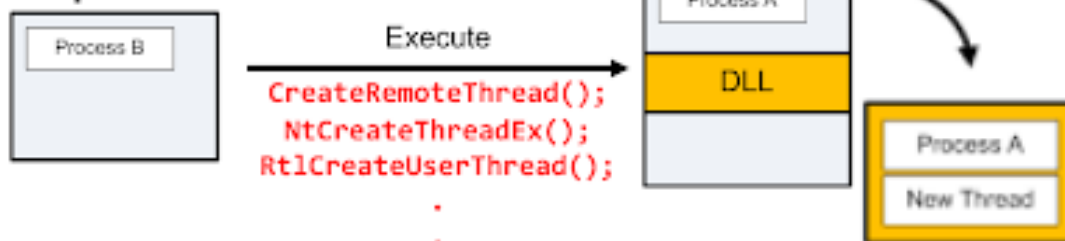
### Step 2



### Step 3



### Step 4



1. **Attach** to the process
2. **Allocate** Memory within the process
3. **Copy** the DLL or the DLL Path into the processes memory and determine appropriate memory addresses
4. Instruct the process to **Execute** your DLL



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# Further Readings

<https://www.apriorit.com/dev-blog/679-windows-dll-injection-for-api-hooks>

<https://m417z.com/Implementing-Global-Injection-and-Hooking-in-Windows/>

<https://github.com/odzhan/injection>





**CODING TIME**



# DLL Injection



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