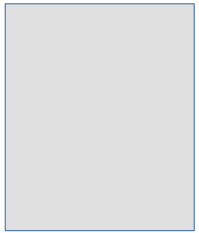
Inherit handles from the parent process

Inherit handles from the parent process :

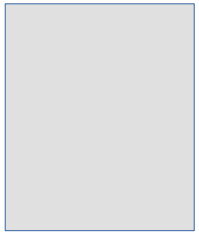
```
BOOL CreateProcess(
 lpApplicationName,        // Path to the executable
lpCommandLine,             // Command-line arguments
lpProcessAttributes,    // Security attributes for the process
lpThreadAttributes,    // Security attributes for the primary thread
bInheritHandles,          // Inherit handles from parent process
dwCreationFlags,           // Process creation flags
lpEnvironment,             // Pointer to environment block
lpCurrentDirectory,        // Working directory of the new process
lpStartupInfo,         // Pointer to STARTUPINFO structure
lpProcessInformation     // Pointer to PROCESS_INFORMATION structure
);
```



output.txt

Parent Process

```
HANDLE hFile = CreateFile ("output.txt",
                           FILE_APPEND_DATA,
                           FILE_SHARE_WRITE,
                           NULL,//Security attributes
                           CREATE_ALWAYS,
                           FILE_ATTRIBUTE_NORMAL,
                           NULL);
```



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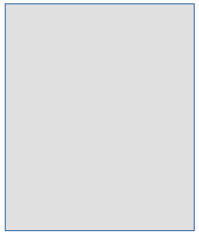
                           FILE_SHARE_WRITE,
                           NULL,//Security attributes
                           CREATE_ALWAYS,
                           FILE_ATTRIBUTE_NORMAL,
                           NULL);
```

Parent Process

```
CreateProcess(NULL,
              cmdLine,
              NULL,//Security attributes proc
              NULL,//Security attributes thrd
              FALSE,//inherit handle
              0,
              NULL,
              NULL,
              &si, &pi)
```

Child process



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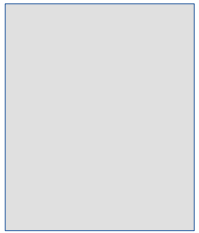
```

Not allowed

Want to use it

Child process



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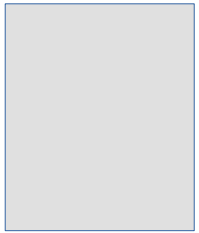
How to solve this issue ?



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Parent Process

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              NULL,//Security attributes thrd
              FALSE,//inherit handle
              0,
              NULL,
              NULL,
              &si, &pi)
```

```
SECURITY_ATTRIBUTES sa = { sizeof(sa),NULL,TRUE };
```

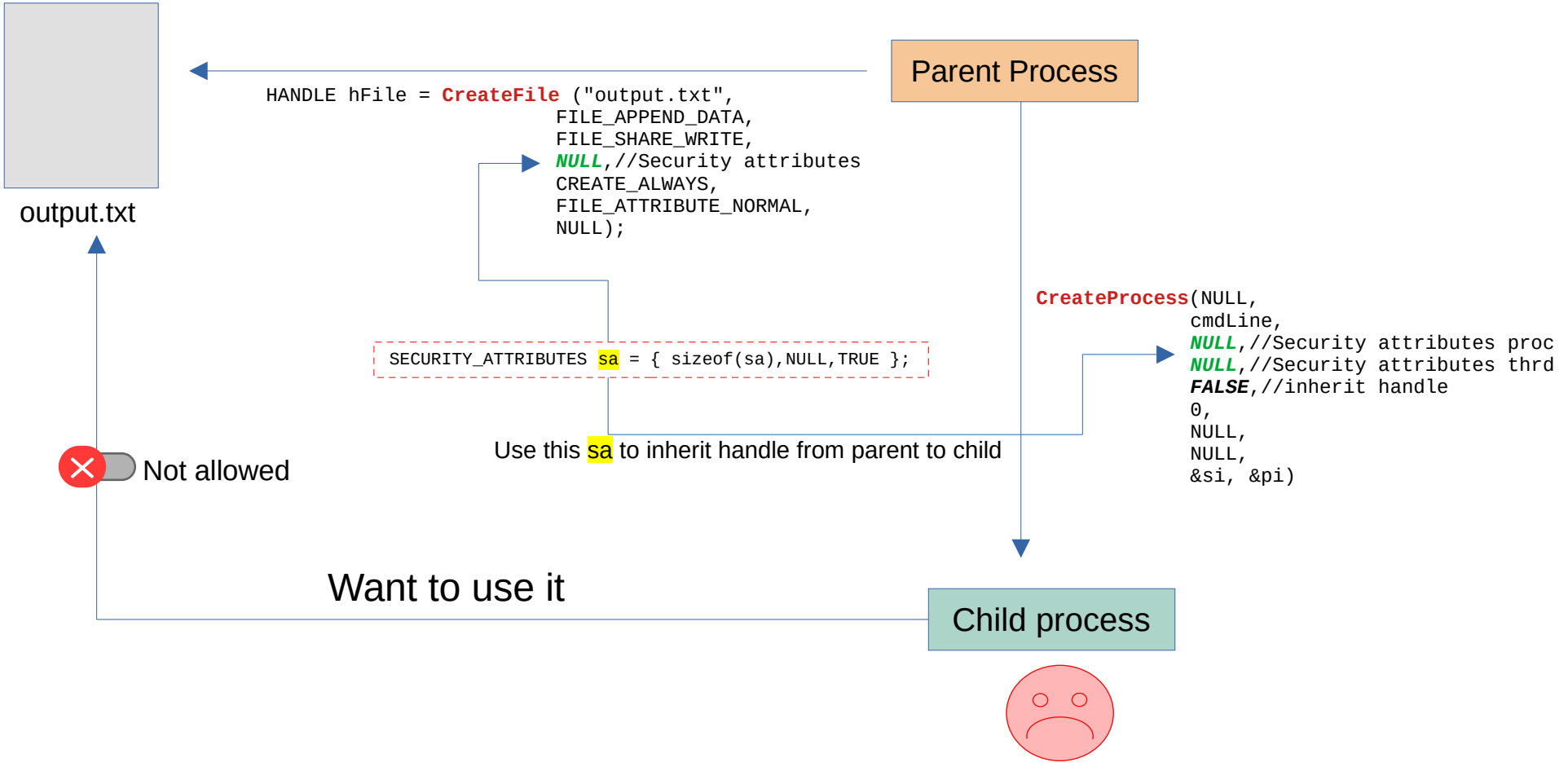
Create a security attributes

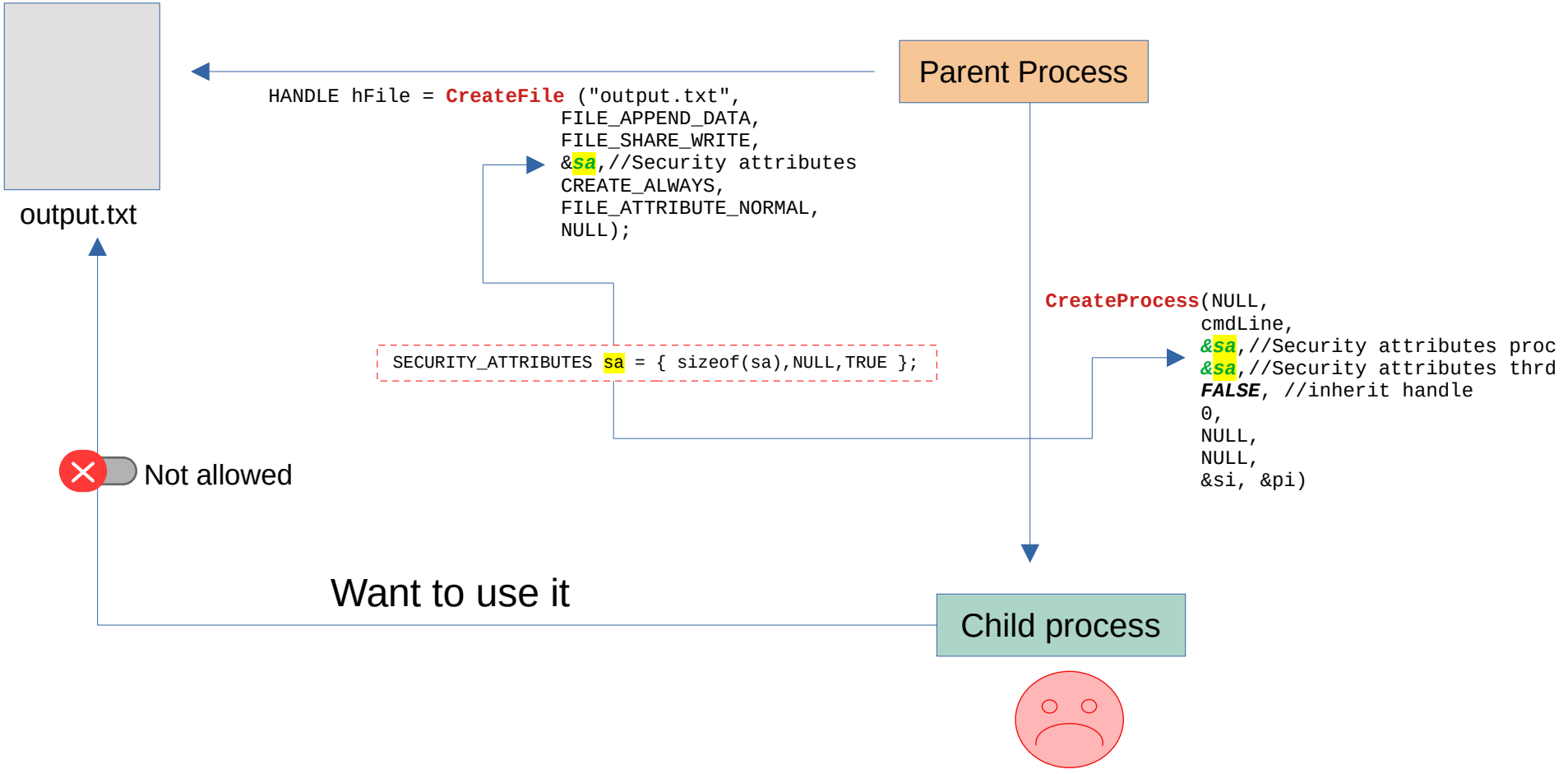
Not allowed

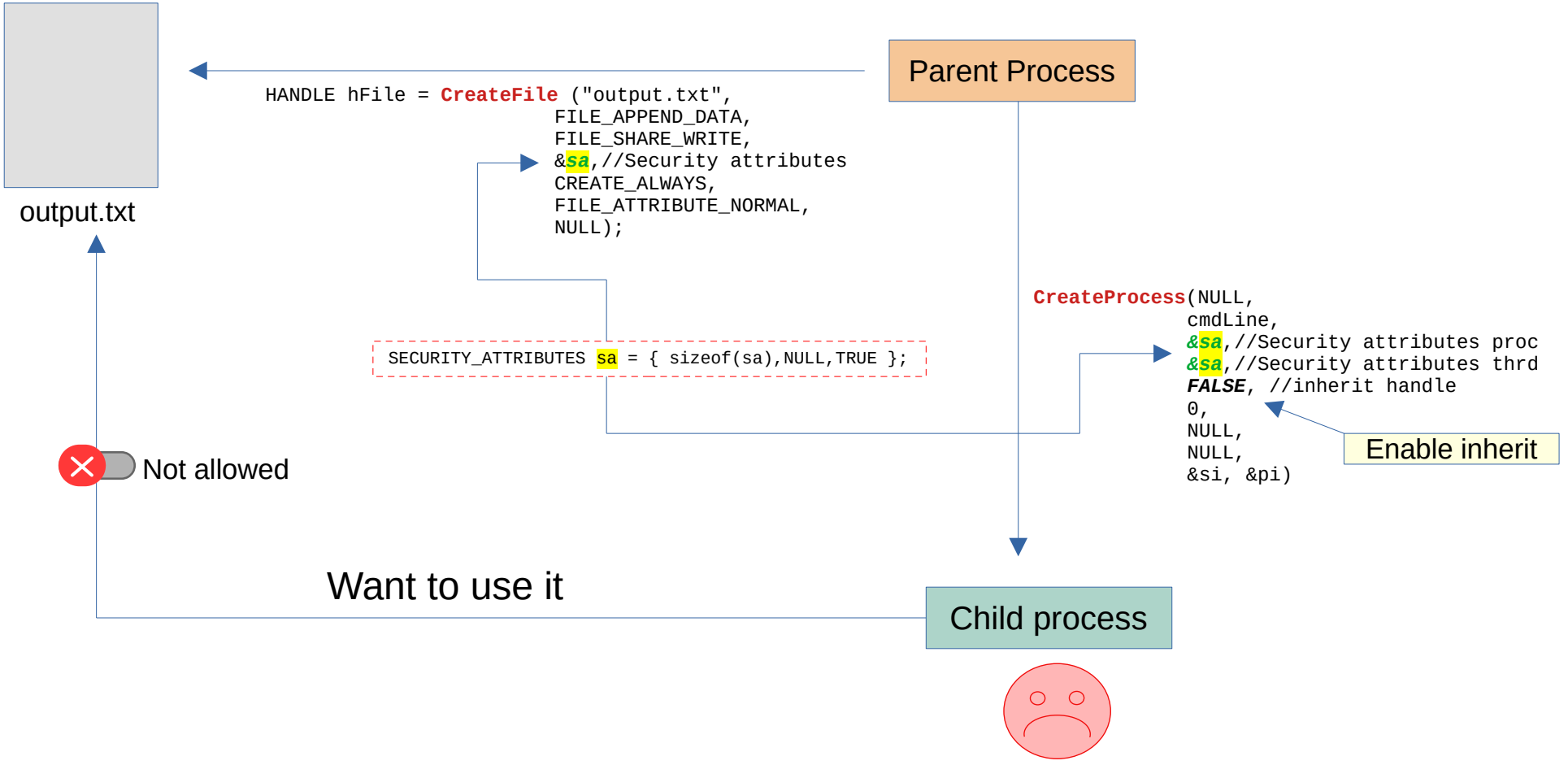
Want to use it

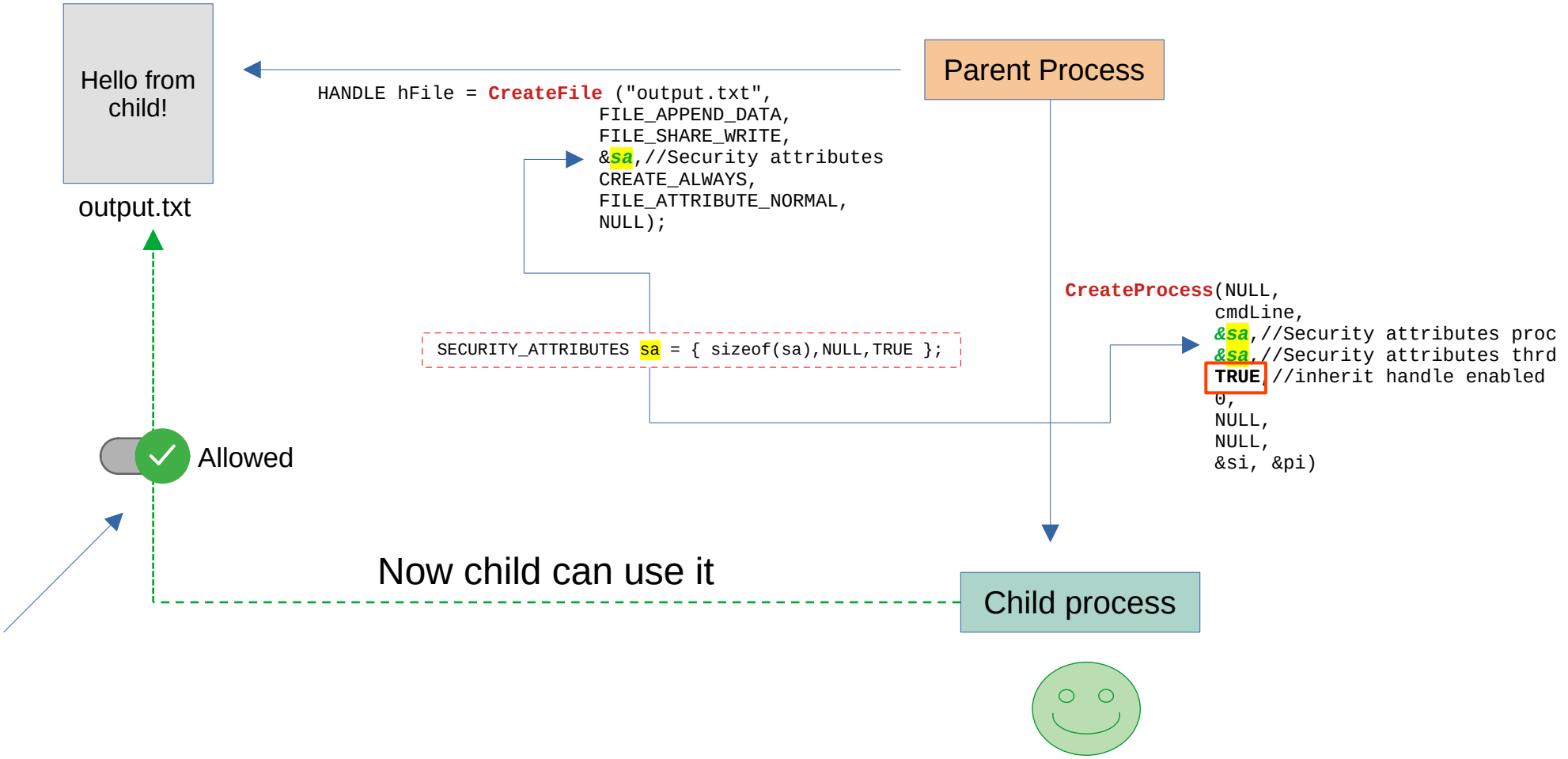
Child process

```
typedef struct _SECURITY_ATTRIBUTES {
    DWORD nLength; //structure length
    LPVOID lpSecurityDescriptor;
    BOOL bInheritHandle;
} SECURITY_ATTRIBUTES;
```









Parent.c

```c
#include <stdio.h>
#include <windows.h>

int main() {

    SECURITY_ATTRIBUTES sa = { sizeof(sa),NULL,TRUE };

    // Create an inheritable file handle

    HANDLE hFile = CreateFile ("output.txt", FILE_APPEND_DATA, FILE_SHARE_WRITE, &sa, CREATE_ALWAYS, FILE_ATTRIBUTE_NORMAL, NULL);
    if (hFile == INVALID_HANDLE_VALUE) {
        printf("Failed to create file. Error: %d\n", GetLastError());
        return 1;
    }

// Write to the file
DWORD written;
WriteFile(hFile, "Hello from Parent!\n", 19, &written, NULL);

    // Convert handle to string (so the child process can receive it)
    char handleStr[20];
    sprintf(handleStr, " %llu", (unsigned long long)hFile); // Add a leading space

    // Prepare process startup information
    STARTUPINFO si = { sizeof(si) };
    PROCESS_INFORMATION pi;

    // Correctly format the command line
    char cmdLine[150];
    sprintf(cmdLine, "\"C:\\Users\\John\\Documents\\Temp\\child.exe\"%s", handleStr);

    // Create child process
    if (!CreateProcess(NULL, cmdLine, &sa, &sa, TRUE, 0, NULL, NULL, &si, &pi))

    {
        printf("CreateProcess failed. Error: %d\n", GetLastError());
        return 1;
    }
Sleep(50);
    printf("Parent: Created child process with PID %d\n", pi.dwProcessId);

   // Close handles
    CloseHandle(pi.hProcess);
    CloseHandle(pi.hThread);
    CloseHandle(hFile);
    return 0;
}
```

Parent.c

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int main() {

    SECURITY_ATTRIBUTES sa = { sizeof(sa),NULL,TRUE };

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Creating security attributes

Parent.c

passing security attributes

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    if (!CreateProcess(NULL, cmdLine, &sa, &sa, TRUE, 0, NULL, NULL, &si, &pi))

    {
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Sleep(50);
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    // Correctly format the command line
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    }
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        return 1;
    }
Sleep(50);
    printf("Parent: Created child process with PID %d\n", pi.dwProcessId);

   // Close handles
    CloseHandle(pi.hProcess);
    CloseHandle(pi.hThread);
    CloseHandle(hFile);
    return 0;
}
```

passing security attributes

Child.c

```c
#include <windows.h>
#include <stdio.h>

int main(int argc, char *argv[]) {

    if (argc != 2) {
        printf("Child: No handle received!\n");
        return 1;
    }

    // Convert string back to HANDLE
    HANDLE hFile = (HANDLE)_strtoui64(argv[1], NULL, 10);

    if (hFile == INVALID_HANDLE_VALUE) {
        printf("Child: Invalid handle received!\n");
        return 1;
    }

    // Write to the inherited file handle

    DWORD bytesWritten;
    const char *message = "Hello from the child process!\n";
    WriteFile(hFile, message, strlen(message), &bytesWritten, NULL);

    printf("Child: Wrote to file using inherited handle.\n");

    // Close the file handle
    CloseHandle(hFile);
    return 0;
}
```