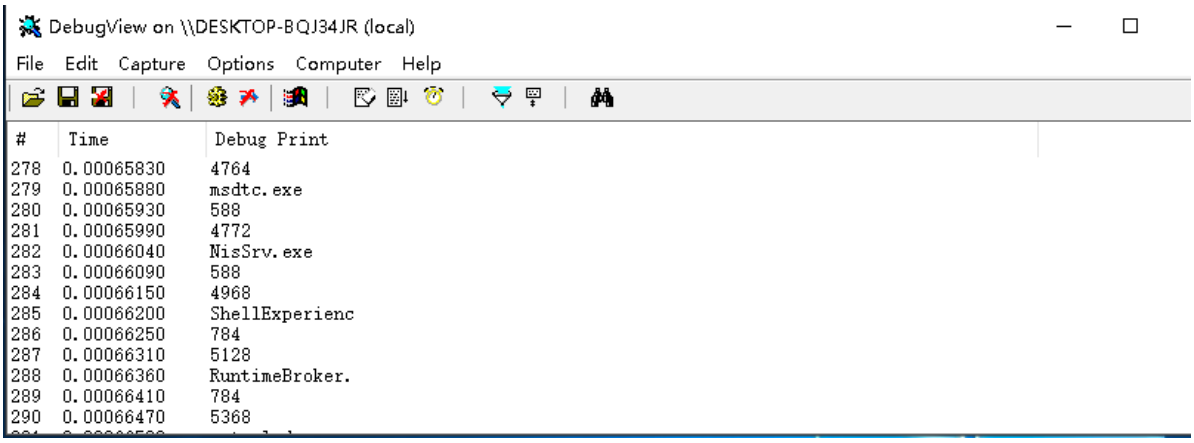
Windows内核中是无法使用`vector`容器等数据结构的，当我们需要保存一个结构体数组时，就需要使用内核中提供的专用链表结构`LIST_ENTRY`通过一些列链表操作函数对结构体进行装入弹出等操作，如下代码是本人总结的内核中使用链表存储多个结构体的通用案例。

首先实现一个枚举用户进程功能，将枚举到的进程存储到链表结构体内。

```
#include <ntifs.h>
#include <windef.h>

extern PVOID PsGetProcessPeb(_In_ PEPROCESS Process);
NTKERNELAPI NTSTATUS PsLookupProcessByProcessId(HANDLE ProcessId, PEPROCESS
*Process);
extern NTKERNELAPI PVOID PsGetProcessWow64Process(_In_ PEPROCESS Process);
extern NTKERNELAPI UCHAR* PsGetProcessImageFileName(IN PEPROCESS Process);
extern NTKERNELAPI HANDLE PsGetProcessInheritedFromUniqueProcessId(IN PEPROCESS
Process);

typedef struct
{
    DWORD Pid;
    UCHAR ProcessName[2048];
    DWORD Handle;
    LIST_ENTRY ListEntry;
}ProcessList;

// 根据进程ID返回进程EPROCESS结构体失败返回NULL
PEPROCESS LookupProcess(HANDLE Pid)
{
    PEPROCESS eprocess = NULL;
    NTSTATUS Status = STATUS_UNSUCCESSFUL;
    Status = PsLookupProcessByProcessId(Pid, &eprocess);
    if (NT_SUCCESS(Status))
    {
        return eprocess;
    }
    return NULL;
}

// 内核链表操作
// By: LyShark
BOOLEAN GetAllProcess()
{
    PEPROCESS eproc = NULL;
    LIST_ENTRY linkListHead;

    // 初始化链表头部
    InitializeListHead(&linkListHead);
    ProcessList *pData = NULL;

    for (int temp = 0; temp < 100000; temp += 4)
    {
        eproc = LookupProcess((HANDLE)temp);
        if (eproc != NULL)
```

```
        {
            STRING nowProcessnameString = { 0 };
            RtlInitString(&nowProcessnameString,
PsGetProcessImageFileName(eproc));

            // DbgPrint("进程名: %s --> 进程PID = %d --> 父进程PPID = %d\r\n",
            // PsGetProcessImageFileName(eproc), PsGetProcessId(eproc),
PsGetProcessInheritedFromUniqueProcessId(eproc));

            // 分配内核堆空间
            pData = (ProcessList *)ExAllocatePool(PagedPool,
sizeof(ProcessList));
            RtlZeroMemory(pData, sizeof(ProcessList));

            // 设置变量
            pData->Pid = (DWORD)PsGetProcessId(eproc);
            RtlCopyMemory(pData->ProcessName, PsGetProcessImageFileName(eproc),
strlen(PsGetProcessImageFileName(eproc)) * 2);
            pData->Handle =
(DWORD)PsGetProcessInheritedFromUniqueProcessId(eproc);

            // 插入元素到
            InsertTailList(&linkListHead, &pData->ListEntry);
            ObDereferenceObject(eproc);
        }
    }

    // 输出链表内的数据
    while (!IsListEmpty(&linkListHead))
    {
        LIST_ENTRY *pEntry = RemoveHeadList(&linkListHead);
        pData = CONTAINING_RECORD(pEntry, ProcessList, ListEntry);

        DbgPrint("%d \n", pData->Pid);
        DbgPrint("%s \n", pData->ProcessName);
        DbgPrint("%d \n", pData->Handle);
        ExFreePool(pData);
    }
    return TRUE;
}

VOID UnDriver(PDRIVER_OBJECT driver)
{
    DbgPrint(("Uninstall Driver Is OK \n"));
}

NTSTATUS DriverEntry(IN PDRIVER_OBJECT Driver, PUNICODE_STRING RegistryPath)
{
    DbgPrint("hello lyshark.com \n");

    GetAllProcess();

    Driver->DriverUnload = UnDriver;
    return STATUS_SUCCESS;
}
```

运行后将可以在DbgView中看到输出的进程信息：



如果需要返回一个结构体，则可以这样来写代码。

```
#include <ntifs.h>
#include <windef.h>

typedef struct
{
    int count;
    char username[256];
    char password[256];
}MyData;

// 模拟返回一个结构
BOOLEAN GetProcess(PVOID OutPut)
{
    RtlZeroMemory(OutPut, sizeof(MyData));
    MyData *data = OutPut;

    data->count = 100;
    RtlCopyMemory(data->username, "lyshark.com", sizeof("lyshark.com"));
    RtlCopyMemory(data->password, "https://www.cnblogs.com/lyshark",
sizeof("https://www.cnblogs.com/lyshark"));
    return TRUE;
}

VOID UnDriver(PDRIVER_OBJECT driver)
{
    DbgPrint(("Uninstall Driver Is OK \n"));
}

NTSTATUS DriverEntry(IN PDRIVER_OBJECT Driver, PUNICODE_STRING RegistryPath)
{
    DbgPrint("hello lyshark.com \n");
    PVOID Ptr = (PVOID)ExAllocatePool(NonPagedPool, sizeof(MyData));


    GetProcess(Ptr);

    MyData *data = (MyData *)Ptr;

    DbgPrint("count = %d \n", data->count);
```

```
    DbgPrint("username = %s \n", data->username);
    DbgPrint("password = %s \n", data->password);

    Driver->DriverUnload = UnDriver;
    return STATUS_SUCCESS;
}
```

输出效果如下：