How can I get the original shortcut target path with environment variables unexpanded?

devblogs.microsoft.com/oldnewthing/20160229-00

February 29, 2016

Raymond Chen

A customer wanted to be able to get the target of a shortcut with environment variables unexpanded. The `IShellLink::GetPath` method will expand environment variables.

The way to get the unexpanded target path is to go for the `EXP_SZ_LINK` data in the shell link data list. We briefly encountered the shell link data list a while back. Now we'll dig in a little more.

```
#include <windows.h>
#include <shlobj.h>
#include <stdio.h> // Horrors! Mixing stdio and C++!
#include <atlbase.h>
#include <atlalloc.h>

int __cdecl wmain(int argc, wchar_t**argv)
{
 CCoInitialize init;

 CComPtr<IShellLink> lnk;
 CoCreateInstance(CLSID_ShellLink, 0,
                  CLSCTX_ALL, IID_PPV_ARGS(&lnk));
 CComQIPtr<IPersistFile> pf(lnk);
 pf->Load(argv[1], STGM_READ);

 CComQIPtr<IShellLinkDataList> list(lnk);
 DWORD flags;
 list->GetFlags(&flags);
 if (flags & SLDF_HAS_EXP_SZ) {
  CHeapPtr<void, CLocalAllocator> rawData;
  list->CopyDataBlock(EXP_SZ_LINK_SIG, &rawData);
  auto linkData = reinterpret_cast<EXP_SZ_LINK *>(static_cast<void *>(rawData));
  printf("Unexpanded target = %ls\n", linkData->swzTarget);
 }
 return 0;
}
```

After loading the shortcut file, we ask the `IShellLinkDataList` to inspect the shortcut flags. If the `SLDF_HAS_EXP_SZ` flag is set, then the path to the target contains an environment variable reference. To get the original unexpanded path, ask for the `EXP_SZ_LINK_SIG` data block. That returns a data block in the form of a `EXP_SZ_LINK` structure, from which you can extract the unexpanded paths.

Raymond Chen

Follow